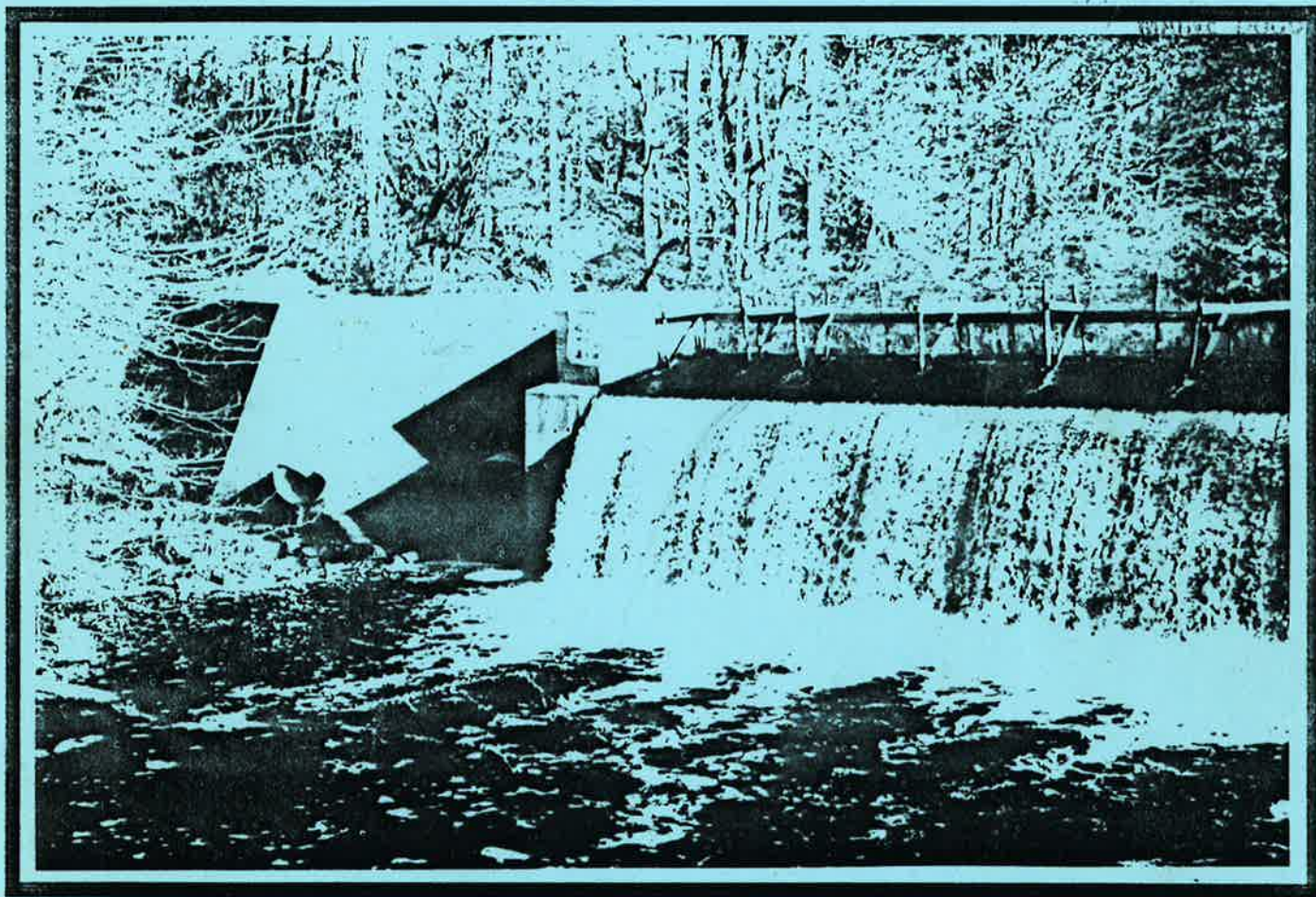


# FEASIBILITY STUDY OF MAINE'S SMALL HYDROPOWER POTENTIAL

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# **FEASIBILITY STUDY OF MAINE'S SMALL HYDROPOWER POTENTIAL**

January 1989

Prepared for: Maine State Planning Office, Richard H. Silkman, Director  
Maine Office of Energy Resources, Harvey DeVane, Director

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STATE OF MAINE  
EXECUTIVE DEPARTMENT  
STATE PLANNING OFFICE

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January 12, 1989

The following report provides basic information on the hydropower potential at sites in Maine without existing dams. Although previous studies have been performed to determine the potential for hydropower development at existing and former dams in Maine, until now no analysis of the raw hydropower potential based on topographic and hydrologic conditions has been available. We feel that this level of analysis is necessary to fill the gap in our knowledge of indigenous hydropower potential. Individually the sites identified in this report do not provide a substantial amount of power but viewed as a group they have potential to contribute significantly to Maine's diverse energy mix.

Our purpose in performing this study was to prepare data which will be useful in the future should market conditions change making hydropower a more attractive and economic development option. This study provides us with a more complete picture of the indigenous hydropower potential that exists in Maine at sites which are not precluded from development by state or federal law.

This study increases our knowledge of indigenous energy resources and will assist developers in recognizing potential sites for hydropower development. The study, however, demonstrates feasibility primarily from an engineering standpoint. The environmental impacts and economic considerations of each of the suggested sites must be assessed on a case-by-case basis and in a much more detailed and complete manner. This report makes no representation as to which hydropower projects may succeed in balancing renewable energy and significant natural resource values.

Richard H. Silkman, Director  
State Planning Office

Harvey DeVane, Director  
Office of Energy Resources

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## **PURPOSE OF STUDY**

Maine is unique by virtue of its rich endowment in river resources. Even in its early years of settlement, Maine's rivers had a great impact on the State's development and they have continued to make a significant contribution in the 20th Century. Available PURPA\* benefits and a period of rapid growth in Maine stimulated an unprecedented increase in small privately-owned domestic energy plants during the early 1980's. These projects included: hydropower, biomass and cogeneration plants whose early 1980's sales contracts with the utilities were cost-effective and remain desirable in today's markets. However, low oil prices, correspondingly low avoided-cost rates and changes in the Federal Power Act have made many previously attractive hydropower ventures no longer economically feasible. As a result, interest in the development of renewable and alternative energy sources, including hydropower, has diminished.

However, the historic unreliability of oil producers, the ever-present health risks that accompany thermal power and the recent revelation that waste discharges into the atmosphere have caused an earth-warming trend may create a future need for renewable energy alternatives, such as hydropower.

The purpose of this report is to generate a base of information on the potential for hydropower development that may become useful in the future should conditions change making development of hydropower an attractive venture once again.

Individually the potential projects cited in this report may not have a significant impact on the energy scenario in Maine, but viewed as a group they yield a substantial amount of power. This power is non-thermal, clean, renewable, and inflation-resistant and hence may become very attractive compared to most other power sources.

\*PURPA: Public Utility Regulatory Policy Act -- An amendment to the Federal Power Act passed in 1978 which required public utilities to purchase electricity from small power producers.



## **EXECUTIVE SUMMARY**

Based on the analysis performed in Phase I and II of this study, Maine has at least 28 megawatts (combined capacities of Groups I and II) of feasible undeveloped hydroelectric potential on its small rivers and streams. Given purchase power rates in the \$.06 to \$.08/kwh range, these sites would be financially feasible to build in 1989. In addition, many Group III sites would be feasible if the electricity rates for small power contracts increase above the \$.06/kwh figure used in this study.

Development of Groups I and II for hydropower could be in the best interest of the people of Maine under the following assumptions:

- 1) Indigenous, inflation-resistant renewable power production is preferred to dependence on finite foreign fuel supplies.
- 2) Many small power plants provide cumulative reliability through diversity and risk reduction in comparison to large centralized power production.
- 3) In contrast to thermal-electric plants, hydroelectric power production does not contribute to atmospheric pollution.
- 4) Although the capital costs of developing hydropower plants are significant, the fuel is free and renewable.
- 5) Hydropower can provide an appropriate power supply base to Maine's rapidly growing mountain-based recreational industry. By locating power supply near load centers, transmission costs can be significantly reduced.

The location map for this study (Appendix C) displays a cluster of small potential hydro sites distributed in a general pattern along the central chain of the Maine Appalachian Mountains from Southwest to Northeast. This mountainous region of western Maine continues to see development by the recreational ski industry. The ski industry is a significant consumer of electricity for snowmaking, chairlifts and central heating of related facilities. These ski area facilities require megawatts of utility power purchased during the period of the year that already has the highest electrical demand. A source of power in close proximity to the demand would be desirable. The mountain streams that are abundant around skiing developments could provide that source of power. Development of these high-head mountain sites could reduce electrical transmission line losses and provide an additional benefit from creation of storage ponds and lakes that could contribute to the scenic attributes of these areas and also provide snowmaking water supplies.

Appendix A shows a projected levelized rate of \$0.0771/kwh for a fifteen-year CMP power purchase contract starting on July 1, 1992. As this study was underway new projections by CMP that indicate a precipitous drop in future avoided costs have been predicted. This figure is constantly changing. The author of this study used a figure of \$0.060/kwh to be on the conservative side.



The most compelling reasons for encouraging development of the 28 mw of small hydropower identified in Groups I and II are that this indigenous power would provide a safe, non-polluting and inflation resistant means of electricity production. The best interests of Maine's people should be the rationale behind development of power which does not pose a health risk to the general public, as do many other energy sources.

However, the real benefit for the people of the state in developing these hydropower sites is the cumulative available energy from having them on line. Small hydropower sites in the aggregate are more reliable than a large single site with the same total capacity.





## SITE IDENTIFICATION PROCEDURES

This study focuses on finding potential hydropower sites of approximately 50 kw to 1000 kw in capacity. It was assumed that most sites with potential of greater than 1000 kw had already been identified and developed, but that if large new sites were found they would be included in the analysis process. Eight sites of over one megawatt were identified and listed. Several sites with capacities of less than 50 kw were also considered.

These potential small hydro sites were identified by examining all the USGS topographic maps for the state. About 1/3 of the state has been mapped at 7.5 minutes of longitude and latitude per sheet, with the remainder of the maps at 15 minutes. The more accurate 7.5 minute maps were used where available.

Potential hydroelectric sites were found on these maps by following all the river and stream segments and their tributaries upstream to their sources and locating grades of over 3% along these segments with at least 25 feet of vertical drop. Additionally, the watersheds above these steep segments must be large enough to produce the average flows necessary to establish a site with 50 kilowatts of hydroelectric capacity. At 25 feet of head the minimum drainage area needed for a 50 kw plant is approximately 20 square miles. As head increases this required watershed area would decrease proportionally. For example, a site with 800 feet of head need only have a drainage area of about 2/3 of a square mile to make 50 kilowatts. Operating hydropower projects offer examples that were used to establish the 3% grade criteria. Also, many sites with grades of over 3% were not included in the study because they presented overriding site condition problems.

Another criteria used for including a potential site in this study is that it be feasible to construct for \$2,500 per kilowatt of capacity or less. Cost estimates on some sites went above the \$2,500/kilowatt figure when they were analyzed in greater detail later in the study.

## LIMITATIONS OF THE STUDY

The accuracy of the study is contingent upon the accuracy of the maps. The constraints posed by not visiting each of the 202 sites limit this study to a "paper analysis." Therefore, the results may be inexact and are subject to further evaluation on a case-by-case basis. The reliability of the power and energy numbers derived from these contour maps is contingent upon the head of the site under consideration. Since most of the maps have a contour interval of 20 feet, sites with heads in this range are difficult to identify and impossible to locate accurately, while sites with heads of over 100 feet can be analyzed from the maps with more precision. As a result, many low-head sites of 25 feet or less are not included in this study even though they may be feasible to construct. Most of the unspecified low-head potential occurs at existing dams. The most attractive of these sites with existing dams have been examined previously with the best of them put into operation under the Public Utility Regulatory Policy Act. Inclusion of these low-head sites was outside the scope of this report. This study does not include all the feasible high-head sites in the state either. The purpose of the study was to produce a rough estimate of which rivers and streams have an appropriate combination of slope, head and watershed to constitute a feasible hydropower project. Alternative engineering and design scenarios for



some of the identified sites may produce more power than shown in this study or make more efficient use of the available water. The author underestimated in most cases to be on the conservative side. Identification of pumped storage projects was, also, outside the scope of this study. This method of peak power production is well-suited for Maine which has so many rivers and lakes in close proximity yet at different elevations.

It is not within the scope of this study to consider the environmental impacts of the sites suggested. It is primarily an engineering analysis and provides raw data for sites with hydropower potential. The environmental impacts of developing any of these potential sites must be analyzed on a case-by-case basis. Sites on river stretches protected by the Maine Rivers Act or by other State or Federal laws have also not been considered in this analysis.\* Nevertheless, an attempt was made to impute a very rough environmental assessment to each of the sites and use this assessment to evaluate the overall attractiveness for development of each site. Clearly, this is meant only as a guide and should not be construed as representing the result of an evaluation of the environmental impacts of hydropower development.

Finally, one further limitation of this study is the level of economic analysis performed. The payback figures represent a simple reconnaissance-level financial analysis, not a complete economic analysis based on return on the investment.

\*While twelve sites within Baxter State Park, Acadia National Park and on the Allagash Wilderness Waterway have potential for hydropower development and have been identified on the "maps," they are not included in this analysis because their hydro potential is unlikely ever to be realized.



## PHASE I: SITE IDENTIFICATION AND ENGINEERING ANALYSIS

### SPREADSHEET A -- ENGINEERING ANALYSIS

An Explanation of Phase I, Spreadsheet A Terms, Derivations, and Abbreviations

#: **Site numbers** generally run from South to North and West to East following the order of maps in The Maine Atlas and Gazetteer by the DeLorme Publishing Company. A copy of the DeLorme Gazetteer with site locations identified is available for examination at the State Planning Office.

Drain A: **Drainage areas** were obtained by use of a planimeter to extrapolate the watershed area directly from the USGS maps or they were taken from Drainage Areas in Maine prepared by the U.S. Department of the Interior and the Maine Department of Environmental Protection.

Re: **Runoff coefficients** were determined by calculating the long term average flow in cfs/sq.mi. (cubic feet per second per square mile) for the closest USGS gaging station to the site or that station which had the most similar watershed characteristics.

The U.S. Fish and Wildlife Service and the Maine fisheries resource agencies all recommend 0.5 cfs/sq.mi. minimum stream flow for by-passed stream segments or inflow to the project. The 0.5 cfs/sq.mi. or ABF (aquatic base flow) or median August flow is not always required in a by-passed section but is recommended downstream. This 0.5 cfs/sq.mi. was subtracted from each average flow to allow for stream segments affected by the penstock.

The USGS Water Resources Data Reports for Maine, which is a complete list of the Maine water gaging reports, were used for the flow calculations.

Design Q: **Design flow** through the hydro-turbine equals the Drainage area multiplied by the Runoff coefficient. This method of determining optimum flow capacity produces about a 50% plant factor and has been found to be the most economical. (See Introduction to Developing Micro-Hydropower in Maine, by Thomas C. Sandford.)

Top: **Proposed water elevation of the intake structure.**

Btm: **Proposed turbine runner elevation** for impulse driven high head plants or **tailwater elevation** for reaction driven low head plants.

Dia.: **Penstock Diameter** in inches that gives the optimum flow velocity of 6.5 ft/sec.

Length: **Penstock Length** as scaled from the working USGS maps.

Lh: **Loss of Head** in the penstock as a function of design flow, penstock diameter, and length.



Net H: **Net Head** equals Top elevation minus Btm elevation minus Loss of Head.  
( $\text{Net H} = \text{Top} - \text{Btm} - \text{Lh}$ )

Cap.: **Electrical capacity** of plant in kilowatts. ( $\text{Cap} = \text{Net H} \times \text{Design Q} \times .75/11.8$ ) (.75 is the overall efficiency of the equipment. 11.8 is a factor to produce a result in kilowatts)

Stor: **Estimated Storage Potential** from the USGS maps assuming 2' of drawdown. This may be from proposed reservoirs or existing lakes and ponds.

Pl. F: **Plant Factor**, a function of capacity, storage potential and design flow. Plant factor is defined as the ratio of the average annual energy actually generated by the plant to the energy which could potentially be generated if the plant operated at full capacity the entire year. (Actual/Potential)

Energy: **Yearly energy output** from each site. This equals the Plant Factor times the capacity times 8760 hrs/year.

R: **River**

Bk or Br: **Brook**

S: **Stream**

Pd: **Pond**





## ENGINEERING ANALYSIS - SPREADSHEET A - SORTED BY GEOGRAPHIC REGION (SOUTHWEST TO NORTHEAST)

#	Site Name, Town	Location Lat. Long.	Drain A. (Sq.Mi.)	Fc	Design Q (cfs)	Top (ft)	Btm. (ft)	Dia. (in)	Length (ft)	Lh (ft)	Net H (ft)	Cap. kW	Stor. Ac-ft	PIF %	Energy kW-hrs/year	#
1	L. Ossipee, N. Shapleigh	43/36' 70/53'	21.9	1.43	31.3	514	440	30.4	5200	19	55	109	200	52%	493415	1
2	Northwest R., E. Sebago	43/52' 70/39'	20.0	1.14	22.8	420	300	26.0	6300	27	93	134	826	59%	695758	2
3	Highland R., Bridgton	44/03' 70/43'	19.9	1.59	31.6	424	274	30.6	8000	29	121	243	1660	63%	1341862	3
4	Royal R., U. Gloucester	44/00' 70/18'	12.9	1.14	14.7	290	230	20.9	1500	8	52	49	50	51%	216254	4
5	Piscataqua R., W. Cumberland	43/48' 70/18'	6.1	1.44	8.8	255	130	16.1	2000	14	111	62	30	51%	276314	5
6	Cathance R., Topsham	43/57' 69/48'	46.0	1.38	63.5	90	16	43.3	3500	9	65	262	3600	64%	1473061	6
7	Keoka L., Waterford	44/10' 70/43'	7.1	1.59	11.3	495	376	18.3	5280	32	87	62	800	68%	366680	7
8	Marshall Pond, W. Minot	44/10' 70/24'	10.1	1.49	15.0	343	275	21.1	1000	5	63	30	230	54%	2826699	8
9	Swan Pond, Buckfield	44/19' 70/20'	2.7	1.33	3.5	575	330	10.2	8000	88	157	35	40	53%	162222	9
10	Snow Falls, West Paris	44/18' 70/32'	74.0	1.33	98.4	455	415	53.9	350	1	39	246	640	52%	1111012	10
11	Sandborn R., Willis Mill	44/18' 70/39'	5.2	1.33	6.9	860	690	14.3	4000	31	139	61	50	52%	276633	11
12	Chapman Br., Bethel	44/26' 70/50'	3.7	2.06	7.6	850	660	15.0	6000	45	145	70	0	50%	308158	12
13	Lower Stony Br., Newry	44/29' 70/47'	3.9	1.42	5.5	860	640	12.8	1500	49	171	60	0	50%	263611	13
14	Bog Brook, Gilead	44/23' 70/55'	6.0	2.06	12.4	790	680	19.1	1400	8	102	80	320	56%	395606	14
15	Twitchell Brook, Gilead	44/24' 70/58'	2.1	2.06	4.3	1120	740	11.3	7000	69	311	85	0	50%	374164	15
16	Jordan Brook, Riley	44/29' 70/55'	1.3	2.06	2.7	1570	890	9.0	9000	112	568	99	0	50%	433265	16
17	U. Sunday River, Riley	44/29' 70/56'	7.7	2.06	15.9	1190	1015	21.7	5500	28	147	148	0	50%	647095	17
18	Merrill Brook, Newry	44/29' 70/53'	1.4	2.06	2.8	1500	810	9.1	8000	99	591	105	0	50%	457726	18
19	S. Branch Sunday R., Riley	44/28' 70/57'	1.1	2.06	2.3	1740	1200	8.2	7200	98	442	64	0	50%	278528	19
20	W. Br. Pleasant R., Mason	44/21' 70/51'	11.2	2.06	23.1	775	720	26.1	2500	11	44	65	0	50%	284358	20
21	Upper Larry Br., Riley	44/26' 71/01'	5.3	2.06	10.9	1445	1130	18.0	6000	37	278	193	0	50%	843708	21
22	Lower Larry Br., Riley	44/24' 70/01'	9.6	2.06	19.8	1125	700	24.2	12000	56	369	464	0	50%	2033615	22
23	Howard Pond Br., Harover	44/30' 70/41'	3.8	1.42	5.4	1020	640	12.7	5000	44	336	116	160	57%	581845	23
24	Long Pd., N. Livermore	44/26' 70/12'	3.5	1.33	4.6	473	313	11.6	5000	48	112	32	380	71%	200611	24
25	Wilson Pd., N. Monmouth	44/17' 70/02'	16.4	1.39	22.8	242	200	26.0	2000	9	33	48	1530	67%	282803	25
26	Vaughn Br., Hallowell	44/16' 69/47'	5.5	1.66	9.1	185	25	16.4	2700	18	142	82	7	50%	361259	26
27	Dresden Bog, Dresden Mills	44/06' 69/42'	6.6	1.2	7.9	168	18	15.3	10000	73	77	39	690	72%	243082	27
28	Eastern R., E. Pittston	44/11' 69/40'	15.3	1.2	18.4	95	25	23.3	1200	6	64	75	23	50%	330341	28
29	Crawford Pd., South Union	44/12' 69/15'	30.5	1.73	52.8	100	40	39.5	800	2	58	194	910	54%	921118	29
30	St. George R., Union	44/14' 69/17'	106.0	1.73	183.4	87	57	73.6	1000	2	28	332	1020	51%	1494177	30
31	Pitcher Pd., Lincolnville	44/19' 69/02'	8.9	1.73	15.4	204	120	21.3	2500	13	71	69	760	62%	378747	31
32	Oyster R., East Warren	44/07' 69/12'	18.0	1.73	31.1	55	6	30.3	1200	4	45	88	0	50%	386352	32
33	Shaw Brook, Northport	44/20' 68/57'	3.4	1.73	5.9	256	6	13.2	2800	24	226	85	0	50%	370431	33
34	Little River, Belfast	44/24' 69/00'	16.1	1.73	27.9	59	25	28.7	1000	4	30	53	69	51%	236239	34
35	Goose R., East Belfast	44/26' 69/00'	20.1	1.73	34.8	100	20	32.1	800	3	77	171	43	50%	751981	35
36	Passagassawakeag R., E. Blist.	44/27' 69/03'	43.5	1.73	75.3	50	10	47.2	1500	4	36	174	0	50%	763296	36
37	Lake St. George, Liberty	44/24' 69/20'	5.7	1.73	9.9	509	330	17.1	3000	20	159	100	2800	121%	1058284	37
39	Pond Brook, Grafton	44/33' 70/57'	0.8	2.06	1.6	250	180	7.0	4000	64	636	67	0	50%	291723	39
40	Bull Branch, Riley	44/31' 70/56'	5.1	2.06	10.5	1530	1140	17.6	9000	57	333	222	0	50%	973328	40
41	Goose Eye Brook, Riley	44/31' 70/56'	1.8	2.06	3.7	1560	1140	10.5	5200	56	364	86	0	50%	376147	41
42	Dunn Falls, Andover N.S.	44/39' 70/54'	24.1	2.06	49.6	1460	1090	38.3	9500	28	342	1080	550	53%	4991475	42
43	Five Br., Andover WS	44/38' 70/51'	3.0	2.06	6.2	1450	990	13.5	4500	37	423	166	0	50%	727256	43
44	Stony Brook, Andover	44/38' 70/47'	3.5	1.54	5.4	1450	800	12.6	9200	82	568	193	0	50%	852863	44
45	Great Brook, Newry	44/31' 70/49'	1.9	2.06	3.9	1230	740	10.8	4500	47	413	103	0	50%	450183	45
46	Chase Hill Brook, Newry	44/33' 70/49'	2.0	2.06	4.1	1420	900	11.0	5000	51	469	123	35	52%	561097	46
47	Whitcap Br., Grafton	44/38' 70/56'	1.9	2.06	3.9	1780	1480	10.8	8000	83	217	54	0	50%	236146	47
48	Burroughs Br., Andover NS	44/39' 70/51'	1.8	2.06	3.7	1270	940	10.5	6200	66	264	62	0	50%	272203	48



## ENGINEERING ANALYSIS - SPREADSHEET A - SORTED BY GEOGRAPHIC REGION (SOUTHWEST TO NORTHEAST)

#	Site Name, Town	Location Lat. Long.	Drain A. (Sq. Mi.)	Rc	Desgn. Q. (cfs)	Top (ft)	Btm. (ft)	Dia. (in.)	Length (ft)	Lh (ft)	Neth (ft)	Cap. kW	Stor. Ac-ft	PIF %	Energy kW-hrs/year	#
49	Abbott Brook, Andover	44/39° 70/32°	1.5	2.06	3.1	1260	770	9.6	5500	64	426	84	0	50%	366087	49
50	Moody Br., Andover NS	44/41° 70/48°	1.3	2.06	2.7	1400	840	8.9	6000	75	485	82	0	50%	361213	50
51	U. Black Br., Andover NS	44/43° 70/46°	4.5	1.54	6.9	1420	1080	14.3	9500	67	273	120	0	50%	527619	51
52	Sawyer Br., Andover NS	44/41° 70/47°	6.0	1.54	9.2	1000	780	16.5	8500	64	156	91	0	50%	400279	52
53	Wight Br., Newry	44/34° 70/52°	3.0	2.06	6.2	1580	900	13.5	7000	58	622	244	0	50%	1070115	53
54	Upper Miles Notch, Riley	44/32° 70/54°	1.2	2.06	2.5	1700	1170	8.5	5000	65	465	73	0	50%	319675	54
55	Lower Miles Notch, Riley	44/31° 70/54°	3.0	2.06	6.2	1160	970	13.5	4000	33	157	62	0	50%	269862	55
56	Howe Br., Andover	44/33° 70/43°	1.8	1.54	2.8	1000	690	9.1	4800	59	251	44	0	50%	193416	56
57	Ellis Falls, Andover	44/38° 70/42°	3.30	1.42	46.9	755	715	37.2	500	2	38	115	0	50%	502166	57
58	L. Black Br., Andover NS	44/41° 70/44°	5.2	1.54	8.0	985	850	15.4	4100	30	105	54	0	50%	234419	58
59	Swift R. Coos Canyon, Byron	44/43° 70/38°	89.0	1.54	137.1	860	825	63.7	900	2	33	291	0	50%	1274948	59
60	Garland Br., Byron	44/41° 70/41°	9.6	1.54	14.8	1050	860	20.9	5000	27	163	153	0	50%	776190	60
61	E. Br. Swift R., Byron	44/44° 70/38°	20.0	1.54	30.8	1160	990	30.2	8000	30	140	275	0	50%	1202843	61
62	Noisy Brook, Roxbury	44/41° 70/36°	2.8	1.54	4.2	1180	740	11.2	2000	20	420	113	0	50%	506846	62
63	Walker Brook, Roxbury	44/39° 70/35°	5.1	1.54	7.9	1030	700	15.2	7000	51	279	139	0	50%	609026	63
* 64	Androscoggin R., Rumford	44/31° 70/31°	2069.0	3.38	693.2	615	410	45.8	4500	1	204	90625	0	15%	119081068	64
65	Snowman Bk., Weld	44/31° 70/28°	1.5	1.54	2.3	1090	690	8.3	7000	95	305	45	0	50%	196252	65
66	Swett Brook, Weld	44/42° 70/28°	2.0	1.54	3.1	980	690	9.5	6200	73	217	43	0	50%	186283	66
67	Webb River, Dixfield	44/32° 70/27°	132.0	1.37	180.8	415	390	73.1	400	1	24	280	40	50%	1229060	67
68	Webb River, Berry Mills	44/37° 70/27°	95.0	1.37	130.2	520	480	62.0	2400	4	36	295	0	50%	1292047	68
69	Aunt Hannah Bk., Dixfield	44/34° 70/26°	4.4	1.54	6.8	630	440	14.2	7500	59	131	56	0	50%	246450	69
70	Beaver Pond Bk., Dixfield	44/31° 70/22°	1.7	1.54	2.5	800	430	8.7	3200	41	329	53	0	50%	332495	70
71	East Bk., Weld Corner	44/44° 70/26°	15.0	1.54	23.1	755	680	26.1	4500	19	56	82	45	50%	361691	71
72	Houghton Bk., Weld	44/42° 70/24°	9.6	1.54	14.8	940	700	20.9	7000	38	202	190	0	50%	833360	72
73	Alder Bk., Hildritts Mill	44/40° 70/22°	7.6	1.54	11.7	1210	900	18.6	6500	39	271	201	60	51%	905125	73
74	Edes Brook, Temple	44/43° 70/31°	2.3	1.37	3.2	930	600	9.7	6200	72	258	52	0	50%	226387	74
75	Temple Brook, Wilton	44/39° 70/17°	3.2	1.37	4.4	1000	630	11.4	9500	93	277	77	0	50%	337524	75
76	Upper Alder Bk., Temple	44/42° 70/20°	3.0	1.54	4.6	1420	1235	11.7	5000	48	137	40	0	50%	176319	76
77	Berry Brook, Carthage	44/38° 70/25°	1.3	1.54	2.0	1000	600	7.7	7000	102	298	38	0	50%	166169	77
78	Metalak Bk., Richardson	44/49° 70/50°	5.2	1.8	9.4	1800	1454	16.6	9500	64	282	168	0	50%	734877	78
79	Metalak Stream, Richardson	44/49° 70/51°	2.0	1.8	3.6	1860	1454	10.3	7500	81	325	74	380	76%	497006	79
80	Mountain Bk., TWP D	44/47° 70/43°	3.0	1.54	4.6	2160	1280	11.7	4500	43	837	246	32	52%	1113640	80
81	W. Br. Swift R., Byron	44/45° 70/40°	5.3	1.54	8.2	1380	1020	15.5	8000	58	302	157	0	50%	686916	81
82	Bemis Stream, TWP D	44/48° 70/44°	2.5	1.54	3.9	2400	1700	10.7	9400	99	601	147	0	50%	644518	82
83	Mott Stream, TWP E	44/47° 70/39°	1.8	1.54	2.8	1740	1200	9.1	11000	136	404	71	0	50%	311735	83
84	Four Ponds Bk., TWP D	44/50° 70/42°	2.7	1.54	4.2	2330	1540	11.1	10000	101	689	182	460	78%	1238716	84
85	Stock Bk. Swift R., TWP 6	44/35° 70/35°	3.2	1.54	4.9	1720	1400	12.1	7000	65	255	80	0	50%	349909	85
86	Swift River, TWP E	44/47° 70/38°	7.9	1.54	12.2	1570	1200	19.0	10000	59	311	240	0	50%	1053063	86
87	Chandler Mill S., TWP E	44/52° 70/32°	3.9	1.54	6.0	1535	1025	13.3	10000	84	426	163	0	50%	712190	87
88	Sandy River, TWP E	44/52° 70/32°	5.1	1.54	7.9	1425	1025	15.2	9500	70	330	165	0	50%	721897	88
89	Jont Stream, TWP 6	44/48° 70/30°	1.9	1.54	2.9	1450	1100	9.3	6000	72	278	52	0	50%	226266	89
90	Saddleback S., Madrid	44/53° 70/29°	2.0	1.54	3.1	1740	1080	9.5	7500	88	572	112	0	50%	490457	90
91	Perham Stream, Madrid	44/55° 70/24°	15.1	1.52	23.0	1240	1050	26.1	4800	21	169	247	0	50%	1082068	91
92	Quick Stream, Salem	44/55° 70/19°	2.3	1.52	3.5	1700	1060	10.2	8500	94	546	121	0	50%	531768	92
93	Conant Stream, Madrid	44/54° 70/26°	3.9	1.52	5.9	1410	890	13.2	10000	85	435	164	0	50%	718535	93
94	Mt. Blue Stream, Avon	44/47° 70/16°	10.8	1.54	16.6	800	500	22.2	9500	48	252	266	0	50%	1166771	94
95	Falls Brook, West Mills	44/46° 70/01°	9.0	1.52	13.7	490	375	20.1	4000	22	93	81	0	50%	353089	95

\*Site #64 is financially feasible if built primarily as a flood control project.



## ENGINEERING ANALYSIS - SPREADSHEET A - SORTED BY GEOGRAPHIC REGION (SOUTHWEST TO NORTHEAST)

#	Site Name, Town	Location	Lat.	Long.	Drain A. (Sq.Mi.)	Rc	Design Q (cfs)	Top (ft)	Btm. (ft)	Dia. (in.)	Length (ft)	Lh NetH (ft)	Cap. KW	Stor. Ac-ft	PIF %	Energy KW-hrs/year	#
96	Lemon Stream, West Mills	44/46'	70/00'	9.3	1.52	14.1	470	375	20.4	4500	25	70	63	40	51%	280709	96
97	Martin Stream, Plymouth	44/46'	69/13'	57.8	1.17	67.6	269	215	44.7	3000	8	46	200	730	53%	922208	97
98	Sandy Stream, Freedom	44/32'	69/18'	7.8	1.73	13.5	456	380	20.0	1500	8	68	58	610	61%	311277	98
99	Marsh Stream, Monroe Cir.	44/35'	69/02'	26.2	1.73	45.3	300	210	36.6	2500	8	82	237	46	50%	1044305	99
100	Silver Lake, Bucksport	44/35'	68/47'	5.9	1.73	10.2	123	6	17.4	6200	40	77	50	918	72%	317252	100
101	Toddy Pond, E. Oland	44/34'	68/41'	25.2	1.73	43.6	163	26	35.9	2800	9	128	355	3200	68%	2127888	101
102	Frost Brook, N. Mariaville	44/47'	68/25'	6.1	1.73	10.6	250	130	17.7	1800	11	109	73	690	66%	423289	102
103	Beech Hill Pond, Otis	44/40'	68/26'	9.3	1.73	16.1	199	108	21.8	3000	15	76	77	2200	84%	570019	103
104	Tunk S., Smithville	44/32'	67/57'	38.0	1.71	65.0	65	35	43.8	600	2	28	118	55	50%	517104	104
105	W. Br. L. Magalloway R., T5R4	45/08'	71/02'	3.9	1.8	7.0	1900	1560	14.4	7000	54	286	127	0	50%	558098	105
106	Moose Brook, T5R4	45/09'	70/57'	11.6	1.8	20.9	1780	1540	24.8	6200	28	212	281	135	52%	1272350	106
107	Magalloway River, T5R4	45/07'	70/59'	104.0	1.42	147.7	1622	1522	66.1	6000	10	90	843	1800	53%	3917499	107
108	Cupsupic River, T4R4	45/05'	70/53'	35.4	1.8	63.7	1800	1510	43.4	6600	17	273	1105	780	53%	5138184	108
109	Tim Pond Brook, T2R4	45/11'	70/37'	5.8	1.42	8.2	2005	1860	15.5	2300	17	128	67	610	69%	400937	109
110	Lower Tim Br., Eustis	45/12'	70/31'	22.5	1.42	32.0	1260	1200	30.7	3000	11	49	100	23	50%	437922	110
111	Reed Brook, Eustis	45/10'	70/30'	2.3	1.8	4.1	1500	1220	11.1	7200	73	207	55	0	50%	238717	111
112	Alder Stream, T2R5	45/14'	70/37'	32.0	1.8	57.6	1660	1345	41.3	5800	16	299	1096	640	53%	5064974	112
113	N. Br. Alder Stream, T2R5	45/16'	70/41'	2.0	1.8	3.6	2200	1760	10.3	4800	52	388	89	18	51%	399476	113
114	L. Cascade S., Sandy River	44/55'	70/35'	5.3	1.54	8.2	1909	1530	15.6	7000	50	329	172	70	52%	784569	114
115	U. Cascade S., Sandy River	44/55'	70/34'	2.1	1.54	3.2	2400	1940	9.8	6500	74	386	79	28	52%	362161	115
116	Hardy Stream, Madrid	44/56'	70/26'	2.4	1.52	3.6	1600	1190	10.4	7400	80	330	77	0	50%	335353	116
117	Oberton Stream, Madrid	44/58'	70/24'	8.3	1.52	12.6	1570	1360	19.3	6500	38	172	138	142	53%	639167	117
118	Rapid Stream, Kingfield	44/57'	70/14'	11.1	1.52	16.9	1000	720	22.3	10000	50	230	246	0	50%	1079492	118
119	Alder Brook, Kingfield	44/57'	70/12'	5.7	1.52	8.7	830	600	16.0	5500	38	192	105	0	50%	461901	119
120	Tufts Pond Brook, Kingfield	44/57'	70/12'	2.0	1.52	3.0	910	600	9.5	7100	84	226	44	83	57%	217518	120
121	Carbou Valley, Bigelow	45/04'	70/20'	9.2	1.52	14.0	2100	1300	20.3	16000	88	712	633	0	50%	2771154	121
122	Stoney Brook, Stratton	45/06'	70/22'	6.5	1.52	9.9	1540	1290	17.1	6500	43	207	130	0	50%	570433	122
123	Hammond Field Bk, Carrabass.	54/02'	70/12'	2.9	1.52	4.4	1030	750	11.4	4100	40	240	67	0	50%	294245	123
124	Reed Brook, Kingfield	45/01'	70/11'	2.3	1.52	3.5	1080	660	10.2	4300	47	373	83	0	50%	362673	124
125	Butler Pond, Lexington	45/01'	70/06'	2.3	1.52	3.5	1180	550	10.2	7500	83	547	122	83	56%	595997	125
126	Sandy Stream, Highland Plm	45/05'	70/02'	31.5	1.52	47.9	810	500	37.6	12500	37	273	830	0	50%	3635575	126
127	Houston Bk, Pleasant Ridge	45/10'	69/57'	18.0	1.52	27.4	620	500	28.4	1800	7	113	196	180	52%	888266	127
128	Caring Place S., T1R3	45/10'	69/59'	15.4	1.42	21.9	660	500	25.4	3400	15	145	202	0	50%	882819	128
129	Pierce Pond S., T1R3	54/14'	70/01'	19.0	1.42	27.0	1142	500	28.2	13800	55	587	1007	2284	71%	6277618	129
130	Pleasant P. S., Carratunk	45/14'	69/59'	16.3	1.42	23.1	860	570	26.2	7200	31	259	381	1500	66%	2210966	130
131	Austin Stream, Moscow	45/08'	69/48'	64.4	1.52	97.9	990	800	53.8	3500	7	183	1137	1100	53%	5258589	131
132	Kelly Brook, The Forks	45/16'	69/58'	3.8	1.52	5.8	900	520	13.1	7000	60	320	117	0	50%	514562	132
133	Holly Brook, The Forks	45/18'	69/58'	2.7	1.52	4.1	1200	555	11.0	11000	112	533	139	0	50%	609158	133
134	Fall Brook, Solon	44/57'	69/51'	29.8	1.52	45.3	390	280	36.6	1500	5	105	303	92	51%	1342643	134
135	Wyman Pond, Brighton	45/01'	69/42'	3.9	1.42	5.5	776	630	12.7	6500	57	89	31	620	78%	211641	135
136	E. Br. Wessersunett S., Brighton	45/03'	69/42'	6.3	1.52	9.6	924	760	16.9	7000	46	118	72	780	70%	442318	136
137	Wellington Bog, Wellington	45/04'	69/37'	7.9	1.42	11.2	675	235	18.2	6600	41	399	285	550	62%	1553075	137
138	W. Br. Piscataquis R., Blanchard	45/17'	69/38'	70.2	1.42	106.7	840	670	56.2	4800	10	160	1088	0	50%	4765164	138
139	Ferguson Bk., Harmony	45/02'	69/29'	9.3	1.42	13.2	520	360	19.8	8500	48	112	94	0	50%	411026	139
140	Cold Stream Pond, Enfield	45/15'	68/34'	28.5	1.39	39.6	190	140	34.2	2000	7	43	109	7680	98%	943638	140
141	Gristmill Pk., Elwell	45/12'	68/29'	15.8	1.39	22.0	275	215	25.5	2500	11	49	68	1720	70%	416936	141
142	Lombard Stream, Lakeville	45/19'	68/09'	6.9	1.26	8.7	470	342	16.0	3200	22	106	58	460	63%	323326	142



## ENGINEERING ANALYSIS - SPREADSHEET A - SORTED BY GEOGRAPHIC REGION (SOUTHWEST TO NORTHEAST)

#	Site Name, Town	Location Lat. Long.	Drain A. (Sq.Mi.)	Rc	Design Q (cfs)	Top (ft)	Btm. (ft)	Dia. (in.)	Length (ft)	Lh (ft)	NatH (ft)	Cap. KW	Stor. Ac-ft	PIF %	Energy KW-hrs/year	#
143	Massachusetts Bog, T3R6	45/21' 70/47'	11.8	1.8	21.2	1670	1535	25.1	2800	13	122	165	600	57%	826499	143
144	Clearwater Stream, T2R6	45/21' 70/40'	4.1	1.8	7.4	1520	1300	14.8	2500	19	201	94	0	50%	413044	144
145	Gold Brook, T1R6	45/20' 70/37'	3.1	1.8	5.6	2000	1300	12.8	10000	87	613	217	0	50%	951937	145
146	Crocker Pond, Dennisown	45/41' 70/20'	3.2	1.42	4.5	1454	1245	11.6	2800	27	182	53	460	75%	346664	146
147	Stony Brook, T6R2	45/39' 70/28'	7.3	1.42	10.4	1575	1335	17.5	4000	26	214	141	200	55%	678406	147
148	Enchanted Stream, T2R5	45/20' 70/06'	30.0	1.8	54.0	1000	815	40.0	6400	18	167	573	0	50%	2511127	148
149	Gulf Stream, West Forks	45/21' 70/04'	3.1	1.8	5.6	910	730	12.8	3100	27	153	54	0	50%	237624	149
150	Salmon Stream, West Forks	45/22' 70/01'	24.3	1.8	43.7	800	630	36.0	5000	16	154	429	0	50%	1880236	150
151	Dugin Brook, West Forks	45/21' 69/59'	3.5	1.8	6.3	880	600	13.6	5100	42	238	95	0	50%	417672	151
152	Cold Stream, West Forks	45/24' 70/00'	31.3	1.8	56.3	1000	850	40.8	5500	15	135	483	0	50%	2115673	152
153	Tomhegan S., West Forks	45/24' 69/58'	10.1	1.8	18.2	930	800	23.2	3800	18	112	129	0	50%	564983	153
154	Moxie Falls, Moxie Gore	45/22' 69/56'	92.9	1.42	131.9	805	615	62.5	3000	5	185	1548	3500	57%	7679179	154
155	Black Brook, Moxie Gore	45/25' 69/54'	19.2	1.42	27.3	893	690	28.4	4000	16	187	324	640	56%	1587688	155
156	Dead Stream Pond, W.Forks	45/27' 69/55'	7.8	1.42	11.1	980	720	18.1	5000	31	239	168	140	53%	783662	156
157	Chase Stream, T1R6	45/27' 69/54'	18.1	1.42	25.7	940	750	27.6	5000	20	170	277	110	51%	1239997	157
158	E.Br.Piscataquis R., Shirley	45/20' 69/37'	27.8	1.52	42.3	910	715	35.3	3800	12	183	491	26	50%	2156742	158
159	U.L.Wilson S., Ellitsville	45/22' 69/31'	7.1	1.52	10.8	1070	975	17.9	2700	17	78	54	28	51%	237581	159
160	L.L.Wilson S., Ellitsville	45/22' 69/31'	13.5	1.52	20.5	900	540	24.6	6500	30	330	431	20	50%	1896770	160
161	Long Pond S., Ellitsville	45/25' 69/24'	23.7	1.42	33.7	885	600	31.5	5300	19	266	569	1470	61%	3038298	161
162	Big Benson P., Willimantic	45/21' 69/20'	4.8	1.42	6.8	716	435	14.2	5000	39	242	105	430	66%	603972	162
163	South Brook, Beaver Cove	45/34' 69/28'	5.9	1.52	9.0	1340	1180	16.3	2400	17	143	82	10	50%	360231	163
164	Gulf Hags Br., T1R10	45/29' 69/18'	4.0	1.52	6.1	980	660	13.4	3200	27	263	102	0	50%	445609	164
165	Hay Brook, T7R10	45/29' 69/16'	5.1	1.52	7.8	800	650	15.1	2100	16	134	66	0	50%	290179	165
166	White Brook, T7R10	45/30' 69/16'	8.3	1.52	12.6	970	750	19.3	4600	27	193	155	0	50%	678948	166
167	Shanty Mtn. Br., TBR11	45/32' 69/10'	1.5	1.52	2.3	1450	1050	8.2	5000	68	332	48	0	50%	210619	167
168	Mud Gauntlet Br., TBR10	45/32' 69/03'	4.9	1.52	7.4	920	695	14.8	3800	29	196	92	34	51%	411876	168
169	E.Br.Pleasant R., TBR10	45/31' 69/02'	48.8	1.52	74.2	785	695	46.8	2500	6	84	396	0	50%	1734861	169
170	S.Br. Penobscot, T4R4	45/51' 70/12'	53.6	1.52	81.5	1445	1395	49.1	3000	7	43	223	0	50%	978566	170
171	Cheney Pond, T3R4	45/54' 70/11'	19.3	1.42	27.4	1519	1415	28.5	3000	12	92	161	1500	64%	895824	171
172	Ragged Lake, T2R12	45/47' 69/19'	39.8	1.42	56.5	1135	995	40.9	4000	11	129	463	5500	74%	3017855	172
173	Pollywog Pond, T2R11	45/47' 69/11'	47.6	1.42	67.6	995	700	44.7	6000	15	190	816	280	51%	3648288	173
174	Rainbow Stream, T2R11	45/47' 69/10'	17.3	1.42	24.6	950	670	27.0	5400	22	258	402	2570	76%	2682619	174
181	Traveler Brook, T5R8	46/03' 68/48'	1.2	1.52	1.8	1500	760	7.3	9200	140	600	70	0	50%	304551	181
182	Lunksos Lake, T4R7	45/59' 68/41'	4.2	1.29	5.4	670	400	12.7	5800	51	219	75	550	75%	497244	182
183	Kimball Brook, T4R7	46/01' 68/35'	6.3	1.52	9.6	640	400	16.8	7500	50	190	116	83	52%	528645	183
184	Wassataquoik S., T3R7	45/54' 68/38'	112.5	1.52	171.0	500	400	71.1	8000	13	87	950	0	50%	4159562	184
185	Shin Brook Falls, T6R7	46/07' 68/36'	31.8	1.45	46.1	665	475	36.9	6000	18	172	503	23	50%	2210571	185
186	Sawtelle Br. Falls, T6R7	46/08' 68/38'	61.4	1.45	89.0	610	520	51.3	6200	14	76	433	10	50%	1895799	186
187	Dunn Brook, Ludlow	46/09' 68/03'	3.3	1.45	4.8	740	500	11.9	7100	67	173	53	207	61%	280542	187
188	Mill Brook, Ludlow	46/09' 67/59'	7.1	1.45	10.3	565	440	17.4	9500	61	64	42	0	50%	163412	188
189	Shields Brook, Masardis	46/30' 68/25'	7.8	1.45	11.3	640	550	18.3	6500	40	50	36	690	65%	206171	189
190	Squa Pan Lake, Masardis	46/33' 68/20'	65.8	1.19	78.3	602	575	48.1	1000	2	25	123	8300	76%	822758	190
191	Number Nine Lake, TDR2	46/25' 68/03'	1.8	1.29	2.3	1083	790	8.2	7600	104	189	27	138	65%	154969	191
192	Three Brooks, Robinsons	46/28' 67/51'	23.6	1.45	34.2	400	350	31.8	4000	14	36	78	18	50%	342927	192
193	Musquacook S., T1R11	46/42' 69/11'	76.2	1.45	110.5	1070	980	57.2	4600	9	81	569	2870	56%	2814135	193
197	Little Rocky Br., T11R10	46/37' 68/59'	4.8	1.45	7.0	1180	1050	14.3	4100	32	98	43	0	50%	189856	197
198	N.Branch Fox Br., T13R8	46/48' 68/49'	10.6	1.45	15.4	845	755	21.3	4600	24	66	64	29	50%	284290	198





## ENGINEERING ANALYSIS - SPREADSHEET A - SORTED BY GEOGRAPHIC REGION (SOUTHWEST TO NORTHEAST)

#	Site Name, Town	Location Lat. Long.	Drain A. (Sq.Mi.)	Re Design Q (cfs)	Top (ft)	Btm. (ft)	Dia. (in.)	Length (ft)	Lh NetH (ft)	Cap. kW	Stor. Ac-ft	PLF %	Energy kW-hrs/year	#		
199	Fish River Falls, T14R8	46/51' 68/44'	134.0	1.11	148.7	710	675	66.3	1000	2	33	315	5500	59%	1634220	199
200	Red River Falls, T14R8	46/55' 68/44'	24.6	1.45	35.7	730	640	32.5	4000	14	76	173	0	50%	756599	200
201	Gardner Bk., Wade	46/46' 68/14'	13.3	1.27	16.9	520	460	22.3	4500	23	37	40	35	51%	177851	201
202	Preslie Bk., Caribou	46/50' 68/00'	5.2	1.45	7.5	500	390	14.9	4000	30	80	38	21	51%	170243	202
203	Hardwood Bk., Maysville	46/47' 67/59'	6.2	1.45	9.0	500	405	16.3	6400	44	51	29	0	50%	127697	203
206	Wyles Bk., Allagash	47/07' 68/58'	3.1	1.27	3.9	780	570	10.8	5500	57	153	38	0	50%	167598	206
207	Wiggins Bk., St. Francis	47/07' 68/57'	6.0	1.27	7.6	700	560	15.0	4900	37	103	50	23	51%	222724	207
208	McLean Bk., St. Francis	47/07' 68/55'	4.5	1.27	5.7	840	560	13.0	4400	38	242	88	0	50%	385162	208
209	Petite Bk., St. Francis	47/08' 68/54'	4.9	1.27	6.2	810	660	13.6	6000	50	100	40	0	50%	174031	209
210	Thibideau Bk., St. Francis	47/11' 68/52'	5.2	1.27	6.6	770	500	14.0	7700	62	208	87	0	50%	382915	210
211	Gilmore Bk., Eagle Lake	47/06' 68/36'	2.3	1.27	2.9	900	580	9.3	5900	71	249	46	0	50%	202413	211
212	Fall Bk., New Canada	47/08' 68/33'	6.1	1.27	7.7	740	590	15.1	4200	31	119	59	69	52%	267880	212
213	Gagnon Bk., Frenchville	47/19' 68/23'	6.1	1.27	7.7	620	460	15.1	4800	36	124	61	0	50%	268448	213
214	Martin Bk., Hamlin	47/04' 67/51'	10.1	1.27	12.8	630	555	19.5	1400	8	67	55	138	53%	251914	214

## CAPACITY

## ANNUAL ENERGY YIELD

Totals with Site #64, Androscoggin R., Rumford:

130,041 kw  
39,416 kw306,522,637 kwh  
187,441,569 kwh



## PHASE II: ECONOMIC ANALYSIS

### SPREADSHEET B -- ECONOMIC FEASIBILITY ANALYSIS

An Explanation of Phase II, Spreadsheet B Terms and their Derivations (see Appendix B for more detail)

Site number, name, town, location, and capacity are taken directly from the Phase I spreadsheets.

- Phase:        **Number of phases**, either 1 or 3, in the closest electrical utility line. Generally 3-phase lines serve high demand electric customers or those in more developed areas. They are also used to transmit electricity over long distances. Single phase lines are mostly located at the end of the electrical circuit and serve rural, low demand customers.
- Energy:       **Kilowatt hours/year** generated for the project. If the site is interconnected with a 3-phase line a 5% increase in yearly energy output is included because of the inherently higher efficiency of the equipment involved.
- Gr. Income:   **Levelized annual gross income** based on Table 2 of CMP's December 4, 1987 Request for Proposals for a 15-year contract with an initial date of delivery of July 1, 1992. 77.82% of the 87 C decrement avoided cost rates have been used in this study. (Price per kw/hr = \$0.0600. See Appendix A.)
- Dev. cost:    **Development cost** of the project including utility interconnection but not including transmission lines. This column was generated to reflect the assumption that new transmission lines may be paid for by non-hydro-related developments.

Projects with penstocks of up to 30" in diameter have been priced using 1988 costs for PVC pipe. The development of PVC pipe with its low cost and long service life has now made many small high head projects with long penstocks economically feasible.

Projects requiring penstocks of over 30" have been estimated using 1988 steel pipe or steel plate plus fabrication prices. Development cost is the total of the penstock cost plus the following which include installation and construction costs:

Intake structures --	@ \$200/kw of capacity
Electrical equipment --	@ \$150/kw of capacity
Mechanical equipment --	@ \$300/kw of capacity
Powerhouses --	@ \$100/kw of capacity
Engineering, Legal --	@ \$100/kw of capacity
Miscellaneous --	@ \$ 50/kw of capacity



- Trans D:      **Transmission distance** to the closest utility line was obtained from utility company records or directly from field measurements. Distances marked with a ^ in this column are to the next closest proposed hydro project to be interconnected. If only one of these clustered sites is built then the cost of the whole transmission line must be assigned to that site.
- Trans Cst:      **Transmission Cost** based on \$15,000/mile for single phase, and \$20,000/mile for 3-phase.
- Total Dev Cost:      **Total Development Cost** = Development Cost plus Transmission Cost
- Est Net Inc:      **Estimated Net Income** = Gross Income minus operations and maintenance (30% of Gross Income).
- PB1:      **Payback 1** in years on the capital investment not including the cost of the transmission line (Dev Cost/Est Net Inc).
- PB2:      **Payback 2** in years on the total capital investment, including cost of the transmission line (Total Dev Cost/Est Net Inc).
- NOTE: Both of these payback figures represent a reconnaissance level financial analysis not a complete economic analysis based on return on the investment.
- Prel. Rank:      **Preliminary Rank** in order from best payback 2 to worst payback 2, not considering environmental factors.
- Env. Factor:      **Environmental factor.** In an attempt to quantify the adverse impact that these projects might have on the environment, each project was assigned a coefficient ranging from 1.0 to 2.0 (1.0, 1.1, 1.2,... 2.0). The coefficient factor assigned to each site is an educated guess based on the data available through the interpolation of USGS topographical maps, subjective judgement and the author's personal knowledge of the site. The environmental factor multiplied by PB2 yields a weighted payback for each site which is used to determine a final order of rank for the selected 202 sites. The ranking system is based on the premise that the shorter the payback period the more promising the site. The constraints posed by not visiting each of the 202 sites limit this study to a "paper analysis" and therefore its precision is subject to further evaluation. On-site inspection and field evaluation of many of these sites may reveal conditions that would affect its score significantly or may completely eliminate a project from consideration for development. By addressing the environmental impacts, albeit in this inexact manner, a context for establishing site comparison is provided.

It should be noted that developing some of these sites may actually improve local environmental conditions by providing flood control benefits, recreational opportunities and enhanced fish and wildlife habitat. These potential benefits have not been factored into the study for two reasons. The lack of sufficient field-tested data to identify these local benefits is a limiting



factor. In addition the author is reticent to place emphasis on the environmental benefits of hydropower due to a public perception that "changes in the environment caused by hydropower are inherently adverse." This is not always the case, but rather than provide a forum for public debate on this issue the author prefers to be conservative and let this consideration be absent from the equation. Suffice it to say that the environmental factors used in this study have the effect of reducing development potential even though many site locations may benefit from development.

PB2E:      **Payback with environmental factor** used for determining final ranking order of sites.

Final Rank:    **Order of rank according to Payback** (sorting PB2E).





ECONOMIC ANALYSIS - SPREADSHEET B - SORTED BY ENERGY CAPACITY

#	Site Name, Town	Cap. KW	Energy KW-hr/yr	Gr.Income \$/Year	Total Dev Cost \$	Est. Net Inc (\$/yr)	\$/KW	Envir. Factor	PB2E (Yrs)	Final Rank	#
64	Androscoggin R., Rumford	90625	125035121	\$7,502,107	\$84,838,214	\$5,251,475	\$936	1.1	17.8	180	64
154	Moxie Falls, Moxie Gore	1548	8063138	\$483,788	\$1,793,907	\$338,652	\$1,159	2.0	10.6	83	154
131	Austin Stream, Moscow	1137	5258588	\$315,515	\$1,326,095	\$220,861	\$1,167	1.3	7.8	11	131
108	Cupsupic River, T4R4	1105	5138184	\$308,291	\$1,529,295	\$215,804	\$1,383	1.7	12.0	115	108
112	Alder Stream, T2R5	1096	5318223	\$319,093	\$1,611,972	\$223,365	\$1,471	1.3	9.4	42	112
138	W.Br.Piscataquis R, Blanchard	1088	4765164	\$285,910	\$1,431,054	\$200,137	\$1,315	1.6	11.4	105	138
42	Dunn Falls, Andover N.S.	1080	524:049	\$314,463	\$1,695,219	\$220,124	\$1,570	2.0	15.4	154	42
129	Pierce Pond S., T1R3	1007	6277618	\$376,657	\$1,288,317	\$263,660	\$1,279	1.8	8.8	29	129
184	Wassataquoik S., T3R7	950	4367540	\$262,052	\$1,917,926	\$183,437	\$2,020	1.6	16.7	169	184
107	Megalloway River, T5R4	843	3917499	\$235,050	\$1,484,139	\$164,535	\$1,760	1.9	17.1	173	107
126	Sandy Stream, Highland Pltn	830	3635575	\$218,134	\$1,501,355	\$152,694	\$1,809	1.3	12.8	130	126
173	Pollywog Pond, T2R11	816	3830702	\$229,842	\$1,176,635	\$160,889	\$1,442	1.3	9.5	47	173
121	Carbou Valley, Bigelow	633	2909712	\$174,583	\$881,557	\$122,208	\$1,393	1.4	10.1	62	121
148	Enchanted Stream, T2R5	573	2511127	\$150,668	\$1,028,185	\$105,467	\$1,793	1.3	12.7	128	148
161	Long Pond S., Ellititsville	569	3038298	\$182,298	\$840,918	\$127,609	\$1,477	1.6	10.5	81	161
193	Musquacook S., T12R11	569	2814135	\$168,848	\$1,383,485	\$118,194	\$2,433	1.8	21.1	190	193
185	Shin Brook Falls, T6R7	503	2210571	\$132,634	\$1,003,590	\$92,844	\$1,993	1.7	18.4	183	185
158	E.Br.Piscataquis R, Shiley	491	2266679	\$136,001	\$708,142	\$95,201	\$1,441	1.6	11.9	110	158
152	Cold Stream, West Forks	483	2221457	\$133,287	\$806,922	\$93,301	\$1,671	1.1	9.5	49	152
22	Lower Larry Br., Riley	464	2033615	\$122,017	\$700,020	\$85,412	\$1,508	1.2	9.8	54	22
172	Ragged Lake, T2R12	463	3168747	\$190,125	\$881,775	\$133,087	\$1,902	1.5	9.9	58	172
186	Sawelle Br. Falls, T6R7	433	1895799	\$113,748	\$915,831	\$79,624	\$2,117	1.7	19.6	186	186
160	L.L.Wilson S., Ellititsville	431	1896770	\$113,806	\$562,680	\$79,664	\$1,306	1.7	12.0	113	160
150	Salmon Stream, West Forks	429	1880236	\$112,814	\$691,569	\$78,970	\$1,611	1.4	12.3	124	150
174	Rainbow Stream, T2R11	402	2816750	\$169,005	\$645,781	\$118,303	\$1,606	1.7	9.3	40	174
169	E.Br.Pleasant R., TBR10	396	1734861	\$104,092	\$622,818	\$72,864	\$1,572	1.7	14.5	148	169
130	Pleasant P. S., Carratunk	381	2210966	\$132,658	\$524,071	\$92,861	\$1,375	1.4	7.9	14	130
101	Toddy Pond, E.Orland	355	2234282	\$134,057	\$483,307	\$93,840	\$1,360	1.3	6.7	5	101
30	St.George R., Union	332	1568886	\$94,133	\$427,539	\$65,893	\$1,288	1.6	10.4	71	30
155	Black Brook, Moxie Gore	324	1667073	\$100,024	\$443,951	\$70,017	\$1,368	1.8	11.4	101	155
199	Fish River Falls, T14R8	315	1634220	\$98,053	\$458,016	\$68,637	\$1,455	1.8	12.0	114	199
134	Fall Brook, Solon	303	1409775	\$84,586	\$362,949	\$59,211	\$1,196	1.3	8.0	17	134
68	Webb River, Berry Mills	295	1292047	\$77,523	\$505,467	\$54,266	\$1,714	1.3	12.1	119	68
59	Swift R. Coos Canyon, Byron	291	1338696	\$80,322	\$374,652	\$56,225	\$1,287	1.7	11.3	99	59
137	Wellington Bog, Wellington	285	1553075	\$93,184	\$374,427	\$65,229	\$1,315	1.7	9.8	53	137
106	Moose Brook, T5R4	281	1272350	\$76,341	\$437,500	\$53,439	\$1,555	1.3	10.6	84	106
67	Webb River, Dixfield	280	1290513	\$77,431	\$300,670	\$54,202	\$1,073	1.2	6.7	4	67
157	Chase Stream, T1R6	277	1301997	\$78,120	\$400,256	\$54,684	\$1,444	1.3	9.5	50	157
61	E.Br.Swift R., Byron	275	1262985	\$75,779	\$482,761	\$53,045	\$1,758	1.3	11.8	108	61



## ECONOMIC ANALYSIS - SPREADSHEET B - SORTED BY ENERGY CAPACITY

#	Site Name, Town	Cap. KW	Energy KW-hr/yr	Gr. Income \$/year	Total Dev Cost \$	Est. Net Inc (\$/yr)	\$/KW	Envir. Factor	PB2E (yrs)	Final Rank	#
94	Mt. Blue Stream, Avon	266	1225109	\$73,507	\$443,154	\$51,455	\$1,664	1.4	12.1	116	94
6	Cathance R., Topsham	262	1546715	\$92,803	\$489,448	\$64,962	\$1,868	1.4	10.5	82	6
91	Perham Stream, Madrid	247	1082068	\$64,924	\$352,753	\$45,447	\$1,428	1.3	10.1	60	91
118	Rapid Stream, Kingfield	246	1133466	\$68,008	\$453,259	\$47,606	\$1,839	1.2	11.4	102	118
80	Mountain Bk., TWP D	246	1169322	\$70,159	\$321,936	\$49,112	\$1,310	1.3	8.5	22	80
10	Snow Falls, West Paris	246	1111012	\$66,661	\$255,312	\$46,662	\$1,039	1.7	9.3	41	10
53	Wight Br., Newry	244	1070115	\$64,207	\$298,557	\$44,945	\$1,222	1.8	12.0	112	53
3	Highland L., Bridgton	243	1408956	\$84,537	\$457,421	\$59,176	\$1,885	1.8	13.9	140	3
86	Swift River, TWP E	240	1105717	\$66,343	\$393,485	\$46,440	\$1,637	1.3	11.0	92	86
99	Marsh Stream, Monroe Ctr.	237	1044305	\$62,658	\$361,694	\$43,861	\$1,525	1.2	9.9	56	99
170	S.Br. Penobscot, T4R4	223	978566	\$58,714	\$697,180	\$41,100	\$3,121	1.2	20.4	188	170
40	Bull Branch, Riley	222	973328	\$58,400	\$359,114	\$40,880	\$1,616	1.4	12.3	125	40
145	Gold Brook, T1R6	217	951937	\$57,116	\$344,111	\$39,981	\$1,583	1.3	11.2	96	145
128	Carring Place S., T1R3	202	882819	\$52,969	\$268,906	\$37,078	\$1,334	1.3	9.4	45	128
73	Alder Bk., Hildriths Mill	201	950382	\$57,023	\$292,616	\$39,916	\$1,452	1.2	8.8	30	73
97	Martin Stream, Plymouth	200	922208	\$55,332	\$398,444	\$38,733	\$1,995	1.5	15.4	155	97
127	Houston Bk, Pleasant Ridge	196	888266	\$53,296	\$227,998	\$37,307	\$1,161	1.3	7.9	16	127
44	Stony Brook, Andover	195	852363	\$51,172	\$268,856	\$35,820	\$1,381	1.2	9.0	38	44
29	Crawford Pd., South Union	194	967174	\$58,030	\$227,807	\$40,621	\$1,177	1.2	6.7	6	29
21	Upper Larry Br., Riley	193	843708	\$50,623	\$305,545	\$35,436	\$1,586	1.1	9.5	46	21
72	Houghton Bk., Weld	190	875028	\$52,502	\$317,443	\$36,751	\$1,668	1.3	11.2	98	72
84	Four Ponds Bk., TWP D	182	1238716	\$74,323	\$283,207	\$52,026	\$1,555	1.7	9.3	39	84
36	Passagassawakeag R., E.Blst.	174	801461	\$48,088	\$275,060	\$33,661	\$1,578	1.5	12.3	123	36
200	Red River Falls, T14R8	173	756599	\$45,396	\$476,825	\$31,777	\$2,760	1.7	25.5	199	200
114	L.Cascade S., Sandy River	172	784569	\$47,074	\$250,580	\$32,952	\$1,458	1.5	11.4	100	114
35	Goose R., East Belfast	171	789580	\$47,375	\$197,013	\$33,162	\$1,155	1.3	7.7	9	35
156	Dead Stream Pond, W.Forks	168	822845	\$49,371	\$261,735	\$34,559	\$1,555	1.3	9.8	55	156
78	Metallak Bk., Richardson	168	734877	\$44,093	\$382,521	\$30,865	\$2,280	1.2	14.9	151	78
43	Frye Br., Andover WS	166	727256	\$43,635	\$200,924	\$30,545	\$1,210	1.6	10.5	80	43
143	Massachusetts Bog, T3R6	165	826499	\$49,590	\$238,760	\$34,713	\$1,444	1.4	9.6	51	143
88	Sandy River, TWP E	165	721897	\$43,314	\$291,336	\$30,320	\$1,768	1.6	15.4	153	88
93	Conant Stream, Madrid	164	718535	\$43,112	\$256,620	\$30,178	\$1,564	1.2	10.2	64	93
87	Chandler Mill S., TWP E	163	712190	\$42,731	\$255,898	\$29,912	\$1,574	1.3	11.1	94	87
171	Cheney Pond, T3R4	161	895824	\$53,749	\$279,915	\$37,625	\$1,743	1.4	10.4	73	171
81	W.Br. Swift R., Byron	157	721262	\$43,276	\$261,270	\$30,293	\$1,666	1.3	11.2	97	81
166	White Brook, T7R10	155	678948	\$40,737	\$386,422	\$28,516	\$2,493	1.3	17.6	177	166
60	Garland Br., Byron	153	776190	\$46,571	\$265,593	\$32,600	\$1,732	1.1	9.0	35	60
17	U. Sunday River, Riley	148	647095	\$38,826	\$267,119	\$27,178	\$1,808	1.2	11.8	107	17
82	Bemis Stream, TWP D	147	644518	\$38,671	\$249,369	\$27,070	\$1,695	1.4	12.9	131	82



## ECONOMIC ANALYSIS - SPREADSHEET B - SORTED BY ENERGY CAPACITY

#	Site Name, Town	Cap. kW	Energy KW-hr/yr	Gr.Income \$/Year	Total Dev Cost \$	Est. Net Inc (\$/yr)	\$/KW	Envir. Factor	PB2E (Yrs)	Final Rank	#
147	Stony Brook, T6R2	141	678406	\$40,704	\$288,052	\$28,493	\$2,039	1.1	11.1	93	147
133	Kelly Brook, The Forks	139	609158	\$36,549	\$218,567	\$25,585	\$1,572	1.2	10.3	67	133
63	Walker Brook, Roxbury	139	609026	\$36,542	\$218,262	\$25,579	\$1,570	1.2	10.2	65	63
117	Oberon Stream, Madrid	138	639167	\$38,350	\$302,670	\$26,845	\$2,191	1.3	14.7	150	117
2	Northwest R., E. Sebago	134	730546	\$43,833	\$278,558	\$30,683	\$2,071	1.8	16.3	165	2
122	Stoney Brook, Straton	130	598955	\$35,937	\$217,641	\$25,156	\$1,671	1.2	10.4	72	122
153	Tomhegan S., West Forks	129	593233	\$35,594	\$243,738	\$24,916	\$1,890	1.1	10.8	86	153
105	W.Br.L.Megalloway R, T5R4	127	558098	\$33,486	\$398,340	\$23,440	\$3,126	1.1	18.7	185	105
46	Chase Hill Brook, Newry	123	561097	\$33,666	\$152,437	\$23,566	\$1,240	1.2	7.8	10	46
190	Squa Pan Lake, Masardis	123	863896	\$51,834	\$194,489	\$36,284	\$1,584	1.6	8.6	24	190
125	Butler Pond, Lexington	122	595997	\$35,760	\$190,641	\$25,032	\$1,567	1.3	9.9	57	125
92	Quick Stream, Salem	121	531768	\$31,906	\$174,827	\$22,334	\$1,440	1.2	9.4	44	92
51	U.Black Br., Andover NS	120	527619	\$31,657	\$244,304	\$22,160	\$2,028	1.2	13.2	133	51
104	Tunk S., Smithville	118	517104	\$31,026	\$151,889	\$21,718	\$1,292	1.5	10.5	77	104
132	Holly Brook, The Forks	117	514562	\$30,874	\$181,864	\$21,612	\$1,548	1.2	10.1	61	132
23	Howard Pond Br., Hanover	116	581845	\$34,911	\$155,958	\$24,437	\$1,347	1.4	8.9	34	23
183	Kimball Brook, T4R7	116	528645	\$31,719	\$312,467	\$22,203	\$2,701	1.5	21.1	192	183
57	Ellis Falls, Andover	115	527275	\$31,636	\$134,965	\$22,146	\$1,177	1.3	7.9	15	57
62	Noisy Brook, Roxbury	113	506846	\$30,411	\$119,919	\$21,288	\$1,061	1.1	6.2	3	62
90	Saddleback S., Madrid	112	490457	\$29,427	\$148,661	\$20,599	\$1,328	1.3	9.4	43	90
140	Cold Stream Pond, Enfield	109	990820	\$59,449	\$210,985	\$41,614	\$1,929	1.6	8.1	18	140
1	L.Ossipee, N. Shapleigh	109	493415	\$29,605	\$260,800	\$20,723	\$2,389	1.4	17.6	178	1
119	Alder Brook, Kingfield	105	461901	\$27,714	\$184,494	\$19,400	\$1,749	1.1	10.5	75	119
162	Big Benson P, Willimantic	105	603972	\$36,238	\$177,224	\$25,367	\$1,690	1.5	10.5	76	162
18	Merrill Brook, Newry	105	457726	\$27,464	\$150,196	\$19,224	\$1,437	1.0	7.8	12	18
45	Great Brook, Newry	103	450183	\$27,011	\$128,724	\$18,908	\$1,252	1.0	6.8	8	45
164	Gulf Hugas Br., T7R10	102	445609	\$26,737	\$165,017	\$18,716	\$1,622	1.7	15.0	152	164
37	Lake St.George, Liberty	100	1111199	\$66,672	\$144,241	\$46,670	\$1,445	1.1	3.4	1	37
110	Lower Tim Br., Eustis	100	437922	\$26,275	\$212,622	\$18,393	\$2,134	1.2	13.9	139	110
16	Jordan Brook, Riley	99	433265	\$25,996	\$142,209	\$18,197	\$1,438	1.0	7.8	13	16
151	Durgin Brook, West Forks	95	417672	\$25,060	\$144,729	\$17,542	\$1,518	1.3	10.7	85	151
144	Clearwater Stream, T2R6	94	413044	\$24,783	\$222,164	\$17,348	\$2,356	1.1	14.1	142	144
139	Ferguson Bk., Harmony	94	411026	\$24,662	\$243,595	\$17,263	\$2,596	1.2	16.9	171	139
168	Mud Gauntlet Br., TBR10	92	411878	\$24,713	\$134,253	\$17,299	\$1,461	1.7	13.2	132	168
52	Sawyer Br., Andover NS	91	400279	\$24,017	\$227,128	\$16,812	\$2,485	1.3	17.6	174	52
113	N.Br. Alder Stream, T2R5	89	418400	\$25,104	\$174,900	\$17,573	\$1,971	1.1	10.9	90	113
32	Oyster R., East Warren	88	386352	\$23,181	\$118,484	\$16,227	\$1,343	1.5	11.0	91	32
208	McLean Bk., St. Francis	88	385162	\$23,110	\$127,562	\$16,177	\$1,451	1.1	8.7	28	208
210	Thibideau Bk., St. Francis	87	382915	\$22,975	\$170,420	\$16,082	\$1,949	1.1	11.7	106	210



## ECONOMIC ANALYSIS - SPREADSHEET B - SORTED BY ENERGY CAPACITY

#	Site Name, Town	Cap. kW	Energy KW-hr/yr	Gr. Income \$/year	Total Dev Cost \$	Est. Net Inc (\$/yr)	\$/KW	Envir. Factor	PB2E (yrs)	Final Rank	#
41	Goose Eye Brook, Riley	86	376147	\$22,569	\$116,489	\$15,798	\$1,356	1.4	10.3	69	41
15	Twitchell Brook, Gilead	85	374164	\$22,450	\$146,927	\$15,715	\$1,720	1.3	12.2	120	15
33	Shaw Brook, Northport	85	370431	\$22,226	\$107,718	\$15,558	\$1,274	1.3	9.0	36	33
49	Abbott Brook, Andover	84	366087	\$21,965	\$110,370	\$15,376	\$1,321	1.2	8.6	26	49
124	Reed Brook, Kingfield	83	362673	\$21,760	\$117,146	\$15,232	\$1,415	1.1	8.5	20	124
50	Moody Br., Andover NS	82	361213	\$21,673	\$106,592	\$15,171	\$1,293	1.2	8.4	19	50
26	Vaughn Br., Hallowell	82	379321	\$22,759	\$114,635	\$15,932	\$1,395	1.2	8.6	27	26
163	South Brook, Beaver Cove	82	360231	\$21,614	\$135,781	\$15,130	\$1,660	1.2	10.8	87	163
71	East Bk., Weld Corner	82	361691	\$21,701	\$192,478	\$15,191	\$2,354	1.3	16.5	167	71
95	Falls Brook, West Mills	81	353089	\$21,185	\$151,876	\$14,830	\$1,884	1.3	13.3	135	95
14	Bog Brook, Gilead	80	395606	\$23,736	\$104,797	\$16,615	\$1,310	1.4	8.8	33	14
85	Stock Br. Swift R., TWP 6	80	349909	\$20,995	\$190,574	\$14,696	\$2,386	1.4	18.2	181	85
115	U. Cascade S., Sandy River	79	362161	\$21,730	\$173,739	\$15,211	\$2,192	1.2	13.7	138	115
192	Three Brooks, Robinsons	78	342927	\$20,576	\$276,371	\$14,403	\$3,539	1.2	23.0	194	192
103	Beech Hill Pond, Otis	77	598520	\$35,911	\$133,418	\$25,138	\$1,726	1.6	8.5	21	103
75	Temple Brook, Wilton	77	354401	\$21,264	\$153,710	\$14,885	\$1,995	1.3	13.4	136	75
116	Hardy Stream, Madrid	77	335353	\$20,121	\$154,519	\$14,085	\$2,018	1.1	12.1	118	116
182	Lunksos Lake, TAR7	75	497244	\$29,835	\$275,415	\$20,884	\$3,657	1.6	21.1	191	182
28	Eastern R., E. Pitston	75	330341	\$19,820	\$99,200	\$13,874	\$1,324	1.2	8.6	25	28
79	Metallak Stream, Richardson	74	497006	\$29,820	\$121,749	\$20,874	\$1,639	1.8	10.5	78	79
54	Upper Miles Notch, Riley	73	319675	\$19,181	\$107,943	\$13,426	\$1,479	1.5	12.1	117	54
102	Frost Brook, N. Mariaville	73	444454	\$26,667	\$144,950	\$18,667	\$1,990	1.1	8.5	23	102
136	E. Br. Wesserunnett S. Brighton	72	442318	\$26,539	\$174,416	\$18,577	\$2,427	1.7	16.0	160	136
83	Mott Stream, TWP E	71	327322	\$19,639	\$134,150	\$13,748	\$1,885	1.6	15.6	157	83
12	Chapman Br., Bethel	70	308158	\$18,489	\$142,578	\$12,943	\$2,027	1.3	14.3	143	12
181	Traveler Brook, T5R8	70	304551	\$18,273	\$269,391	\$12,791	\$3,874	1.2	25.3	198	181
31	Pitcher Pd., Lincolnville	69	378747	\$22,725	\$117,360	\$15,907	\$1,692	1.4	10.3	70	31
141	Gristmill Pd., E. Lowell	68	416936	\$25,016	\$138,005	\$17,511	\$2,017	1.3	10.2	66	141
123	Hammond Field Bk. Carrabass.	67	294245	\$17,655	\$108,302	\$12,358	\$1,612	1.2	10.5	79	123
109	Tim Pond Brook, T2R4	67	400937	\$24,056	\$174,285	\$16,839	\$2,615	1.4	14.5	147	109
39	Pond Brook, Gratton	67	291723	\$17,503	\$111,768	\$12,252	\$1,678	1.4	12.8	129	39
165	Hay Brook, T7R10	66	290179	\$17,411	\$102,798	\$12,188	\$1,552	1.7	14.3	144	165
20	W. Br. Pleasant R., Mason	65	284358	\$17,061	\$123,041	\$11,943	\$1,895	1.2	12.4	126	20
198	N. Branch Fox Br., T13R8	64	284290	\$17,057	\$232,247	\$11,940	\$3,612	1.2	23.3	195	198
19	S. Branch Sunday R., Riley	64	278528	\$16,712	\$102,852	\$11,698	\$1,617	1.3	11.4	104	19
96	Lemon Stream, West Mills	63	280709	\$16,843	\$143,294	\$11,790	\$2,268	1.3	15.8	158	96
7	Keoka L., Waterford	62	368680	\$22,121	\$144,526	\$15,485	\$2,325	1.8	16.8	170	7
48	Burroughs Br., Andover NS	62	272203	\$16,332	\$105,119	\$11,433	\$1,691	1.3	12.0	111	48
5	Piscataqua R., W. Cumberland	62	290129	\$17,408	\$90,921	\$12,185	\$1,466	1.4	10.4	74	5





## ECONOMIC ANALYSIS - SPREADSHEET B - SORTED BY ENERGY CAPACITY

#	Site Name, Town	Cap. KW	Energy KW-hr/yr	Gr. Income \$/Year	Total Dev Cost \$	Est. Net Inc (\$/yr)	\$/KW	Envir. Factor	PB2E (Yrs)	Final Rank	#
55	Lower Miles Notch, Riley	62	269862	\$16,192	\$115,663	\$11,334	\$1,877	1.6	16.3	164	55
213	Gagnon Bk., Frenchville	61	281870	\$16,912	\$120,242	\$11,839	\$1,962	1.2	12.2	122	213
11	Sandborn R., Wills Mill	61	276633	\$16,598	\$106,740	\$11,619	\$1,751	1.1	10.1	63	11
13	Lower Stony Br., Newry	60	263611	\$15,817	\$112,545	\$11,072	\$1,870	1.1	11.2	95	13
8	Marshall Pond, W. Minot	60	282699	\$16,962	\$80,481	\$11,873	\$1,342	1.3	8.8	31	8
212	Fall Bk., New Canada	59	267880	\$16,073	\$115,518	\$11,251	\$1,973	1.4	14.4	146	212
142	Lombard Stream, Lakeville	58	323326	\$19,400	\$165,695	\$13,580	\$2,838	1.2	14.6	149	142
98	Sandy Stream, Freedom	58	326841	\$19,610	\$84,630	\$13,727	\$1,460	1.1	6.8	7	98
69	Aunt Hannah Bk., Dixfield	56	246450	\$14,787	\$141,646	\$10,351	\$2,517	1.2	16.4	166	69
214	Marlin Bk., Hamlin	55	264509	\$15,871	\$104,991	\$11,109	\$1,924	1.4	13.2	134	214
111	Reed Brook, Eustis	55	250653	\$15,039	\$170,027	\$10,527	\$3,120	1.1	17.8	179	111
149	Gulf Stream, West Forks	54	237624	\$14,257	\$143,104	\$9,980	\$2,638	1.3	18.6	184	149
47	Whitecap Br., Grafton	54	236146	\$14,169	\$170,804	\$9,918	\$3,168	1.2	20.7	189	47
159	U.L. Wilson S., Ellitsville	54	237581	\$14,255	\$140,389	\$9,978	\$2,622	1.1	15.5	156	159
58	L. Black Br., Andover NS	54	246140	\$14,768	\$145,381	\$10,338	\$2,716	1.4	19.7	187	58
34	Little River, Belfast	53	236239	\$14,174	\$80,986	\$9,922	\$1,520	1.4	11.4	103	34
70	Beaver Pond Bk., Dixfield	53	232495	\$13,950	\$71,707	\$9,765	\$1,351	1.2	8.8	32	70
187	Dunn Brook, Ludlow	53	294569	\$17,674	\$114,956	\$12,372	\$2,183	1.5	13.9	141	187
146	Crocker Pond, Dennistown	53	346664	\$20,800	\$77,200	\$14,560	\$1,469	1.1	5.8	2	146
74	Edes Brook, Temple	52	226387	\$13,563	\$86,707	\$9,508	\$1,678	1.3	11.9	109	74
89	Jont Stream, TWP 6	52	226266	\$13,576	\$126,804	\$9,503	\$2,455	1.2	16.0	162	89
207	Wiggins Bk., St. Francis	50	222724	\$13,363	\$110,259	\$9,354	\$2,201	1.4	16.5	168	207
100	Silver Lake, Bucksport	50	333114	\$19,987	\$142,788	\$13,991	\$2,858	1.8	18.4	182	100
4	Royal R., U. Gloucester	49	216254	\$12,975	\$74,326	\$9,083	\$1,531	1.1	9.0	37	4
25	Wilson Pd., N. Monmouth	48	296943	\$17,817	\$94,869	\$12,472	\$1,962	1.6	12.2	121	25
167	Shanty Min. Br., TBR11	48	210619	\$12,637	\$141,536	\$8,846	\$2,943	1.1	17.6	176	167
211	Gilmore Bk., Eagle Lake	46	212534	\$12,752	\$78,266	\$8,926	\$1,694	1.1	9.6	52	211
65	Snowman Bk., Weld	45	196252	\$11,775	\$71,250	\$8,243	\$1,590	1.1	9.5	48	65
56	Howe Br., Andover	44	193416	\$11,605	\$74,030	\$8,123	\$1,676	1.2	10.9	89	56
120	Tutts Pond Brook, Kingfield	44	217518	\$13,051	\$83,434	\$9,136	\$1,909	1.1	10.0	59	120
197	Little Rocky Br., T11R10	43	189856	\$11,391	\$539,306	\$7,974	\$12,442	1.2	81.2	202	197
66	Sweet Brook, Weld	43	186283	\$11,177	\$77,093	\$7,824	\$1,813	1.1	10.8	88	66
188	Mill Brook, Ludlow	42	192582	\$11,555	\$196,297	\$8,088	\$4,688	1.2	29.1	201	188
76	Upper Alder Bk., Temple	40	185135	\$11,108	\$101,414	\$7,776	\$2,519	1.1	14.3	145	76
201	Gardner Bk., Wade	40	177851	\$10,671	\$132,531	\$7,470	\$3,298	1.2	21.3	193	201
209	Petite Bk., St. Francis	40	174031	\$10,442	\$116,910	\$7,309	\$2,942	1.1	17.6	175	209
27	Dresden Bog, Dresden Mills	39	243082	\$14,585	\$167,800	\$10,209	\$4,341	1.6	26.3	200	27
202	Preslie Bk., Caribou	38	178755	\$10,725	\$92,301	\$7,508	\$2,408	1.3	16.0	161	202
206	Wyles Bk., Allagash	38	167598	\$10,056	\$79,292	\$7,039	\$2,072	1.1	12.4	127	206



ECONOMIC ANALYSIS – SPREADSHEET B – SORTED BY ENERGY CAPACITY

#	Site Name, Town	Cap. kW	Energy KW-hr/yr	Gf.Income \$/year	Total Dev Cost \$	Est. Net Inc (\$/yr)	\$/KW	Envir. Factor	PB2E (yrs)	Final Rank	#
77	Berry Brook, Carthage	38	166169	\$9,970	\$59,879	\$6,979	\$1,578	1.2	10.3	68	77
189	Shields Brook, Masardis	36	206*71	\$12,370	\$162,988	\$8,659	\$4,519	1.3	24.5	196	189
9	Swan Pond, Buckfield	35	16,222	\$9,733	\$89,367	\$6,813	\$2,550	1.3	17.1	172	9
24	Long Pd., N.Livermore	32	200611	\$12,037	\$74,459	\$8,426	\$2,305	1.8	15.9	159	24
135	Wyman Pond, Brighton	31	211641	\$12,698	\$101,858	\$8,889	\$3,303	1.4	16.0	163	135
203	Hardwood Bk., Maysville	29	127697	\$7,662	\$121,507	\$5,363	\$4,168	1.1	24.9	197	203
191	Number Nine Lake, TDR2	27	154969	\$9,298	\$62,479	\$6,509	\$2,306	1.4	13.4	137	191



## SPREADSHEET C -- GROUPING OF SITES ACCORDING TO FEASIBILITY

### An Explanation Spreadsheet C Terms and their Derivations

Spreadsheet C separates the 202 sites into three groups according to payback:

- Group I** -- sites have paybacks of 10 years or less
- Group II** -- sites have paybacks of more than 10 years but less than 12.5 years
- Group III** -- sites have paybacks of 12.5 years and more

### Group I

Those sites with the shortest payback and fewest drawbacks to development. The 59 sites in Group I have a total installed capacity of 13,324 kw.

Three sites in Group I are over 1 megawatt of installed capacity:

#112 Alder Stream	T2 R5	1096 kw
#129 Pierce Pond Stream	T1 R3	1007 kw
#131 Austin Stream	Moscow	1137 kw

There are 19 Group I sites below 100 kw of installed capacity.

The Group I sites all have Total Development payback periods of 10 years or less, and installation cost of less than \$2000/kw of capacity. The highest environmental factor assigned to a Group I site is 1.8 for Pierce Pond Stream because of the long penstock and 2 foot drawdown of Pierce Pond. The drawdown represents storage volume and the penstock length was designed to capture as much head as possible resulting in a site with a megawatt of capacity and a plant factor of 71%.

While all of these sites appear to be good investment opportunities, they will still require environmental studies, lengthy license application periods, significant lease fees or percentages paid to the site owner, and a power purchase contract with the utility that is comparable in price to that used in this study. Any one of these items could prove to be a serious obstacle to the development of a successful hydropower project.

Of the 59 Group I sites, 40 use some degree of storage from existing or proposed reservoirs. The magnitude of the impact from periodically drawing down these ponds and lakes and inundating new land must be identified and justified for regulatory permits and lake owner acceptance if a hydro site is to be built. This is not an easy task even for a small 100 kw project.

### Group II

These 68 sites have at least one significant negative aspect that may prevent development even though all the sites in this group have paybacks of less than 12.5 years. The total installed capacity for sites in Group II is 14,760 kw.



Three sites in this group are over a megawatt:

#108 Cupsuptic River	T4 R4	1105 kw
#138 W Branch Piscataquis River	Blanchard	1088 kw
#154 Moxie Falls	Moxie Gore	1548 kw

There are 27 Group II sites below 100 kw of installed capacity.

The deficiencies found in the Group II sites range from slower payback to environmental constraints. Some sites have been assigned to this group because they use lakes with large numbers of shoreline camps, which would make it difficult to achieve a good hydro water level fluctuation plan.

Moxie Falls has been assigned the highest environmental factor possible, however, because of its outstanding hydro potential (PB2 = 5.0 years) this site is classified in Group II.

The spreadsheets show 17 Group II sites with storage potential. A number of these involve making new impoundments. Some of them are:

#11 Sanborn River	Willis Mill	61 kw
#6 Cathance River	Topsham	262 kw
#108 Cupsuptic River	T4 R4	1105 kw

These impoundments are generally in areas of higher public interest than the reservoirs in Group I. For example, the Cathance project is adjacent to major highways and populated areas. The proposed lake would flood land that partially floods every spring anyway, but obtaining the permits to undertake this project could be more difficult because of its high public visibility.

The Cupsuptic project would form a lake over 300 acres in size in an area rich in wildlife. The location of this project is remote, about 5 miles west of the currently operating hydro dams on the Kennebago River. The cost of transmission lines and the environmental factor caused this project's payback period to jump from 6.7 years to 12.0 years.

Several other smaller projects in this group have site conditions similar to Cupsuptic. Others like #114 Lower Cascade Stream near Rangeley are currently being used for town water supply. If towns change from surface water supplies to deep wells, as is the trend, then these otherwise excellent sites could be candidates for development provided the utility power purchase price improves.

### Group III

These 75 sites have more than one significant drawback to development and have paybacks of over 12.5 years. The total installed capacity of sites in this group is 11,478 kw. This figure does not include the more than 90 megawatts at Rumford, site #64, which has potential primarily as a flood control project.





One site in Group III is over a megawatt and three others come close but fall within the designated range under 1000 kw:

#126 Sandy Stream	Highland Plt	830 kw
#42 Dunn Falls	Andover N.S.	1080 kw
#184 Wassataquoik Stream	T3 R7	950 kw
#107 Magalloway River	T5 R4	843 kw

There are 49 sites in Group III with under 100 kw of installed capacity.

These sites have multiple drawbacks to development. Most suffer from long payback periods due to the topography of the sites which demands long, expensive penstocks relative to the available head. Sites #27, #52, #83, #88, and #118 are examples of sites which require 10,000 foot pipes or more and have significantly less head when compared with Group I sites with the same pipe lengths. Generally a penstock slope of less than 4% places a site in Group III if that site also has a long transmission line or obvious environmental constraints such as qualifying as a unique natural feature or if it requires a major water diversion like site #42, Dunn Falls.

Looking at Dunn Falls from strictly an engineering point of view, one possible project configuration would be to divert most of the flow in the Swift/Cambridge River over Dunn Notch into the Ellis River Basin. A lake covering a few hundred acres would be created in Grafton which would be high enough to flow into a penstock near Dunn Falls. Technically this scenario would work well giving this site a preliminary rank of 73, but because of the environmental concern raised by the diversion, its final rank is 154.

Most Group III sites have the same inherent difficulties as Group I and Group II plus the added problems of distance from utility lines, flatter penstock grades, and greater environmental constraints. However, some of the Group III sites have been classified in this less attractive group because of one very significant problem. Sites #107 (Magalloway River) #185 and #186 have very unique and special natural features.

As explained previously, this study is not suggesting that all of the sites identified are appropriate for development due to possible environmental constraints. However, this study provides raw data for sites with hydropower potential. This includes some sites which are outstanding natural resources and contain rare natural features which could and probably will never be developed. The user of this study is cautioned to be very selective in the sites pursued for development.



# GROUP 1 SITES - PAYBACK: 10 YEARS AND LESS

SPREADSHEET C

#	Site Name, Town	Cap. kW	Energy KW-hr/yr	Gr.Income \$/year	Total Dev Cost \$	Est. Net Inc (\$/yr)	\$/KW	Envir. Factor	PB2E (yrs)	Final Rank
37	Lake St. George, Liberty	100	1111199	\$66,672	\$144,241	\$46,670	\$1,445	1.1	3.4	1
146	Crocker Pond, Dennistown	53	346664	\$20,800	\$77,200	\$14,560	\$1,469	1.1	5.8	2
62	Noisy Brook, Roxbury	113	506846	\$30,411	\$119,919	\$21,288	\$1,061	1.1	6.2	3
67	Webb River, Dixfield	280	1290513	\$77,431	\$300,670	\$54,202	\$1,073	1.2	6.7	4
101	Toddy Pond, E.Orland	355	2234282	\$134,057	\$483,307	\$93,840	\$1,360	1.3	6.7	5
29	Crawford Pd., South Union	194	967174	\$58,030	\$227,807	\$40,621	\$1,177	1.2	6.7	6
98	Sandy Stream, Freedom	58	326841	\$19,610	\$84,630	\$13,727	\$1,460	1.1	6.8	7
45	Great Brook, Newry	103	450183	\$27,011	\$128,724	\$18,908	\$1,252	1.0	6.8	8
35	Goose R., East Belfast	171	789580	\$47,375	\$197,013	\$33,162	\$1,155	1.3	7.7	9
46	Chase Hill Brook, Newry	123	561097	\$33,666	\$152,437	\$23,566	\$1,240	1.2	7.8	10
131	Austin Stream, Moscow	1137	5258588	\$315,515	\$1,326,095	\$220,861	\$1,167	1.3	7.8	11
18	Merrill Brook, Newry	105	457726	\$27,464	\$150,196	\$19,224	\$1,437	1.0	7.8	12
16	Jordan Brook, Riley	99	433265	\$25,996	\$142,209	\$18,197	\$1,438	1.0	7.8	13
130	Pleasant P. S., Carratunk	381	2210966	\$132,658	\$524,071	\$92,861	\$1,375	1.4	7.9	14
57	Ellis Falls, Andover	115	527275	\$31,636	\$134,965	\$22,146	\$1,177	1.3	7.9	15
127	Houston Bk, Pleasant Ridge	196	888266	\$53,296	\$227,998	\$37,307	\$1,161	1.3	7.9	16
134	Fall Brook, Solon	303	1409775	\$84,586	\$362,949	\$59,211	\$1,196	1.3	8.0	17
140	Cold Stream Pond, Enfield	109	990820	\$59,449	\$210,985	\$41,614	\$1,929	1.6	8.1	18
50	Moody Br., Andover NS	82	361213	\$21,673	\$106,592	\$15,171	\$1,293	1.2	8.4	19
124	Reed Brook, Kingfield	83	362673	\$21,760	\$117,146	\$15,232	\$1,415	1.1	8.5	20
103	Beech Hill Pond, Otis	77	598520	\$35,911	\$133,418	\$25,138	\$1,726	1.6	8.5	21
80	Mountain Bk., TWP D	246	1169322	\$70,159	\$321,936	\$49,112	\$1,310	1.3	8.5	22
102	Frost Brook, N.Mariaville	73	444454	\$26,667	\$144,950	\$18,667	\$1,990	1.1	8.5	23
190	Squa Pan Lake, Masardis	123	863896	\$51,834	\$194,489	\$36,284	\$1,584	1.6	8.6	24
28	Eastern R., E.Pittston	75	330341	\$19,820	\$99,200	\$13,874	\$1,324	1.2	8.6	25
49	Abbott Brook, Andover	84	366087	\$21,965	\$110,370	\$15,376	\$1,321	1.2	8.6	26
26	Vaughn Br., Hallowell	82	379321	\$22,759	\$114,635	\$15,932	\$1,395	1.2	8.6	27
208	McLean Bk., St. Francis	88	385162	\$23,110	\$127,562	\$16,177	\$1,451	1.1	8.7	28
129	Pierce Pond S., T1R3	1007	6277618	\$376,657	\$1,288,317	\$263,660	\$1,279	1.8	8.8	29
73	Alder Bk., Hildriths Mill	201	950382	\$57,023	\$292,616	\$39,916	\$1,452	1.2	8.8	30
8	Marshall Pond, W.Minot	60	282699	\$16,962	\$80,481	\$11,873	\$1,342	1.3	8.8	31
70	Beaver Pond Bk., Dixfield	53	232495	\$13,950	\$71,707	\$9,765	\$1,351	1.2	8.8	32
14	Bog Brook, Gilead	80	395606	\$23,736	\$104,797	\$16,615	\$1,310	1.4	8.8	33
23	Howard Pond Br., Hanover	116	581845	\$34,911	\$155,958	\$24,437	\$1,347	1.4	8.9	34
60	Garland Br., Byron	153	776190	\$46,571	\$265,593	\$32,600	\$1,732	1.1	9.0	35
33	Shaw Brook, Northport	85	370431	\$22,226	\$107,718	\$15,558	\$1,274	1.3	9.0	36
4	Royal R., U.Gloucester	49	216254	\$12,975	\$74,326	\$9,083	\$1,531	1.1	9.0	37
44	Stony Brook, Andover	195	852863	\$51,172	\$268,856	\$35,820	\$1,381	1.2	9.0	38
84	Four Ponds Bk., TWP D	182	1238716	\$74,323	\$283,207	\$52,026	\$1,555	1.7	9.3	39



#	Site Name, Town	Cap. kW	Energy KW-hr/yr	Gr.Income \$/year	Total Dev Cost \$	Est. Net Inc (\$/yr)	\$/KW	Envir. Factor	PB2E (yrs)	Final Rank
174	Rainbow Stream, T2R11	402	2816750	\$169,005	\$645,781	\$118,303	\$1,606	1.7	9.3	40
10	Snow Falls, West Paris	246	1111012	\$66,661	\$255,312	\$46,662	\$1,039	1.7	9.3	41
112	Alder Stream, T2R5	1096	5318223	\$319,093	\$1,611,972	\$223,365	\$1,471	1.3	9.4	42
90	Saddleback S., Madrid	112	490457	\$29,427	\$148,661	\$20,599	\$1,328	1.3	9.4	43
92	Quick Stream, Salem	121	531768	\$31,906	\$174,827	\$22,334	\$1,440	1.2	9.4	44
128	Carring Place S., T1R3	202	882819	\$52,969	\$268,906	\$37,078	\$1,334	1.3	9.4	45
21	Upper Larry Br., Riley	193	843708	\$50,623	\$305,545	\$35,436	\$1,586	1.1	9.5	46
173	Pollywog Pond, T2R11	816	3830702	\$229,842	\$1,176,635	\$160,889	\$1,442	1.3	9.5	47
65	Snowman Bk., Weld	45	196252	\$11,775	\$71,250	\$8,243	\$1,590	1.1	9.5	48
152	Cold Stream, West Forks	483	2221457	\$133,287	\$806,922	\$93,301	\$1,671	1.1	9.5	49
157	Chase Stream, T1R6	277	1301997	\$78,120	\$400,256	\$54,684	\$1,444	1.3	9.5	50
143	Massachusetts Bog, T3R6	165	826499	\$49,590	\$238,760	\$34,713	\$1,444	1.4	9.6	51
211	Gilmore Bk., Eagle Lake	46	212534	\$12,752	\$78,266	\$8,926	\$1,694	1.1	9.6	52
137	Wellington Bog, Wellington	285	1553075	\$93,184	\$374,427	\$65,229	\$1,315	1.7	9.8	53
22	Lower Larry Br., Riley	464	2033615	\$122,017	\$700,020	\$85,412	\$1,508	1.2	9.8	54
156	Dead Stream Pond, W.Forks	168	822845	\$49,371	\$261,735	\$34,559	\$1,555	1.3	9.8	55
99	Marsh Stream, Monroe Ctr.	237	1044305	\$62,658	\$361,694	\$43,861	\$1,525	1.2	9.9	56
125	Butler Pond, Lexington	122	595997	\$35,760	\$190,641	\$25,032	\$1,567	1.3	9.9	57
172	Ragged Lake, T2R12	463	3168747	\$190,125	\$881,775	\$133,087	\$1,902	1.5	9.9	58
120	Tufts Pond Brook, Kingfield	44	217518	\$13,051	\$83,434	\$9,136	\$1,909	1.1	10.0	59



# GROUP 2 SITES - PAYBACK: 10 TO 12.5 YEARS

SPREADSHEET C

#	Site Name, Town	Cap. kW	Energy kW-hr/yr	Gr.Income \$/year	Total Dev Cost \$	Est. Net Inc (\$/yr)	\$/kW	Envir. Factor	PB2E (yrs)	Final Rank
91	Perham Stream, Madrid	247	1082068	\$64,924	\$352,753	\$45,447	\$1,428	1.3	10.1	60
132	Holly Brook, The Forks	117	514562	\$30,874	\$181,864	\$21,612	\$1,548	1.2	10.1	61
121	Caribou Valley, Bigelow	633	2909712	\$174,583	\$881,557	\$122,208	\$1,393	1.4	10.1	62
11	Sandborn R., Willis Mill	61	276633	\$16,598	\$106,740	\$11,619	\$1,751	1.1	10.1	63
93	Conant Stream, Madrid	164	718535	\$43,112	\$256,620	\$30,178	\$1,564	1.2	10.2	64
63	Walker Brook, Roxbury	139	609026	\$36,542	\$218,262	\$25,579	\$1,570	1.2	10.2	65
141	Gristmill Pd., E.Lowell	68	416936	\$25,016	\$138,005	\$17,511	\$2,017	1.3	10.2	66
133	Kelly Brook, The Forks	139	609158	\$36,549	\$218,567	\$25,585	\$1,572	1.2	10.3	67
77	Berry Brook, Carthage	38	166169	\$9,970	\$59,879	\$6,979	\$1,578	1.2	10.3	68
41	Goose Eye Brook, Riley	86	37,147	\$22,569	\$116,489	\$15,798	\$1,356	1.4	10.3	69
31	Pitcher Pd., Lincolnville	69	378747	\$22,725	\$117,360	\$15,907	\$1,692	1.4	10.3	70
30	St.George R., Union	332	1568886	\$94,133	\$427,539	\$65,893	\$1,288	1.6	10.4	71
122	Stoney Brook, Stratton	130	598955	\$35,937	\$217,641	\$25,156	\$1,671	1.2	10.4	72
171	Cheney Pond, T3R4	161	895824	\$53,749	\$279,915	\$37,625	\$1,743	1.4	10.4	73
5	Piscataqua R., W.Cumberland	62	290129	\$17,408	\$90,921	\$12,185	\$1,466	1.4	10.4	74
119	Alder Brook, Kingfield	105	461901	\$27,714	\$184,494	\$19,400	\$1,749	1.1	10.5	75
162	Big Benson P, Willimantic	105	603972	\$36,238	\$177,224	\$25,367	\$1,690	1.5	10.5	76
104	Tunk S., Smithville	118	517104	\$31,026	\$151,889	\$21,718	\$1,292	1.5	10.5	77
79	Metallak Stream, Richardson	74	497006	\$29,820	\$121,749	\$20,874	\$1,639	1.8	10.5	78
123	Hammond Field Bk, Carabass.	67	294245	\$17,655	\$108,302	\$12,358	\$1,612	1.2	10.5	79
43	Frye Br., Andover WS	166	727256	\$43,635	\$200,924	\$30,545	\$1,210	1.6	10.5	80
161	Long Pond S., Ellitsville	569	3038298	\$182,298	\$840,918	\$127,609	\$1,477	1.6	10.5	81
6	Cathance R., Topsham	262	1546715	\$92,803	\$489,448	\$64,962	\$1,868	1.4	10.5	82
154	Moxie Falls, Moxie Gore	1548	8063138	\$483,788	\$1,793,907	\$338,652	\$1,159	2.0	10.6	83
106	Moose Brook, T5R4	281	1272350	\$76,341	\$437,500	\$53,439	\$1,555	1.3	10.6	84
151	Durgin Brook, West Forks	95	417672	\$25,060	\$144,729	\$17,542	\$1,518	1.3	10.7	85
153	Tomhegan S., West Forks	129	593233	\$35,594	\$243,738	\$24,916	\$1,890	1.1	10.8	86
163	South Brook, Beaver Cove	82	360231	\$21,614	\$135,781	\$15,130	\$1,660	1.2	10.8	87
66	Swett Brook, Weld	43	186283	\$11,177	\$77,093	\$7,824	\$1,813	1.1	10.8	88
56	Howe Br., Andover	44	193416	\$11,605	\$74,030	\$8,123	\$1,676	1.2	10.9	89
113	N.Br. Alder Stream, T2R5	89	418400	\$25,104	\$174,900	\$17,573	\$1,971	1.1	10.9	90
32	Oyster R., East Warren	88	386352	\$23,181	\$118,484	\$16,227	\$1,343	1.5	11.0	91
86	Swift River, TWP E	240	1105717	\$66,343	\$393,485	\$46,440	\$1,637	1.3	11.0	92
147	Stony Brook, T6R2	141	678406	\$40,704	\$288,052	\$28,493	\$2,039	1.1	11.1	93
87	Chandler Mill S., TWP E	163	712190	\$42,731	\$255,898	\$29,912	\$1,574	1.3	11.1	94
13	Lower Stony Br., Newry	60	263611	\$15,817	\$112,545	\$11,072	\$1,870	1.1	11.2	95
145	Gold Brook, T1R6	217	951937	\$57,116	\$344,111	\$39,981	\$1,583	1.3	11.2	96
81	W.Br. Swift R., Byron	157	721262	\$43,276	\$261,270	\$30,293	\$1,666	1.3	11.2	97
72	Houghton Bk., Weld	190	875028	\$52,502	\$317,443	\$36,751	\$1,668	1.3	11.2	98





#	Site Name, Town	Cap. KW	Energy KW-hr/Yr	Gr.Income \$/year	Total Dev Cost \$	Est. Net Inc (\$/yr)	\$/KW	Envir. Factor	PB2E (yrs)	Final Rank
59	Swift R. Coos Canyon, Byron	291	1338696	\$80,322	\$374,652	\$56,225	\$1,287	1.7	11.3	99
114	L. Cascade S., Sandy River	172	784569	\$47,074	\$250,580	\$32,952	\$1,458	1.5	11.4	100
155	Black Brook, Moxie Gore	324	1667073	\$100,024	\$443,851	\$70,017	\$1,368	1.8	11.4	101
118	Rapid Stream, Kingfield	246	1133466	\$68,008	\$453,259	\$47,606	\$1,839	1.2	11.4	102
34	Little River, Belfast	53	236239	\$14,174	\$80,986	\$9,922	\$1,520	1.4	11.4	103
19	S. Branch Sunday R., Riley	64	278528	\$16,712	\$102,852	\$11,698	\$1,617	1.3	11.4	104
138	W. Br. Piscataquis R. Blanchard	1088	4765164	\$285,910	\$1,431,054	\$200,137	\$1,315	1.6	11.4	105
210	Thibideau Bk., St. Francis	87	382915	\$22,975	\$170,420	\$16,082	\$1,949	1.1	11.7	106
17	U. Sunday River, Riley	148	647095	\$38,826	\$267,119	\$27,178	\$1,808	1.2	11.8	107
61	E. Br. Swift R., Byron	275	1262985	\$75,779	\$482,761	\$53,045	\$1,758	1.3	11.8	108
74	Edes Brook, Temple	52	226387	\$13,583	\$86,707	\$9,508	\$1,678	1.3	11.9	109
158	E. Br. Piscataquis R. Shirley	491	2266679	\$136,001	\$708,142	\$95,201	\$1,441	1.6	11.9	110
48	Burroughs Br., Andover NS	62	272203	\$16,332	\$105,119	\$11,433	\$1,691	1.3	12.0	111
53	Wight Br., Newry	244	1070115	\$64,207	\$298,557	\$44,945	\$1,222	1.8	12.0	112
160	L.L. Wilson S., Elliotsville	431	1896770	\$113,806	\$562,680	\$79,664	\$1,306	1.7	12.0	113
199	Fish River Falls, T14R8	315	1634220	\$98,053	\$458,016	\$68,637	\$1,455	1.8	12.0	114
108	Cupsuptic River, T4R4	1105	5138184	\$308,291	\$1,529,295	\$215,804	\$1,383	1.7	12.0	115
94	Mt. Blue Stream, Avon	266	1225109	\$73,507	\$443,154	\$51,455	\$1,664	1.4	12.1	116
54	Upper Miles Notch, Riley	73	319675	\$19,181	\$107,943	\$13,426	\$1,479	1.5	12.1	117
116	Hardy Stream, Madrid	77	335353	\$20,121	\$154,519	\$14,085	\$2,018	1.1	12.1	118
68	Webb River, Berry Mills	295	1292,047	\$77,523	\$505,467	\$54,266	\$1,714	1.3	12.1	119
15	Twitchell Brook, Gilead	85	374164	\$22,450	\$146,927	\$15,715	\$1,720	1.3	12.2	120
25	Wilson P.d., N. Monmouth	48	296943	\$17,817	\$94,869	\$12,472	\$1,962	1.6	12.2	121
213	Gagnon Bk., Frenchville	61	281870	\$16,912	\$120,242	\$11,839	\$1,962	1.2	12.2	122
36	Passagassawakeag R., E. Blfst.	174	801461	\$48,088	\$275,060	\$33,661	\$1,578	1.5	12.3	123
150	Salmon Stream, West Forks	429	1880236	\$112,814	\$691,569	\$78,970	\$1,611	1.4	12.3	124
40	Bull Branch, Riley	222	973328	\$58,400	\$359,114	\$40,880	\$1,616	1.4	12.3	125
20	W. Br. Pleasant R., Mason	65	284358	\$17,061	\$123,041	\$11,943	\$1,895	1.2	12.4	126
206	Wyles Bk., Allagash	38	167598	\$10,056	\$79,292	\$7,039	\$2,072	1.1	12.4	127



# GROUP 3 SITES - PAYBACK: 12.5 YEARS AND UP

SPREADSHEET C

#	Site Name, Town	Cap. KW	Energy KW-hr/yr	Grt.Income \$/Year	Total Dev Cost \$	Est. Net Inc. (\$/yr)	\$/KW	Envir. Factor	PB2E (Yrs)	Final Rank
148	Enchanted Stream, T2R5	573	2511127	\$150,668	\$1,028,185	\$105,467	\$1,793	1.3	12.7	128
39	Pond Brook, Grafton	67	291723	\$17,503	\$111,768	\$12,252	\$1,678	1.4	12.8	129
126	Sandy Stream, Highland Pltn	830	3635575	\$218,134	\$1,501,355	\$152,694	\$1,809	1.3	12.8	130
82	Bemis Stream, TWP D	147	644518	\$38,671	\$249,369	\$27,070	\$1,695	1.4	12.9	131
168	Mud Gauntlet Br., TBR10	92	411878	\$24,713	\$134,253	\$17,299	\$1,461	1.7	13.2	132
51	U.Black Br., Andover NS	120	527619	\$31,657	\$244,304	\$22,160	\$2,028	1.2	13.2	133
214	Martin Bk., Hamlin	55	264509	\$15,871	\$104,991	\$11,109	\$1,924	1.4	13.2	134
95	Falls Brook, West Mills	81	353089	\$21,185	\$151,876	\$14,830	\$1,884	1.3	13.3	135
75	Temple Brook, Wilton	77	354401	\$21,264	\$153,710	\$14,885	\$1,995	1.3	13.4	136
191	Number Nine Lake, TDR2	27	154969	\$9,298	\$62,479	\$6,509	\$2,306	1.4	13.4	137
115	U.Cascade S., Sandy River	79	362161	\$21,730	\$173,739	\$15,211	\$2,192	1.2	13.7	138
110	Lower Tim Br., Eustis	100	437922	\$26,275	\$212,622	\$18,393	\$2,134	1.2	13.9	139
3	Highland L., Bridgton	243	1408956	\$84,537	\$457,421	\$59,176	\$1,885	1.8	13.9	140
187	Dunn Brook, Ludlow	53	294569	\$17,674	\$114,956	\$12,372	\$2,183	1.5	13.9	141
144	Clearwater Stream, T2R6	94	413044	\$24,783	\$222,164	\$17,348	\$2,356	1.1	14.1	142
12	Chapman Br., Bethel	70	308158	\$18,489	\$142,578	\$12,943	\$2,027	1.3	14.3	143
165	Hay Brook, T7R10	66	290179	\$17,411	\$102,798	\$12,188	\$1,552	1.7	14.3	144
76	Upper Alder Bk., Temple	40	185135	\$11,108	\$101,414	\$7,776	\$2,519	1.1	14.3	145
212	Fall Bk., New Canada	59	267880	\$16,073	\$115,518	\$11,251	\$1,973	1.4	14.4	146
109	Tim Pond Brook, T2R4	67	400937	\$24,056	\$174,285	\$16,839	\$2,615	1.4	14.5	147
169	E.Br.Pleasant R., TBR10	396	1734861	\$104,092	\$622,818	\$72,864	\$1,572	1.7	14.5	148
142	Lombard Stream, Lakeville	58	323326	\$19,400	\$165,695	\$13,580	\$2,838	1.2	14.6	149
117	Oberton Stream, Madrid	138	639167	\$38,350	\$302,670	\$26,845	\$2,191	1.3	14.7	150
78	Metallak Bk., Richardson	168	734877	\$44,093	\$382,521	\$30,865	\$2,280	1.2	14.9	151
164	Gulf Hugas Br., T7R10	102	445609	\$26,737	\$165,017	\$18,716	\$1,622	1.7	15.0	152
88	Sandy River, TWP E	165	721897	\$43,314	\$291,336	\$30,320	\$1,768	1.6	15.4	153
42	Dunn Falls, Andover N.S.	1080	5241049	\$314,463	\$1,695,219	\$220,124	\$1,570	2.0	15.4	154
97	Martin Stream, Plymouth	200	922208	\$55,332	\$398,444	\$38,733	\$1,995	1.5	15.4	155
159	U.L.Wilson S., Elliotville	54	237581	\$14,255	\$140,389	\$9,978	\$2,622	1.1	15.5	156
83	Mott Stream, TWP E	71	327322	\$19,639	\$134,150	\$13,748	\$1,885	1.6	15.6	157
96	Lemon Stream, West Mills	63	280709	\$16,843	\$143,294	\$11,790	\$2,268	1.3	15.8	158
24	Long Pd., N.Livermore	32	200311	\$12,037	\$74,459	\$8,426	\$2,305	1.8	15.9	159
136	E.Br.Wesserunett S, Brighton	72	442318	\$26,539	\$174,416	\$18,577	\$2,427	1.7	16.0	160
202	Preslie Bk., Caribou	38	178755	\$10,725	\$92,301	\$7,508	\$2,408	1.3	16.0	161
89	Jont Stream, TWP 6	52	226266	\$13,576	\$126,804	\$9,503	\$2,455	1.2	16.0	162
135	Wyman Pond, Brighton	31	211641	\$12,668	\$101,858	\$8,889	\$3,303	1.4	16.0	163
55	Lower Miles Notch, Riley	62	269862	\$16,192	\$115,663	\$11,334	\$1,877	1.6	16.3	164
2	Northwest R., E. Sebago	134	730546	\$43,833	\$278,538	\$30,683	\$2,071	1.8	16.3	165
69	Aunt Hannah Bk., Dixfield	56	246450	\$14,787	\$141,646	\$10,351	\$2,517	1.2	16.4	166



#	Site Name, Town	Cap. KW	Energy KW-hr/yr	Gr. Income \$/year	Total Dev Cost \$	Est. Net Inc (\$/yr)	\$/KW	Envir. Factor	PB2E (yrs)	Final Rank
71	East Bk., Weld Corner	82	361691	\$21,701	\$192,478	\$15,191	\$2,354	1.3	16.5	167
207	Wiggins Bk., St. Francis	50	222724	\$13,363	\$110,259	\$9,354	\$2,201	1.4	16.5	168
184	Wassataquoik S., T3R7	950	4367540	\$262,052	\$1,917,926	\$183,437	\$2,020	1.6	16.7	169
7	Keoka L., Waterford	62	368680	\$22,121	\$144,526	\$15,485	\$2,325	1.8	16.8	170
139	Ferguson Bk., Harmony	94	411026	\$24,662	\$243,595	\$17,263	\$2,596	1.2	16.9	171
9	Swan Pond, Buckfield	35	162222	\$9,733	\$89,367	\$6,813	\$2,550	1.3	17.1	172
107	Magalloway River, T5R4	843	3917499	\$235,050	\$1,484,139	\$164,535	\$1,760	1.9	17.1	173
52	Sawyer Br., Andover NS	91	400279	\$24,017	\$227,128	\$16,812	\$2,485	1.3	17.6	174
209	Petite Bk., St. Francis	40	174031	\$10,442	\$116,910	\$7,309	\$2,942	1.1	17.6	175
167	Shanty Mtn. Br., TBR11	48	210619	\$12,637	\$141,536	\$8,846	\$2,943	1.1	17.6	176
166	White Brook, T7R10	155	678948	\$40,737	\$386,422	\$28,516	\$2,493	1.3	17.6	177
1	L. Ossipee, N. Shapleigh	109	493415	\$29,605	\$260,800	\$20,723	\$2,389	1.4	17.6	178
111	Reed Brook, Eustis	55	250653	\$15,039	\$170,027	\$10,527	\$3,120	1.1	17.8	179
64	Androscoggin R., Rumford	90625	125035121	\$7,502,107	\$84,838,214	\$5,251,475	\$936	1.1	17.8	180
85	Stock Br. Swift R., TWP 6	80	349909	\$20,995	\$190,574	\$14,696	\$2,386	1.4	18.2	181
100	Silver Lake, Bucksport	50	333114	\$19,987	\$142,788	\$13,991	\$2,858	1.8	18.4	182
185	Shin Brook Falls, T6R7	503	2210571	\$132,634	\$1,003,590	\$92,844	\$1,993	1.7	18.4	183
149	Gulf Stream, West Forks	54	237624	\$14,257	\$143,104	\$9,980	\$2,638	1.3	18.6	184
105	W.Br.L. Magalloway R., T5R4	127	558098	\$33,486	\$398,340	\$23,440	\$3,126	1.1	18.7	185
186	Sawelle Br. Falls, T6R7	433	1895799	\$113,748	\$915,831	\$79,624	\$2,117	1.7	19.6	186
58	L. Black Br., Andover NS	54	246140	\$14,768	\$145,381	\$10,338	\$2,716	1.4	19.7	187
170	S.Br. Penobscot, T4R4	223	978566	\$58,714	\$697,180	\$41,100	\$3,121	1.2	20.4	188
47	Whitecap Br., Grafton	54	236146	\$14,169	\$170,804	\$9,918	\$3,168	1.2	20.7	189
193	Musquacook S., T12R11	569	2814135	\$168,848	\$1,383,485	\$118,194	\$2,433	1.8	21.1	190
182	Lunksos Lake, T4R7	75	497244	\$29,835	\$275,415	\$20,884	\$3,657	1.6	21.1	191
183	Kimball Brook, T4R7	116	528645	\$31,719	\$312,467	\$22,203	\$2,701	1.5	21.1	192
201	Gardner Bk., Wade	40	177851	\$10,671	\$132,531	\$7,470	\$3,298	1.2	21.3	193
192	Three Brooks, Robinsons	78	342927	\$20,576	\$276,371	\$14,403	\$3,539	1.2	23.0	194
198	N.Branch Fox Br., T13R8	64	284290	\$17,057	\$232,247	\$11,940	\$3,612	1.2	23.3	195
189	Shields Brook, Masardis	36	206171	\$12,370	\$162,988	\$8,659	\$4,519	1.3	24.5	196
203	Hardwood Bk., Maysville	29	127697	\$7,662	\$121,501	\$5,363	\$4,168	1.1	24.9	197
181	Traveler Brook, T5R8	70	304551	\$18,273	\$269,391	\$12,791	\$3,874	1.2	25.3	198
200	Red River Falls, T14R8	173	756599	\$45,396	\$476,825	\$31,777	\$2,760	1.7	25.5	199
27	Dresden Bog, Dresden Mills	39	243082	\$14,585	\$167,800	\$10,209	\$4,341	1.6	26.3	200
188	Mill Brook, Ludlow	42	192582	\$11,555	\$196,297	\$8,088	\$4,688	1.2	29.1	201
197	Little Rocky Br., T11R10	43	189856	\$11,391	\$539,306	\$7,974	\$12,442	1.2	81.2	202



## APPENDIX A





CENTRAL MAINE POWER COMPANY

TABLE 2

PROPOSED DECREMENT 87C LEVELIZED AVOIDED COST RATES

This Decrement 87C levelized Avoided Cost Table is included to provide Project Sponsors with a basis for bidding a levelized rate. If the project's proposed Initial Date of Delivery (IDD) is in a month other than July, the Decrement 87C levelized rate used for comparing and scoring the levelized rate the Project Sponsor bids will vary somewhat from the rates stated in this table.

Decrement 87C Rates  
(Levelized \$/kWh for Projects with July 1, IDD's)

Term of Agreement  
(In Years Ending June 30)

July 1 IDD Date	5*	6	7	8	9	10	11	12	13	14	15	16	17	18
1988	3.12	3.53	3.84	4.06	4.23	4.44	4.68	4.88	5.04	5.18	5.30	5.41	5.51	5.60
1989	3.82	4.17	4.40	4.57	4.81	5.06	5.27	5.45	5.59	5.72	5.83	5.94	6.03	6.11
1990	4.64	4.87	5.03	5.27	5.55	5.77	5.94	6.09	6.22	6.34	6.44	6.53	6.61	-
1991	5.52	5.63	5.86	6.14	6.36	6.53	6.67	6.80	6.91	7.02	7.10	7.18	-	-
1992	6.22	6.44	6.72	6.93	7.10	7.23	7.34	7.46	7.56	7.64	7.71	-	-	-
1993	6.73	7.05	7.27	7.44	7.57	7.69	7.80	7.90	7.99	8.05	-	-	-	-

(Discount Rate = 11.00%)

\*Projects must have at least a 5 year term to qualify for a long-term PPA.

USE 77.82% OF THIS



Central Maine Power Company

Cogeneration/Small Power Production  
Total Avoided Costs

[DECREMENT 87C]

APPENDIX A

page 1

<u>Year</u>	<u>Proposed</u> <u>Annual Avoided Cost</u> <u>(NON-LEVELIZED)</u> <u>cents/kWh</u>
-------------	---

1988	2.60
1989	2.35
1990	2.54
1991	2.54
1992	4.48
1993	6.30
1994	6.51
1995	6.74
1996	6.32
1997	6.61
1998	9.34
1999	9.17
2000	9.42
2001	9.25
2002	9.37
2003	9.86
2004	10.11
2005	10.20
2006	10.14
2007	10.14

- 15 YEAR CONTRACT PERIOD

Note:

Some Project Sponsors may prefer to submit a percent (%) of Total Avoided cost response to Part II, Section 4 (PRICE INDEX) of the RFP. In such cases, Central Maine requests that, for consistency, these be based on a percent (%) of the Decrement 87C avoided cost figures shown above. This will clearly indicate to Central Maine the price the Project Sponsor proposes to receive, and Central Maine will normalize all PRICE INDEX computations to the same basis for scoring and ranking purposes.



## **APPENDIX B**



APPENDIX B - SPREADSHEET B - ECONOMIC ANALYSIS SORTED BY GEOGRAPHIC REGION (SOUTHWEST TO NORTHEAST)

#	Site Name, Town	Loca tion	Cap. kW	Phase	Energy kW-hr/yr	Gr Income \$/year	Dev Cost \$	Trans O (Miles)	Trans Cst \$	Total Dev Cost \$	Est Net Inc (\$/yr)	PB1 (Yrs)	PB2 (Yrs)	\$/KW (Yrs)	Prel Rank	Envir. Factor	PB2E (Yrs)	Final Rank
1	L. Ossipee, N. Shapleigh	43/36'	70/53'	109	1	493415	\$29,605	\$250,800	\$17,300	\$269,800	\$20,723	12.1	12.6	\$2,389	170	1.4	17.6	176
2	Northwest R., E. Sebago	43/52'	70/39'	134	3	730546	\$43,833	\$276,538	\$1,000	\$277,538	\$30,683	9.0	9.1	\$2,071	115	1.8	16.3	165
3	Highland L., Brighton	44/03'	70/43'	243	3	1408856	\$84,537	\$454,421	\$1,000	\$455,421	\$59,176	7.7	7.7	\$1,885	71	1.8	13.9	140
4	Royal R., U. Gloucester	44/03'	70/18'	49	1	216234	\$12,975	\$72,576	\$3,000	\$75,576	\$9,083	8.0	8.2	\$1,531	84	1.1	9.0	36
5	Presque Isle R., W. Cumberland	43/48'	69/48'	62	3	250129	\$17,408	\$93,921	\$7,000	\$100,921	\$12,185	6.9	7.5	\$1,466	62	1.3	9.7	11
6	Catharine R., Topsham	43/57'	69/48'	262	3	1946715	\$92,803	\$478,448	\$11,000	\$489,448	\$64,962	7.4	7.5	\$1,668	64	1.6	12.1	55
7	Keoka L., Watford	44/10'	70/43'	62	1	368680	\$22,121	\$142,776	\$7,000	\$149,776	\$15,485	9.2	9.3	\$2,325	126	1.8	16.8	170
8	Marshall Pond, W. Minot	44/10'	70/24'	60	1	282699	\$16,962	\$73,481	\$7,000	\$80,481	\$11,873	6.2	6.8	\$1,342	36	1.3	8.8	31
9	Swan Pond, Buckfield	44/19'	70/20'	35	1	112212	\$9,733	\$46,661	\$2,500	\$49,161	\$6,813	12.7	13.1	\$2,550	175	1.3	17.1	172
10	Snow Falls, West Paris	44/19'	70/20'	246	1	160022	\$66,661	\$351,312	\$4,000	\$355,312	\$46,662	5.4	5.5	\$1,039	11	1.7	9.3	42
11	Sandborn R., Willis Mill	44/18'	70/39'	61	1	276633	\$16,598	\$102,140	\$4,000	\$106,140	\$11,619	8.8	9.2	\$1,751	121	1.1	10.1	65
12	Chapman R., Bethel	44/26'	70/50'	70	1	308158	\$18,499	\$140,078	\$2,500	\$142,578	\$12,943	10.8	11.0	\$2,027	156	1.3	14.3	143
13	Lower Stony Br., Newry	44/29'	70/47'	60	1	263111	\$15,817	\$111,245	\$1,300	\$112,545	\$11,072	10.0	10.2	\$1,870	143	1.1	11.2	98
14	Big Brook, Gilead	44/23'	70/55'	80	1	395606	\$23,736	\$96,297	\$8,500	\$104,797	\$16,615	5.8	6.3	\$1,310	24	1.4	8.8	33
15	Twitche Brook, Gilead	44/24'	70/58'	85	1	374164	\$22,450	\$135,427	\$11,500	\$146,927	\$15,715	8.6	9.3	\$1,720	127	1.0	9.3	43
16	Jordan Brook, Riley	44/29'	70/55'	99	1	432265	\$25,966	\$136,709	\$5,500	\$142,209	\$18,197	7.5	7.6	\$1,438	76	1.0	7.8	13
17	U. Sunday River, Riley	44/29'	70/56'	148	1	647095	\$38,826	\$243,619	\$23,500	\$267,119	\$27,178	9.0	9.8	\$1,908	137	1.2	11.8	109
18	Merrill Brook, Newry	44/28'	70/53'	105	1	457726	\$27,484	\$137,196	\$13,000	\$150,196	\$19,224	7.1	7.8	\$1,437	75	1.0	7.8	12
19	S. Branch Sunday R., Riley	44/28'	70/57'	64	1	278528	\$16,712	\$86,852	\$1,000	\$87,852	\$11,698	7.4	8.8	\$1,817	110	1.1	9.7	54
20	W. Br. Pleasant R., Mason	44/21'	70/51'	65	1	284358	\$17,061	\$120,541	\$2,500	\$123,041	\$11,943	10.1	10.3	\$1,896	149	1.2	12.4	126
21	Upper Larry Br., Riley	44/26'	71/01'	193	1	843708	\$50,623	\$270,045	\$35,500	\$305,545	\$38,436	7.8	8.6	\$1,586	100	1.1	9.5	47
22	Lower Larry Br., Riley	44/24'	70/01'	464	1	2033615	\$122,017	\$691,520	\$65,500	\$757,020	\$85,412	8.1	8.2	\$1,508	86	1.2	9.8	58
23	Howard Pond Br., Hanover	44/30'	70/41'	116	1	581845	\$34,911	\$154,358	\$1,600	\$155,958	\$24,437	6.3	6.4	\$1,347	26	1.6	10.2	67
24	Long Pd., N. Livermore	44/26'	70/12'	32	1	200611	\$12,037	\$72,709	\$1,750	\$74,459	\$8,426	8.6	8.8	\$2,305	112	1.8	15.9	159
25	Wilson Pd., N. Monmouth	44/17'	70/02'	48	3	296943	\$17,617	\$92,669	\$2,000	\$94,669	\$12,472	7.4	7.6	\$1,962	67	1.6	12.2	122
26	Vaughn Br., Hollowell	44/16'	69/47'	82	3	379321	\$22,759	\$112,835	\$1,800	\$114,635	\$16,800	7.1	7.2	\$1,386	46	1.2	8.6	28
27	Dresden Bog, Dresden Mills	44/06'	69/42'	39	1	243082	\$14,585	\$166,050	\$1,750	\$167,800	\$10,209	16.3	16.4	\$4,341	191	1.6	26.3	200
28	Eastern R., E. Princeton	44/11'	69/40'	75	1	360341	\$19,820	\$93,700	\$3,500	\$97,200	\$13,874	6.5	7.1	\$1,177	13	1.2	8.6	28
29	Crawford Pk., South Union	44/12'	69/45'	194	3	967174	\$58,030	\$224,807	\$3,000	\$227,807	\$4,621	5.5	5.6	\$1,177	13	1.2	6.7	6
30	St. George R., Union	44/14'	69/17'	332	3	1568866	\$94,133	\$416,539	\$11,000	\$427,539	\$65,893	7.0	7.4	\$1,692	59	1.4	10.4	75
31	Picher Pk., Lincolnville	44/19'	69/02'	69	1	378747	\$22,725	\$111,860	\$5,500	\$117,360	\$15,907	7.3	7.3	\$1,343	33	1.3	9.5	48
32	Oyster Br., East Warren	44/07'	69/12'	88	1	386352	\$23,181	\$114,484	\$4,000	\$118,484	\$16,227	7.1	7.3	\$1,343	33	1.3	9.5	48
33	Shaw Brook, Northport	44/20'	68/57'	65	1	226239	\$14,174	\$75,486	\$5,500	\$80,986	\$9,922	7.8	8.2	\$1,520	82	1.4	11.4	106
34	Little River, Belfast	44/24'	69/00'	53	1	206329	\$14,174	\$75,486	\$5,500	\$80,986	\$9,922	7.8	8.2	\$1,520	82	1.4	11.4	106
35	Goose R., East Belfast	44/26'	69/00'	171	3	789560	\$47,375	\$194,613	\$2,400	\$197,013	\$33,162	5.9	5.9	\$1,155	18	1.3	7.7	9
36	Passagawassawag R., E. Blist.	44/27'	69/03'	174	3	801461	\$48,088	\$270,060	\$5,000	\$275,060	\$33,661	8.0	8.2	\$1,578	83	1.2	9.8	57
37	Lake St. George, Liberty	44/24'	69/20'	100	3	1111199	\$66,672	\$335,241	\$9,000	\$344,241	\$46,670	2.9	3.1	\$1,445	1	1.1	3.4	1
38	Pond Brook, Grafton	44/33'	70/57'	67	1	29123	\$17,503	\$68,768	\$4,000	\$72,768	\$11,768	5.6	9.1	\$1,678	119	1.4	12.8	129
39	St. George R., Union	44/14'	69/17'	332	3	1568866	\$94,133	\$416,539	\$11,000	\$427,539	\$65,893	7.0	7.4	\$1,692	59	1.4	10.4	75
40	St. George R., Union	44/14'	69/17'	332	3	1568866	\$94,133	\$416,539	\$11,000	\$427,539	\$65,893	7.0	7.4	\$1,692	59	1.4	10.4	75
41	Goose Eye Brook, Riley	44/31'	70/56'	222	1	973328	\$58,400	\$341,614	\$17,500	\$359,114	\$40,890	8.4	8.8	\$1,616	108	1.4	12.3	125
42	Dunn Falls, Andover N.S.	44/39'	70/54'	1090	3	5241049	\$314,453	\$1,554,219	\$141,000	\$1,695,219	\$220,124	7.1	7.7	\$1,570	70	2.0	15.4	154
43	Frye Br., Andover N.S.	44/38'	70/51'	166	1	727256	\$43,635	\$198,174	\$1,750	\$200,924	\$30,545	6.5	6.6	\$1,210	30	1.6	10.5	83
44	Stony Brook, Andover	44/38'	70/47'	186	1	852863	\$51,172	\$267,106	\$1,750	\$268,856	\$35,620	7.5	7.5	\$1,381	63	1.2	9.0	38
45	Great Brook, Newry	44/31'	70/49'	103	1	450183	\$27,011	\$126,974	\$1,750	\$128,724	\$19,908	6.7	6.8	\$1,252	37	1.0	6.8	8
46	Chase Hill Brook, Newry	44/33'	70/49'	123	1	561097	\$33,666	\$150,687	\$1,750	\$152,437	\$23,566	6.4	6.5	\$1,240	27	1.2	7.8	10
47	Whitecap Br., Grafton	44/38'	70/56'	54	1	236146	\$14,169	\$109,804	\$6,000	\$115,804	\$9,918	11.1	17.2	\$3,168	194	1.2	20.7	189
48	Burroughs Br., Andover N.S.	44/39'	70/51'	62	1	272203	\$16,332	\$101,119	\$4,000	\$105,119	\$11,433	8.8	9.2	\$1,691	122	1.3	12.0	113
49	Abbott Brook, Andover	44/39'	70/32'	84	1	366087	\$21,965	\$108,820	\$5,000	\$113,820	\$15,376	7.1	7.2	\$1,321	42	1.2	8.6	27
50	Moody Br., Andover N.S.	44/41'	70/48'	82	1	361213	\$21,673	\$105,142	\$1,450	\$106,592	\$15,171	6.9	7.0	\$1,293	42	1.2	8.4	20
51	U. Black Br., Andover N.S.	44/43'	70/46'	120	1	527619	\$31,657	\$210,304	\$34,000	\$244,304	\$22,160	9.5	11.0	\$2,028	157	1.2	13.2	133
52	Sawyer Br., Andover N.S.	44/44'	70/47'	91	1	400279	\$24,017	\$220,128	\$7,000	\$227,128	\$16,812	13.1	13.5	\$2,485	178	1.3	17.6	174
53	Wright Br., Newry	44/34'	70/52'	244	1	1070115	\$64,207	\$297,257	\$1,300	\$298,557	\$16,945	6.6	6.6	\$1,222	33	1.4	9.3	41
54	Upper Miles Notch, Riley	44/32'	70/54'	73	1	319675	\$19,181	\$89,943	\$1,000	\$90,943	\$13,426	6.6	8.0	\$1,479	80	1.5	12.1	119
55	Lower Miles Notch, Riley	44/32'	70/54'	62	1	268962	\$16,192	\$99,663	\$1,600	\$101,263	\$11,334	8.8	10.2	\$1,877	144	1.6	16.3	164
56	Howe Br., Andover	44/33'	70/43'	44	1	193416	\$11,605	\$65,530	\$5,000	\$70,530	\$8,123	8.1	9.1	\$1,576	117	1.2	10.9	93
57	Ellis Falls, Andover	44/38'	70/42'	115	3	527275	\$31,636	\$132,965	\$2,000	\$134,965	\$22,146	6.0	6.1	\$1,177	20	1.3	7.9	15
58	Black Br., Andover N.S.	44/41'	70/44'	54	3	246140	\$14,758	\$102,381	\$4,000	\$106,381	\$14,538	9.9	14.1	\$2,716	181	1.4	19.7	187
59	Swift R. Coos Canyon, Byron	44/43'	70/38'	291	3	1358686	\$80,322	\$353,652	\$1,000	\$354,652	\$37,842	6.3	6.7	\$1,287	34	1.7	11.3	102
60	Garland Br., Byron	44/41'	70/41'	153	3	776190	\$46,571	\$234,593	\$31,000	\$265,593	\$32,600	7.2	8.1	\$1,732	81	1.1	9.0	34
61	E. Br. Swift R., Byron	44/44'	70/38'	275	3	1282985	\$75,779	\$479,761	\$3,000	\$482,761	\$53,045	9.0	9.1	\$1,758	116	1.3	11.8	110
62	Noisy Brook, Roxbury	44/41'	70/36'	113	1	506846	\$30,411	\$118,169	\$1,750	\$119,919	\$12,888	5.6	5.6	\$1,061	14	1.1	6.2	3
63	Walker Brook, Roxbury	44/39'	70/35'	138	1	609026	\$36,542	\$216,512	\$1,750	\$218,262	\$25,579	8.5	8.5	\$1,570	93	1.2	10.2	69
64	Androscoggin R., Rumford	44/31'	70/31'	90625	3	125035121	\$7,502,107	\$84,838,214	\$1,600	\$86,438,214	\$5,251,475	16.2	16.2	\$936	190	1.1	17.8	190
65	Snowman Br., Weld	44/31'	70/28'	45	1	196252	\$11,775	\$69,950	\$1,300	\$71,250	\$8,243	8.5	8.6	\$1,590	103	1.1	9.5	49
66	Swett Brook, Weld	44/41'	70/28'	43	1	166283	\$11,177	\$75,783	\$1,300	\$77,083	\$7,924	9.7	9.9	\$1,813	139	1.1	10.9	92
67	Webb River, Dixfield	44/32'	70/27'	280	3	1290513	\$77,431											





APPENDIX B - SPREADSHEET B - ECONOMIC ANALYSIS SORTED BY GEOGRAPHIC REGION (SOUTHWEST TO NORTHEAST)

#	Site Name, Town	Loca tion	Cap. kW	Phase	Energy kW-hr/yr	Gr. Income \$/year	Dev. Cost \$	Trans. D (Miles)	Trans. Cst \$	Total Dev Cost \$	Est. Net Inc (\$/yr)	PB1 (yrs)	PB2 (yrs)	\$/KW (yrs)	PreI. Rank	Envr. Factor	PB2E (yrs)	Final Rank	
75	Temple Brook, Wilton	44/39'	77	3	354401	\$21,264	\$149,710	0.15	\$4,000	\$153,710	\$14,685	10.1	10.3	\$1,995	150	1.3	13.4	136	
76	Upper Alder Bk., Temple	44/42'	30	3	185135	\$11,108	\$80,414	1.00	\$21,000	\$101,414	\$7,776	10.3	13.0	\$2,519	174	1.1	14.3	145	
77	Berry Brook, Carthage	44/38'	38	3	165169	\$9,970	\$57,679	0.08	\$2,200	\$59,879	\$6,790	8.3	8.6	\$1,578	97	1.2	10.3	73	
78	Metalick Bk., Richardson	44/49'	168	1	734877	\$44,093	\$230,021	6.10	\$92,500	\$322,521	\$30,865	9.4	12.4	\$2,280	169	1.2	14.9	151	
79	Metalick Stream, Richardson	44/49'	74	1	497006	\$29,820	\$119,998	0.05	\$1,750	\$121,749	\$20,814	5.7	5.8	\$1,639	171	1.4	8.2	19	
80	Mountain Bk., TWP D	44/47'	70/43'	246	3	1169322	\$70,159	\$260,936	3.00	\$321,936	\$49,112	5.3	6.6	\$1,310	29	1.3	8.5	23	
81	W.B. Swift R., Byron	44/45'	70/40'	157	3	721262	\$43,276	\$243,270	0.60	\$13,000	\$261,270	8.1	8.6	\$1,665	101	1.3	11.2	100	
82	Barns Stream, TWP D	44/48'	70/44'	147	1	644518	\$38,671	\$203,369	3.00	\$13,000	\$249,369	7.5	9.2	\$1,665	123	1.2	10.0	81	
83	Mott Stream, TWP E	44/47'	70/39'	71	3	327322	\$16,639	\$123,150	0.50	\$11,000	\$134,150	7.5	9.2	\$1,665	101	1.3	11.2	100	
84	Four Ponds Bk., TWP O	44/50'	70/42'	182	1	1238716	\$74,323	\$244,707	2.50	\$38,500	\$323,207	4.7	5.4	\$1,555	9	1.7	9.3	39	
85	Stock Br. Swift R., TWP 6	44/35'	70/35'	80	1	349009	\$20,995	\$137,074	3.50	\$53,500	\$190,574	4.0	9.8	\$1,805	135	1.6	15.6	157	
86	Swift River, TWP E	44/37'	70/38'	240	3	1105717	\$66,343	\$388,485	0.20	\$5,000	\$393,485	8.4	8.5	\$2,388	173	1.4	18.2	181	
87	Chandler Mill S., TWP E	44/52'	70/32'	163	1	710219	\$42,731	\$254,968	0.02	\$1,300	\$256,268	\$29,912	8.5	8.6	\$1,637	91	1.3	11.1	95
88	Sandy River, TWP E	44/52'	70/32'	165	1	721897	\$43,314	\$273,336	1.20	\$19,000	\$292,336	\$30,320	9.0	9.6	\$1,768	133	1.6	15.8	153
89	Jont Stream, TWP 6	44/48'	70/30'	52	1	226266	\$13,576	\$60,804	3.00	\$46,000	\$148,661	\$20,599	7.1	7.2	\$1,328	51	1.3	9.4	44
90	Saddleback S., Madrid	44/53'	70/29'	112	1	490457	\$29,427	\$146,161	0.70	\$2,500	\$148,661	\$20,599	7.1	7.2	\$1,328	51	1.3	9.4	44
91	Perham Stream, Madrid	44/55'	70/24'	247	1	1020268	\$64,924	\$341,253	0.05	\$11,500	\$352,753	\$45,447	7.5	7.8	\$1,428	73	1.3	10.1	62
92	Quack Stream, Salem	44/55'	70/19'	121	1	531768	\$31,906	\$167,827	0.40	\$7,000	\$174,827	\$22,334	7.5	7.8	\$1,428	73	1.3	10.1	62
93	Conant Stream, Madrid	44/54'	70/26'	164	1	716535	\$43,112	\$254,870	0.05	\$1,750	\$256,620	\$30,179	8.4	8.5	\$1,564	92	1.2	9.4	45
94	McBlue Stream, Avon	44/47'	70/16'	266	3	1225109	\$73,507	\$436,154	0.30	\$7,000	\$443,154	\$51,455	8.5	8.6	\$1,664	99	1.4	12.1	118
95	Falls Brook, West Mills	44/46'	70/01'	81	1	353089	\$21,185	\$146,376	0.05	\$5,500	\$151,876	\$14,830	9.9	10.2	\$1,894	146	1.3	13.3	135
96	Lemon Stream, West Mills	44/46'	70/00'	63	1	280709	\$16,843	\$141,544	0.05	\$1,750	\$143,294	\$11,790	12.0	12.2	\$2,268	166	1.3	15.8	158
97	Martin Stream, Plymouth	44/46'	69/13'	200	1	922208	\$55,332	\$394,444	0.20	\$4,000	\$398,444	\$38,733	10.2	10.3	\$1,995	148	1.5	15.4	155
98	Sandy Stream, Freedom	44/42'	69/18'	58	3	326841	\$19,610	\$79,630	0.20	\$5,000	\$84,630	\$13,727	5.8	6.2	\$1,460	23	1.1	6.8	7
99	Marsh Stream, Monroe Ctr.	44/35'	69/02'	237	1	1044305	\$62,658	\$355,944	0.05	\$1,750	\$361,694	\$43,861	8.2	8.2	\$1,525	87	1.3	10.7	87
100	Shirley Lake, Bucksport	44/35'	68/47'	50	3	333114	\$19,987	\$140,788	0.05	\$2,000	\$142,788	\$13,991	10.1	10.2	\$2,558	145	1.8	18.4	182
101	Toddy Pond, E. Orland	44/34'	68/41'	355	3	2234282	\$134,057	\$480,707	0.08	\$2,600	\$483,307	\$93,840	5.1	5.2	\$1,360	4	1.3	6.7	5
102	Frost Brook, N. Manville	44/47'	68/25'	73	3	444454	\$26,667	\$93,950	2.50	\$51,000	\$144,950	\$18,667	5.0	7.3	\$1,990	74	1.1	8.5	24
103	Beech Hill Pond, Ots	44/40'	68/26'	77	3	598520	\$35,911	\$130,478	0.10	\$3,000	\$133,478	\$25,138	5.2	5.3	\$1,726	7	1.6	8.5	22
104	W.B. S., Smithville	44/32'	67/57'	118	1	517104	\$31,026	\$147,869	0.20	\$4,000	\$151,869	\$23,718	6.8	7.0	\$1,292	41	1.5	10.5	80
105	W.B. L. Magalloway R., T5R4	45/08'	71/02'	127	1	556098	\$33,486	\$198,340	13.20	\$199,000	\$398,340	\$23,440	6.5	10.0	\$1,971	140	1.1	10.9	143
106	Moose Brook, T5R4	45/09'	70/59'	281	1	1272350	\$76,341	\$399,000	0.50	\$38,500	\$437,500	\$34,339	7.5	8.2	\$1,555	85	1.1	18.7	185
107	Magalloway River, T5R4	45/07'	70/59'	843	1	3917499	\$235,050	\$1,393,139	2.60	\$91,000	\$1,484,139	\$164,535	8.5	9.0	\$1,760	114	1.9	17.0	173
108	Cuscutup River, T4R4	45/05'	70/57'	105	1	5138184	\$308,291	\$1,453,295	5.00	\$76,000	\$1,529,295	\$215,804	6.7	7.1	\$1,383	44	1.7	12.0	116
109	Tim Pond, T2R4	45/11'	70/37'	67	1	400837	\$24,056	\$90,785	5.50	\$83,500	\$174,285	\$16,839	5.4	10.3	\$2,615	151	1.4	14.5	147
110	Lower Tim Br., Eustis	45/12'	70/31'	100	1	437922	\$26,275	\$78,622	2.20	\$34,000	\$102,622	\$18,393	9.7	11.6	\$2,134	163	1.2	13.9	138
111	Reed Brook, Eustis	45/10'	70/30'	55	3	230653	\$15,039	\$107,027	3.10	\$63,000	\$170,027	\$10,527	10.2	16.2	\$3,120	189	1.1	17.8	179
112	Alder Stream, T2R5	45/14'	70/37'	1096	3	5318223	\$139,093	\$1,368,932	12.10	\$243,000	\$1,611,932	\$223,385	6.1	7.2	\$1,471	50	1.5	10.8	91
113	N. Br. Alder Stream, T2R5	45/16'	70/41'	89	3	148400	\$25,104	\$148,830	3.00	\$61,000	\$174,830	\$17,573	6.5	10.0	\$1,971	140	1.1	10.9	143
114	L. Cascade S., Sandy River	44/55'	70/35'	172	1	784569	\$47,074	\$248,830	0.05	\$1,750	\$250,580	\$32,952	7.6	7.6	\$1,458	66	1.5	11.4	104
115	U. Cascade S., Sandy River	44/55'	70/34'	77	1	362161	\$20,720	\$112,739	4.00	\$61,000	\$173,739	\$15,211	7.4	11.4	\$2,192	160	1.2	13.7	138
116	Hardy Stream, Madrid	44/56'	70/26'	79	1	325353	\$20,121	\$122,019	2.10	\$32,500	\$154,519	\$14,085	8.7	11.0	\$2,018	155	1.1	12.1	120
117	Cherton Stream, Madrid	44/58'	70/24'	138	1	639167	\$38,350	\$238,670	4.20	\$64,000	\$302,670	\$26,845	8.9	11.3	\$2,191	159	1.3	14.7	150
118	Rapid Stream, Kingfield	44/57'	70/14'	246	3	1133466	\$68,008	\$430,259	1.10	\$23,000	\$453,259	\$47,606	9.0	9.5	\$1,839	131	1.2	11.4	105
119	Alder Brook, Kingfield	44/57'	70/12'	105	1	461801	\$27,714	\$171,494	0.80	\$13,000	\$184,494	\$18,494	8.8	9.5	\$1,749	130	1.1	10.5	78
120	Titus Pond Brook, Kingfield	44/57'	70/12'	44	1	217518	\$14,583	\$81,884	0.05	\$1,750	\$83,637	\$9,136	8.9	9.1	\$1,909	120	1.1	10.0	61
121	Caribou Valley, Bigelow	45/04'	70/20'	633	3	2909712	\$174,563	\$668,557	0.60	\$13,000	\$683,557	\$122,208	7.1	7.2	\$1,393	49	1.4	10.1	64
122	Stoney Brook, Stratton	45/06'	70/22'	130	3	598955	\$35,837	\$215,641	0.05	\$2,000	\$217,641	\$25,156	8.6	8.7	\$1,671	105	1.2	10.4	76
123	Hammond Field Bk., Carrabass.	45/02'	70/12'	67	1	294245	\$17,635	\$95,302	0.80	\$13,000	\$108,302	\$12,358	7.7	8.8	\$1,612	107	1.2	10.5	81
124	Reed Brook, Kingfield	45/01'	70/11'	83	1	362673	\$21,760	\$104,146	0.80	\$13,000	\$117,146	\$15,232	6.8	7.7	\$1,415	69	1.1	8.5	21
125	Butler Pond, Lexington	45/01'	70/06'	122	1	595997	\$35,760	\$161,141	1.90	\$29,500	\$190,641	\$25,032	6.4	7.6	\$1,567	68	1.3	9.9	60
126	Sandy Stream, Highland Ptn	45/05'	70/02'	830	1	3635575	\$218,134	\$1,699,605	0.05	\$1,750	\$1,501,355	\$162,684	9.8	9.8	\$1,809	138	1.3	12.8	130
127	Houston Bk., Pleasant Ridge	45/04'	69/57'	196	1	888266	\$33,296	\$225,798	0.08	\$2,200	\$227,998	\$37,307	6.1	6.1	\$1,161	52	1.3	7.9	16
128	Caring Place S., T1R3	45/10'	69/59'	202	1	882819	\$52,969	\$263,406	0.30	\$5,500	\$268,906	\$37,078	7.1	7.3	\$1,334	21	1.3	9.4	46
129	Pierce Pond S., T1R3	45/14'	70/01'	1007	1	2217618	\$376,657	\$1,279,817	0.50	\$6,500	\$1,286,317	\$263,660	4.9	4.9	\$1,279	2	1.8	8.8	30
130	Pleasant P. S., Carratunk	45/14'	69/59'	381	1	1210966	\$132,658	\$522,321	0.05	\$1,750	\$524,071	\$82,861	5.6	5.6	\$1,375	151	1.4	7.9	14
131	Austin Stream, Moscow	45/08'	69/48'	1137	1	5258588	\$315,515	\$1,324,345	0.05	\$1,750	\$1,326,095	\$220,861	6.0	6.0	\$1,167	19	1.3	7.8	11
132	Holly Brook, The Forks	45/06'	69/58'	117	1	145462	\$30,874	\$179,364	0.10	\$2,500	\$181,864	\$18,964	8.3	8.4	\$1,548	89	1.2	10.1	63
133	Kelly Brook, The Forks	45/18'	69/58'	139	1	609158	\$36,549	\$213,067	0.30	\$5,500	\$218,567	\$25,585	8.1	8.5	\$1,572	94	1.2	10.3	71
134	Fall Brook, Sdon	44/57'	69/51'	303	3	1409775	\$84,566	\$360,949	0.05	\$2,000	\$362,949	\$59,211	6.1	6.1	\$1,166	22	1.3	8.0	17
135	Wyman Pond, Brighton	45/01'	69/42'	31	1	211641	\$12,698	\$93,358	0.50	\$8,500	\$101,858	\$8,889	10.5	11.5	\$3,303	161	1.4	16.0	183
136	E. Br. Westunet S. Brighton	45/03'	69/42'	72	1	442318	\$26,539	\$168,916	0.30	\$5,500	\$174,416	\$18,577	9.1	9.4	\$2,427	128	1.7	16.0	180
137	Wellington Bog, Wellington	45/04'	69/37'	285	1	1533075	\$93,184	\$364,427	0.60	\$10,000	\$374,427	\$65,229	5.6	5.7	\$1,315	16	1.7	9.8	56
138																			



APPENDIX B - SPREADSHEET B - ECONOMIC ANALYSIS SORTED BY GEOGRAPHIC REGION (SOUTHWEST TO NORTHEAST)

#	Site Name, Town	Location	Cap kW	Phase	Energy KW-hr/yr	Gr Income \$/year	Dev. Cost \$	Trans D (Miles)	Trans Cst. \$	Total Dev Cost \$	Est. Net Inc (\$/yr)	PB1 (Yrs)	PB2 (Yrs)	\$/KW	PreI Rank	Envir. Factor	PBZE (Yrs)	#
148	Enchanted Stream, T2P5	45/20'	70/06'	573	1	2511127	\$150,668		\$103,000	\$1,028,185	\$105,467	8.8	9.7	\$1,793	134	1.3	12.7	128
149	Gulf Stream, West Forks	45/21'	70/04'	54	1	237624	\$14,257		\$62,500	\$143,104	\$9,890	8.1	14.3	\$2,638	185	1.3	18.6	148
150	Salmon Stream, West Forks	45/22'	70/01'	429	1	1807236	\$12,814		\$17,500	\$691,569	\$78,970	9.5	8.8	\$1,611	106	1.4	12.3	184
151	Durbin Brook, West Forks	45/21'	69/59'	96	1	417672	\$25,060		\$142,979	\$174,729	\$17,542	8.2	8.3	\$1,518	88	1.3	10.7	150
152	Cold Stream, West Forks	45/24'	70/00'	483	3	2221457	\$13,287	0.60	\$13,000	\$306,922	\$93,301	8.5	8.6	\$1,671	104	1.1	9.5	152
153	Tombegon S., West Forks	45/24'	69/58'	129	3	592323	\$35,594	2.20	\$45,000	\$243,738	\$24,916	8.0	9.8	\$1,890	136	1.1	10.8	153
154	Movie Falls, Movie Gore	45/25'	69/56'	1548	3	8063138	\$483,788		\$101,000	\$1,793,907	\$338,652	5.0	5.3	\$1,159	5	2.0	10.6	85
155	Black Brook, Movie Gore	45/25'	69/54'	324	3	1667073	\$100,024	2.10	\$43,000	\$443,851	\$70,017	5.7	6.3	\$1,368	25	1.8	11.4	104
156	Dead Stream Pond, W Forks	45/27'	69/55'	168	3	822845	\$49,371		\$29,000	\$261,735	\$34,539	6.7	7.6	\$1,555	65	1.3	9.8	59
157	Chase Stream, T1R6	45/27'	69/54'	277	3	1301967	\$78,120	0.90	\$19,000	\$400,256	\$44,694	7.0	7.3	\$1,444	55	1.3	9.5	157
158	E. Br. Piscataquis R., Shirley	45/20'	69/37'	491	3	2266679	\$136,001	2.50	\$51,000	\$706,142	\$95,201	6.9	7.4	\$1,441	60	1.6	11.9	112
159	U.L. Wilson S., Ellitsville	45/22'	69/31'	54	1	237581	\$14,255	3.20	\$49,000	\$140,369	\$9,978	9.2	14.1	\$2,622	182	1.1	15.5	156
160	L.L. Wilson S., Ellitsville	45/22'	69/31'	431	1	1896770	\$13,806	1.50	\$23,500	\$562,680	\$79,664	6.8	7.1	\$1,306	43	1.7	12.0	114
161	Long Pond S., Ellitsville	45/25'	69/24'	569	1	3036298	\$182,298	4.00	\$61,000	\$940,918	\$257,667	6.1	6.6	\$1,477	31	1.6	10.5	64
162	Benson P., Williams	45/21'	69/20'	105	1	603972	\$36,238	1.50	\$23,500	\$177,224	\$25,609	6.1	7.0	\$1,690	40	1.5	10.5	79
163	South Brook, Beaver Cove	45/24'	69/26'	82	1	360231	\$21,614	1.80	\$28,000	\$155,761	\$15,130	7.1	9.0	\$1,680	113	1.2	10.8	90
164	Gulf Hedges Br., T7R10	45/29'	69/18'	102	1	445609	\$28,737	2.50	\$38,500	\$165,017	\$18,716	6.8	8.4	\$1,622	111	1.7	15.0	152
165	Hay Brook, T7R10	45/29'	69/16'	66	1	290179	\$17,411	1.00	\$16,000	\$102,798	\$12,188	7.1	8.8	\$1,552	90	1.7	14.3	144
166	White Brook, T7R10	45/30'	69/16'	155	1	678948	\$40,737	11.00	\$166,000	\$396,422	\$28,516	7.7	13.6	\$2,483	179	1.3	17.6	177
167	Shanty Mtn. Br., TBR11	45/32'	69/10'	48	1	210619	\$12,637	5.10	\$77,500	\$141,536	\$8,846	7.2	16.0	\$2,943	188	1.1	17.6	167
168	Mud Gaulelet Br., TBR10	45/32'	69/03'	92	1	411878	\$24,713	0.20	\$4,000	\$134,253	\$17,299	7.5	7.8	\$1,461	72	1.7	13.2	132
169	E. Br. Pleasant R., TBR10	45/32'	69/02'	396	1	1734861	\$104,092	5.20	\$79,000	\$622,818	\$72,864	7.5	8.5	\$1,572	95	1.7	14.5	148
170	S. Br. Penebosc, T4R4	45/51'	70/12'	223	1	978566	\$58,714	1.30	\$260,500	\$697,180	\$41,100	10.6	17.0	\$3,121	192	1.2	20.4	186
171	Cheney Pond, T3R4	45/54'	70/11'	161	1	885824	\$53,749	3.50	\$53,500	\$279,915	\$27,625	6.0	7.4	\$1,743	61	1.4	10.4	77
172	Regged Lake, T2R12	45/47'	69/19'	463	3	3168747	\$190,125	10.10	\$203,000	\$881,775	\$133,087	5.1	6.6	\$1,902	32	1.6	10.6	86
173	Pollywood Pond, T2R11	45/47'	69/11'	816	3	3830702	\$229,842	0.60	\$13,000	\$1,176,635	\$116,889	7.2	7.3	\$1,442	54	1.4	10.2	68
174	River Stream, T2R11	45/47'	69/10'	402	3	2816750	\$169,005	7.20	\$145,000	\$645,761	\$118,303	4.2	5.5	\$1,606	10	1.7	9.3	40
181	Traveler Brook, T5R8	46/03'	68/48'	70	1	304551	\$18,273	12.00	\$181,000	\$269,391	\$12,791	6.9	21.1	\$3,874	199	1.2	25.3	198
182	Lunkos Lake, T4R7	45/59'	68/41'	75	1	497244	\$29,635	9.90	\$145,500	\$275,415	\$20,684	6.0	13.2	\$3,657	176	1.6	21.1	191
183	Kinball Brook, T4R7	46/01'	68/25'	116	1	528645	\$31,719	6.40	\$97,000	\$312,467	\$22,203	9.7	14.1	\$2,701	183	1.5	21.1	192
184	Wassataquoque S., T3R7	45/54'	68/28'	950	3	4367540	\$262,052	7.60	\$153,000	\$1,917,926	\$183,437	9.6	10.5	\$2,020	152	1.6	16.7	169
185	Shin Brook Falls, T6R7	46/07'	68/36'	503	1	2210571	\$132,634	13.00	\$196,000	\$1,003,590	\$92,844	8.7	10.8	\$1,993	154	1.7	18.4	183
186	Sawelle Br. Falls, T6R7	46/08'	68/38'	433	3	1866799	\$17,674	1.10	\$17,500	\$915,631	\$79,624	11.3	11.5	\$2,117	162	1.7	19.6	186
187	Dunn Brook, Ludlow	46/09'	68/03'	53	3	294569	\$17,674	0.10	\$3,000	\$114,956	\$12,372	9.0	9.3	\$2,163	124	1.5	13.9	141
188	Mill Brook, Ludlow	46/09'	68/25'	42	3	192582	\$11,555	0.50	\$11,000	\$196,297	\$8,088	22.9	24.3	\$4,688	201	1.2	29.1	201
189	Shields Brook, Masardis	46/20'	68/20'	36	1	206171	\$139,488	1.50	\$23,500	\$162,968	\$8,659	16.1	18.8	\$4,519	196	1.3	24.5	196
190	Squa Pan Lake, Masardis	46/25'	68/03'	123	3	863896	\$51,634	0.30	\$7,000	\$194,489	\$36,284	5.2	5.4	\$1,584	8	1.6	8.6	25
191	Nine Lake, TDR2	46/25'	68/03'	27	1	154969	\$9,298	0.40	\$7,000	\$276,371	\$14,403	19.0	19.2	\$2,306	132	1.4	13.4	137
192	Three Brooks, Robinsons	46/28'	67/51'	78	1	342927	\$20,576	0.10	\$2,500	\$276,371	\$14,403	19.0	19.2	\$2,306	132	1.4	13.4	137
193	Musquecock S., T1R11	46/42'	69/11'	569	1	2814135	\$168,848	30.00	\$451,000	\$1,383,485	\$118,194	7.9	11.7	\$2,433	164	1.8	21.1	190
197	Little Rocky Br., T1R10	46/37'	68/59'	43	1	188656	\$11,391	30.00	\$451,000	\$539,306	\$7,974	11.1	67.6	\$12,442	202	1.2	81.2	202
198	N. Branch Fox Br., T1R8	46/48'	68/49'	64	1	284290	\$17,057	4.50	\$83,500	\$232,247	\$1,940	12.5	19.5	\$3,612	198	1.2	23.3	195
199	Fish River Falls, T14R8	46/51'	68/44'	315	1	1634220	\$96,053	4.50	\$68,500	\$458,016	\$68,637	5.7	6.7	\$1,455	35	1.8	12.0	115
200	Red River Falls, T14R8	46/45'	68/44'	173	1	756599	\$45,396	7.50	\$113,500	\$476,835	\$31,777	11.4	15.0	\$2,760	186	1.7	25.5	199
201	Gardner Br., Wade	46/46'	68/14'	40	1	177851	\$10,671	0.10	\$2,500	\$132,531	\$17,470	17.4	17.7	\$3,298	195	1.2	21.3	193
202	Preslie Br., Caribou	46/46'	68/00'	38	3	178755	\$10,725	0.30	\$7,000	\$92,301	\$7,508	11.4	12.3	\$2,408	168	1.3	16.0	161
203	Hardwood Br., Maysville	46/47'	67/59'	29	1	127697	\$7,662	0.20	\$4,000	\$121,507	\$5,363	21.9	22.7	\$4,168	200	1.1	24.9	197
204	Wyes Br., Allegan	47/07'	68/58'	38	1	167598	\$10,056	0.10	\$2,500	\$79,292	\$7,039	10.9	11.3	\$2,072	158	1.1	12.4	127
207	Wiggins Br., St. Francis	47/07'	68/57'	50	1	222724	\$13,363	0.10	\$2,500	\$110,259	\$9,354	11.5	11.8	\$2,201	165	1.4	16.5	168
208	McLean Br., St. Francis	47/07'	69/55'	88	1	385162	\$23,110	0.10	\$2,500	\$127,562	\$16,177	7.7	7.9	\$1,451	79	1.1	8.7	29
209	Pette Br., St. Francis	47/08'	69/54'	40	1	174031	\$10,442	0.90	\$14,500	\$116,910	\$7,309	14.0	16.0	\$2,942	187	1.1	17.6	176
210	Thibodeau Br., St. Francis	47/11'	69/52'	87	1	382915	\$22,975	0.10	\$2,500	\$170,920	\$16,082	10.4	10.6	\$1,949	153	1.1	11.7	108
211	Gilmore Br., Eagle Lake	47/06'	68/06'	46	3	212534	\$12,752	0.50	\$3,000	\$78,266	\$8,926	8.4	8.8	\$1,694	108	1.2	10.5	82
212	Fall Br., New Canada	47/08'	69/03'	59	1	267880	\$16,073	0.50	\$8,500	\$115,518	\$11,251	9.5	10.3	\$1,973	147	1.4	14.4	146
213	Gagnon Br., Frenchville	47/19'	68/23'	61	3	281870	\$16,912	0.10	\$3,000	\$120,242	\$11,939	9.9	10.2	\$1,962	142	1.2	12.2	123
214	Marin Br., Hardin	47/04'	67/51'	55	3	264509	\$15,871	1.50	\$31,000	\$104,991	\$11,109	6.7	9.5	\$1,924	129	1.4	13.2	134

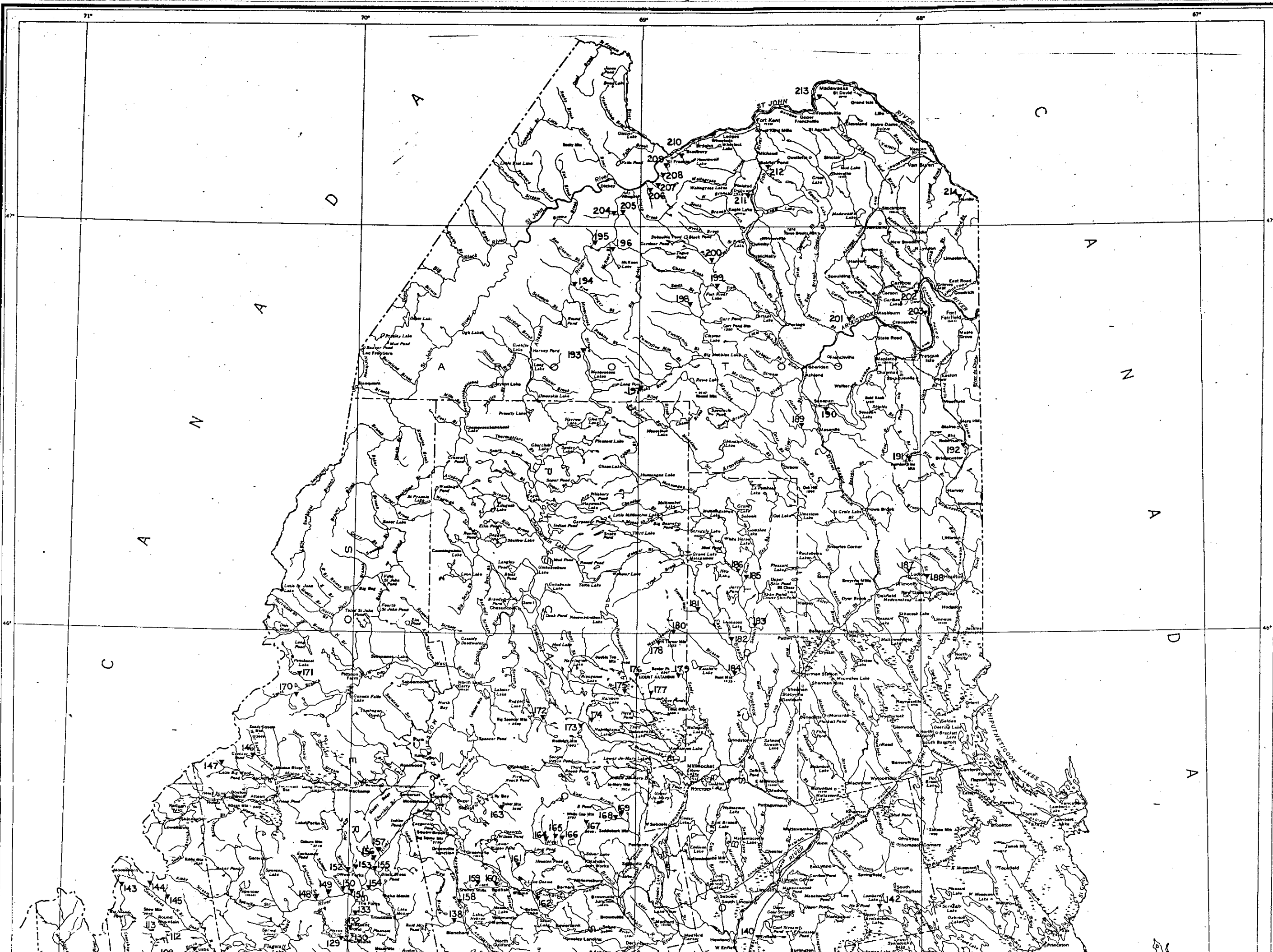
\*Indicates a distance to closest proposed hydro project to be interconnected to utility.



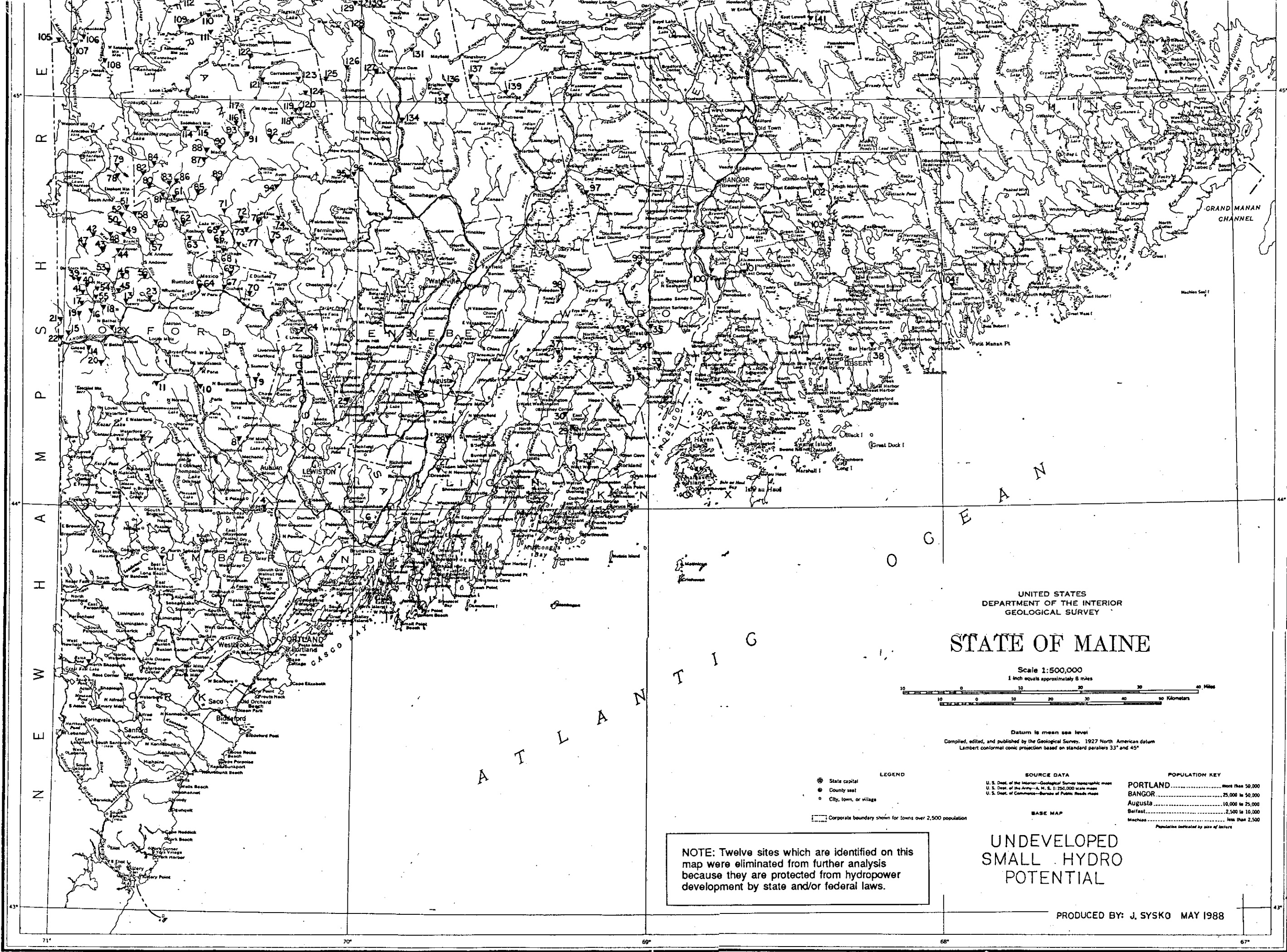
## APPENDIX C











UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

# STATE OF MAINE

Scale 1:500,000  
1 inch equals approximately 8 miles



Datum is mean sea level  
Compiled, edited, and published by the Geological Survey, 1927 North American datum  
Lambert conformal conic projection based on standard parallels 33° and 45°

- LEGEND
- State capital
  - County seat
  - City, town, or village

Corporate boundary shown for towns over 2,500 population

SOURCE DATA  
U.S. Dept. of the Interior—Geological Survey topographic maps  
U.S. Dept. of the Army—A. H. S. 1:250,000 scale maps  
U.S. Dept. of Commerce—Bureau of Public Roads maps

BASE MAP

POPULATION KEY

PORTLAND	More than 50,000
BANGOR	25,000 to 50,000
Augusta	10,000 to 25,000
Belfast	2,500 to 10,000
Machias	less than 2,500

Population indicated by size of letters

NOTE: Twelve sites which are identified on this map were eliminated from further analysis because they are protected from hydropower development by state and/or federal laws.

## UNDEVELOPED SMALL HYDRO POTENTIAL

PRODUCED BY: J. SYSKO MAY 1988



UNIV OF MAINE - GORHAM



3 1390 00388043 0

TK 1424 M2 S9 1989

Susko, James D.

Feasibility study of Maine's  
small hydropower potential

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