

DEPARTMENT OF ADMINISTRATION
FINAL REPORT
ENERGY CONSERVATION
IN STATE OWNED BUILDINGS

JANUARY 18, 1983

SUBMITTED TO

SANDRA J. HALE

COMMISSIONER

DEPARTMENT OF ADMINISTRATION

PREPARED BY

ENERGY CONSERVATION

DIVISION OF

DEPARTMENT OF ADMINISTRATION

Pursuant to Mn Stat 116H.122...this
is FINAL REPORT due 12/30/1982

STATE OF MINNESOTA

DEPARTMENT OF ADMINISTRATION

*Office Memorandum*TO : The Honorable Rudy Perpich
Governor

DATE: January 18, 1983

FROM : Sandra J. Hale
Commissioner *Sandra J. Hale*

PHONE: 296-3862

SUBJECT: Department of Administration - Final Report
on Energy Conservation in State Owned Buildings

Transmitted herewith, in compliance with Minnesota Statutes 1980, Section 116H.122, is the Department of Administration's final progress report on energy conservation in state owned buildings.

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INTRODUCTION

The primary objective of the Energy Conservation Division in the Department of Administration is to determine efficient methods for managing energy usage in state owned buildings which results in reduced energy consumption. The State of Minnesota has realized a savings of \$21.7 million through efforts of this division and physical plant departments throughout the state.

The Energy Conservation Division was created by the 1974 Legislature, House File 500, Chapter 333, and amended 1981; Chapter 356, Section 148, which states:

116H.122 ENERGY CONSERVATION IN STATE OWNED BUILDINGS

By June 30, 1982, the Commissioner of Administration, in cooperation with the Commissioner, shall complete a mini-audit or maxi-audit of all buildings which are heated and owned by the State of Minnesota, including buildings and associated facilities of the State University System, the State Fair-grounds as defined in Section 37.01, the Minnesota Historical Society building, and all buildings under the administration or supervision of the Commissioners of Natural Resources, Corrections, Welfare, and Transportation. The Commissioner of Administration shall determine the estimated remaining useful life of each building, together with the present degree and estimated cost of compliance with the energy conservation standards promulgated pursuant to Section 116H.121. The Commissioner of Administration shall estimate the annual potential savings in units of fuel and fuel procurement costs which would be realized for each state owned building if its operating procedures were modified and it were improved to comply with each of the energy conservation standards promulgated pursuant to Section 116H.121. If appropriations are inadequate to complete a mini-audit or maxi-audit of all state owned buildings, the Commissioner of Administration shall give priority to buildings of 25,000 or more square feet. If the Commissioner of Administration determines that a modification is economically feasible, in that savings in fuel procurement costs will exceed the cost of the modification amortized over the remaining useful life of the building, he shall recommend implementation of the modification to the Legislature. The Commissioner of Administration shall submit to the Legislature an annual progress report on January 1 of each year and a final progress report by December 31, 1982, indicating the number and percentage of state owned buildings surveyed, the estimated costs of implementing the economically feasible modifications, the energy savings and costs resulting from implementing such modifications, and his findings, recommendations, and priorities for implementing economically feasible modifications. History: 1981, Ch. 356, Sec. 148.

This final report includes the information requested by the Legislature including:

- o The number and percentage of state owned buildings surveyed.
- o The estimated costs of implementing the economically feasible modifications.
- o The energy savings and costs resulting from implementing such modifications.
- o The findings, recommendations, and priorities for implementing economically feasible modifications.

BACKGROUND

The State of Minnesota owns approximately 3,192 buildings with 29,921,298 square feet; it is estimated that 1,880 buildings are heated. A list of the buildings has been placed in the data base "SHELTER" (State Housing, Engineering, Land, Transportation, Energy, Real Property). As energy surveys are conducted, information is entered in the data base which reflects current operations and conditions. Priority for surveying buildings was given to those over 25,000 square feet in size as directed by the Legislature. Prior to initiating surveys, several tasks were completed. First, guidelines were drafted which defined what procedures and codes would be used during the conduct of the surveys. Secondly, engineering consultants were hired to conduct on-site energy surveys and to review existing building plans. Finally, based on the survey results, a detailed report on energy saving measures was developed. These reports include the units of energy saved, the costs necessary to make energy retrofit modifications, and the required payback period.

SURVEY

To date a total of 998 buildings have been surveyed or 53% of all heated buildings. This figure includes all buildings which are 25,000 square feet or more. These buildings were given priority as was directed by the Legislature. There are no more funds available to hire outside consultants to do energy surveys on buildings below 25,000 square feet. Energy Conservation Division staff may be able to do an additional 15-20 buildings before the end of this year. A tabulation of all the buildings surveyed is shown in Table I. All of these buildings have a remaining useful life of over 25 years depending on the changing needs of the facility. Appendix A is a summary of the report data which shows the impact these surveys and the resulting modifications have had on the State's energy consumption.

Of the 998 buildings surveyed to date, forty were done in 1982. Seven consultants, together with division staff, performed these maxi-audits on twenty-one different complexes. Twenty-five of the buildings audited were greater than 25,000 square feet. A list of buildings surveyed in 1982 is shown in Table II.

Also during 1982, division staff reviewed consultant proposals for summer boilers at St. Peter and Brainerd State Hospitals. These items were considered because of changes in costs that now make their installation economically feasible.

ESTIMATED COSTS

The estimated costs for 1982 proposed energy conservation measures are \$3,202,966. This figure includes measures that were proposed in 1981, but not funded, as well as new energy conservation measures that have been generated from information gathered in the 1982 survey. Appendix B is a breakdown of this cost by building complex. Appendix C is a copy of the report that estimates the savings and costs resulting from implementation of the 1982 Energy measures. Appendix D is a summary of 1981 energy schemes.

ENERGY SAVINGS AND COSTS

The current program for reporting energy use has been in operation since 1979. Using the information from this program, savings that have resulted from all energy conservation modifications have been calculated by comparing each years' energy use with energy use in 1973, the base year. The total energy savings figured in BTU's is 12,107,026 which translates into a dollar savings of \$21,729,604.

In recent years, \$2,163,000 was saved in FY '82 as a result of energy conservation measures implemented in 1981. If the

TABLE 1
ENERGY SURVEYS COMPLETED ON STATE OWNED BUILDINGS

Complex	Buildings Greater Than 25,000 Sq. Ft.	Total of All Buildings Surveyed
1. Capitol Complex	10	11
2. Metro Area Bldgs.	5	15
3. State Universities	67	86
4. Dept. of Welfare	89	172
Community Colleges	38	118
6. Dept. of Corrections	29	134
7. Dept. of Transportation	12	21
8. Dept. of Veteran Affairs	5	22
9. Dept. of Nat. Resources	1	9
10. Dept. of Economic Security	2	2
11. Dept. of Military Affairs	10	364
12. Zoological Building	3	14
13. Dept. of Education (Braille & Deaf)	5	20
14. State Fair Buildings	2	8
15. Iron Range Resources	1	2
TOTAL	278	998

TABLE II

ENERGY SURVEYS COMPLETED ON STATE OWNED BUILDINGS in 1982

	Buildings Greater Than 25000 Sq. Ft.	Total of All Bldgs. Surveyed
1. Minneapolis Community College	4	4
2. State Fair Buildings	2	7
3. Dept. of Military Affairs		
a) Duluth Armory	1	1
b) Holman Field Armory	1	1
c) Rochester Armory	1	1
d) St. Cloud Armory	1	1
f) St. Paul Armory	1	1
g) Stillwater Armory	1	1
h) Windom Armory	0	1
i) Worthington Armory	1	1
4. Dept. of Natural Resources:		
a) Bemidji Headquarters	0	1
b) Grand Rapids Headquarters	1	3
c) French River Headquarters	0	2
d) Rochester Headquarters	0	1
5. Dept. of Transportation:		
a) Detroit Headquarters	1	1
b) Rochester Headquarters	1	1
c) St. Cloud Headquarters	1	1
d) Windom Headquarters	1	1
6. Iron Range Resources and Rehabilitation Interpretive Center	1	2
7. Bemidji State University	5	7
TOTAL	25	40
Reviewed St. Peter Hospital Proposal for summer boiler	-	-
Reviewed Brainerd Hospital Proposal for summer boiler	-	-

measures proposed in this report are implemented, an additional \$862,000 can be saved next year.

The reported cost of energy since 1979 is \$60,230,485. The sixty-two complexes who reported energy consumption in FY 1982 spent \$17,676,600. These dollars were spent for natural gas, fuel oil, coal, propane, lignite, electricity and steam.

The cost of operating the program since 1976, when the first surveys were done, has been \$1,432,394. This cost includes the operating budget of the Energy Conservation Division as well as the \$200,000 appropriated in 1979 for the purpose of hiring outside consultants to perform the energy surveys. To date the cost of designing and installing energy conservation measures has been \$9,270,638. This money has been spent on retrofit measures in 526 different buildings. \$687,050 remains to complete the measures proposed for these buildings. There are thirty-nine buildings over 25,000 square feet and 393 under 25,000 square feet which have been surveyed but have not yet been retrofitted. The funds needed to perform the recommended measures are described in Appendix B.

FINDINGS

- o Lighting modifications such as replacement of incandescent light fixtures with fluorescents, and replacement of older, higher wattage tubes with new high efficiency fluorescent ones, top the list of items with a high return on investment. (0-3 years)
- o Changes to the temperature control system for heating and cooling accounts for the larger first cost but also yields a high return on investment (0-3.5 years).
- o Preventive maintenance is another cost effective measure for saving energy. Without a preventive maintenance program to monitor heating and air conditioning equipment and systems, an undetected failure in the control systems could cause a 5% to 10% increase in energy consumption. A computerized program of preventive maintenance has been developed the Capitol Complex, Oak Park Prison, St. Cloud State University, and soon to start is St. Cloud Reformatory and Willmar and Brainerd State Hospitals.
- o Energy management by the operating personnel using either automated or manual systems is an area where there is a potential for significant savings. Good energy management means that equipment is operated at its optimal level of efficiency at

all times. Energy savings from this type of program can be as much as 10% to 30%.

- o The possibility of using alternative energy sources such as solar or wind, was studied, but consultants found that the return on investment ranged from 20 to 100 years. However, in order to be eligible for any matching fund grants from the Department of Energy's School/Hospital program, the Energy Conservation Division will continue to study this area.
- o The educational seminars conducted by the Energy Conservation Division in cooperation with the Minnesota Energy Agency (now the Department of Energy, Planning, and Development), have been well received by physical plant personnel. Most of these classes have dealt with methods of saving energy that can be implemented by in-house staff. Smaller sessions have been held for specific institutions or departments to discuss opportunities to conserve energy without large expenditures of funds.

RECOMMENDATIONS AND PRIORITIES

In order of priority, the Energy Conservation Division recommends that over the next two years:

1. All energy conservation measures that provide a return on investment of 0-5 years be funded. This includes the request for \$3,202,966 that is outlined in this report.
2. Existing buildings that have reduced energy consumption be surveyed again to determine if further savings can be made and to check if systems are operating as designed and installed.
3. Energy surveys be completed for the 110 heated and air conditioned buildings that are 10,000 square feet or greater. The estimated cost for this is \$135,000.
4. The present energy monitoring computer program be expanded so that more agencies will be reporting their energy usage.
5. Plant maintenance personnel continue to be trained by Energy Conservation Division

staff and the Minnesota Energy Agency on how to operate, monitor, and expand their energy management systems in order to achieve peak operating efficiency for their equipment.

6. A method be designed to monitor the steam trap maintenance program that is being proposed for installation in complexes by the Minnesota Department of Energy, Planning and Development.
7. A schedule be developed by the Energy Conservation Division to expand the preventive maintenance program to include all state-owned buildings.
8. The possibility be investigated of designing new state buildings to have the capability of burning three fuels such as: oil, natural gas, and wood pellets.

APPENDIX A

SUMMARY OF REPORT DATA

I. Survey Information

A. All buildings surveyed

Number in 1982	40
Number from 1976-1982	998
% in 1982	2%
% from 1976-1982	53%

B. 25,000 sq. ft. or more

Number in 1982	25
Number from 1976-1982	278
% in 1982	9%
% from 1976-1982	100%

II. Estimated cost of implementing
economically feasible modifications \$3,202,966

III. Estimated savings resulting from
proposed modifications \$862,030

IV. Energy savings resulting from the
efforts of the Energy Conservation
Division

A. FY 1982 savings	
Electrical	25,163,797 KWH
Heating	363,917 MMBTU
Dollars	\$2,163,129

B. Accumulated savings since FY 1977

V. Reported energy Costs

A. In FY 1982	\$17,676,600
B. Since FY 1977	

APPENDIX B

ENERGY RETROFIT

FY '84 - '85 REQUEST

SUMMARY

1. State Universities:

a)	St. Cloud State, St. Cloud, MN Building Automation System	\$ 367,852
b)	Mankato State, Mankato, MN Install oxygen trim controls on boiler	34,652
c)	Bemidji State University	
	Seven buildings: Laboratory #13, Maintenance & service, Memorial Hall, Beaver, Hobson, Industrial Education #1, and Limnology #4	558,014

2. Department of Welfare:

a)	St. Peter Hospital: Summer boiler	140,000
b)	Brainerd Hospital: Summer boiler	140,000

3. State College Systems:

a)	Minneapolis Community College, Mpls., MN Commons, Maxwell and Library	128,678
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4. Department of Corrections:

a)	Sauk Center Home School, Sauk Center, MN Seventeen Buildings: Alcott, Chapel, Dubois, Evers, Industry, Lind, Maintenance/Garage, Mary Lyon Annex, Mary Lyon School, Morse Hall, Pettit, Richard, Sen. Popps, Sinclair Lewis, Stow, Sullivan, and Tekawitha.	45,168
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b)	Thistledew Camp, Togo, MN: Twelve Buildings: Activities, Bachelor, Challenge Lodge, Chapel Classroom, Director's Residence, Dormitory, Kitchen/Dining, Office, Pump House, and two triplex Residences	111,149
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c)	Red Wing Corrections, Red Wing, MN:
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	Twenty buildings: Administration & Dining, Carpenter Shop, Chapel, Dayton, Pump, Duke, Ford Prep., Green House, Grinnel, Harvard, Knox, Paint Shop, Princeton, School Bldg., Stanford, Voc Bldg. & Power,
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Volunteer Center, Welding Classroom,
Welding Shop & Pump

470,588

d) Will River Corrections, Willow River, MN:

Install new gas line to replace propane

86,834

5. Department of Transportation:

a) Detroit Lakes, Detroit Lakes, MN	26,444
b) Rochester District Headquarters, Rochester, MN	30,080
c) St. Cloud District Headquarters, St. Cloud, MN	11,739
d) Windom District Headquarters, Windom, MN	18,323
e) Virginia District Headquarters, Virginia, MN±	4,541

6. Department of Education:

a) Minnesota Deaf School, Faribault, MN

Eleven Buildings: Frechette Hall, Gymnasium,
Laundry, Mott, Noyes, Pollard, Power Plant &
Maintenance, Quinn, Service Bldg., Smith, and
Tait

161,083

b) Minnesota Braille School, Faribault, MN

Five buildings: Activities, Dow, East,
Laundry, Library and Utility

8,759

7. Department of Natural Resources:

a) Bemidji Regional Headquarters, Bemidji, MN	67,051
b) French River Hatchery, Duluth, MN: Three bldgs.	12,891
c) General Andrews Nursery, Willow River, MN	33,638
d) Grand Rapids Regional Headquarters, Grand Rapids, MN	9,121
e) Rochester Regional Headquarters, Rochester, MN	5,781
f) St. Paul Fish Hatchery, St. Paul, MN	18,529

8. Iron Range Resources and Rehabilitation:

Chisholm, MN.: Two buildings

71,298

9. Department of Military Affairs:

a) Camp Ripley, Little Falls, MN 321 Miscellaneous Buildings Building "U-53" estimated cost: \$110,223	299,530
b) Duluth Armory, Duluth, MN	33,374
c) Mankato Armory, Mankato, MN	7,766
d) Rochester, Armory, Rochester, MN	7,840
e) St. Cloud Armory, St. Cloud, MN	24,921
f) St. Paul Armory, St. Paul, MN	23,624
g) St. Paul Armory, Holman Field, St. Paul, MN	107,502

h)	Stillwater Armory, Stillwater, MN	1,034
i)	Windom Armory, Windom, MN	1,369
j)	Worthington Armory, Worthington, MN	1,754
10. Minnesota Fair Grounds: Miscellaneous Buildings		<u>132,039</u>
	TOTAL	\$3,202,966

APPENDIX C

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

SYSTEM:CONSUL:SCHEME:	DESCRIPTION	KWH	MMBTU	DOLLAR	FIRST : (FOOT)	KIND : (NOTE)	EXTRA : (#1)	TOTAL : (FT NOTE)	PAYBACK : (#2)
NUMBER:REPORT: TYPE :		SAVED	SAVED	SAVED	COST	(#1)	(#2)	ADJUSTED: COST	YEARS :
REF.:		PER	PER	PER					
NUMBER:		YEAR	YEAR	YEAR					

COMPLEX TOTALS (MINNEAPOLIS COMMUNITY COLLEGE)	335994	3955	43782	102238		26440	128678		
COMPLEX TOTALS (DULUTH NATIONAL GUARD ARMORY)	32019	4077.6	10593.43	26569		6805	33374		
COMPLEX TOTALS (MANKATO ARMORY)	487	376	1652	6210		1556	7766		
COMPLEX TOTALS (ROCHESTER ARMORY)	30441	377	5335	6252		1588	7840		
COMPLEX TOTALS (ST CLOUD ARMORY)	15400	1503	8719	20450		4471	24921		
COMPLEX TOTALS (ST.PAUL ARMORY)	210637	5333	38846	104005		27121	131126		
COMPLEX TOTALS (WINDOM ARMORY)	1242	63	283	1118		251	1369		
COMPLEX TOTALS (WORTHINGTON ARMORY)	1188	100.5	551	1435		319	1754		
COMPLEX TOTALS (BEMIDJI-DNR REGION #1 HQQS.)	116638	175	11822.5	53166		13885	67051		
COMPLEX TOTALS (DNR-REGN.2.HQQS.GRAND RAPIDS)	0	101.8	762	2160		563	2723		
COMPLEX TOTALS (GRAND RAPIDS-DNR,REGION#2 HQQS.)	16980	0	1188	873		81	954		
COMPLEX TOTALS (NORTHERN SERVICE CENTER)	6247	346.7	1458	4333		1111	5444		
COMPLEX TOTALS (ROCHESTER HQQS.-DNR)	32595	35	2375	4651		1130	5781		
COMPLEX TOTALS (STILLWATER ARMORY)	2040	163	995	848		186	1034		
COMPLEX TOTALS (DNR-DULUTH)	11086	605.6	5449.94	10221		2670	12891		
COMPLEX TOTALS (DETROIT LAKES-DOT)	8000	1992	10931	21393		5051	26444		
COMPLEX TOTALS (ROCHESTER HQQS.-DOT)	26074	1303	8699	23850		6230	30080		
COMPLEX TOTALS (ST CLOUD-DOT)	6600	917	3707	9391		2348	11739		
COMPLEX TOTALS (VIRGINIA DOT)	0	202	808	3600		941	4541		
COMPLEX TOTALS (WINDOM-DOT)	4407	778	3656	14530		3793	18323		
COMPLEX TOTALS (INTERPRETATIVE CNTR.)	81884	675.2	19100	55948		14621	70569		
COMPLEX TOTALS (RESEARCH-CHISHOLM)	9758	82.1	985	617		112	729		
COMPLEX TOTALS (MINNESOTA STATE FAIRGROUNDS)	564818	7184.8	59565	104984		27055	132039		
COMPLEX TOTALS (BEMIDJI STATE UNIVERSITY)	690152	20252.6	144600	445225		112789	558014		
REPORT TOTALS	2204687	50598.9	385842.87	1024067		261117	1285184		

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT:TYPE: REF.: NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST (FOOT) :(NOTE): (#1):	KIND :(#2):	EXTRA COST :(FT NOTE): (#2):	TOTAL ADJUSTED: COST	PAYBACK: YEARS:
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BLDG TOTALS (ADMINISTRATION/CLASSROOM)	59330	613	6684	5872	1512			7384	
BLDG TOTALS (GYMNASIUM)	14125	292	2613	3476	896			4372	
BLDG TOTALS (LIBRARY)	16046	615	4903	10284	2557			12841	
BLDG TOTALS (MEMORIAL HALL)	12935	871	6702	17638	4493			22131	
BLDG TOTALS (MULTIPLE BLDGS)	233558	1564	22880	64968	16982			81950	
COMPLEX TOTALS (MINNEAPOLIS COMMUNITY COLLEGE)	335994	3955	43782	102238	26440			128678	
BLDG TOTALS (DULUTH NATIONAL GUARD ARMORY)	32019	4077.6	10593.43	26569	6805			33374	
COMPLEX TOTALS (DULUTH NATIONAL GUARD ARMORY)	32019	4077.6	10593.43	26569	6805			33374	
BLDG TOTALS (MANKATO ARMORY)	487	376	1652	6210	1556			7766	
COMPLEX TOTALS (MANKATO ARMORY)	487	376	1652	6210	1556			7766	
BLDG TOTALS (ROCHESTER ARMORY)	30441	377	5335	6252	1588			7840	
COMPLEX TOTALS (ROCHESTER ARMORY)	30441	377	5335	6252	1588			7840	
BLDG TOTALS (ST CLOUD ARMORY)	15400	1503	8719	20450	4471			24921	
COMPLEX TOTALS (ST CLOUD ARMORY)	15400	1503	8719	20450	4471			24921	
BLDG TOTALS (ST. PAUL HOLMAN FIELD ARMORY)	123622	4160	28560	85250	22252			107502	
BLDG TOTALS (ST. PAUL ARMORY)	81015	1173	10286	18755	4969			23624	
COMPLEX TOTALS (ST.PAUL ARMORY)	210637	5333	38846	104005	27121			131126	
BLDG TOTALS (WINDOM ARMORY)	1242	63	283	1118	251			1369	
COMPLEX TOTALS (WINDOM ARMORY)	1242	63	283	1118	251			1369	
BLDG TOTALS (WORTHINGTON ARMORY)	1188	100.5	551	1435	319			1754	
COMPLEX TOTALS (WORTHINGTON ARMORY)	1188	100.5	551	1435	319			1754	
BLDG TOTALS (HEADQUARTERS-REGION #1 BEMIDJI)	116638	175	11822.5	53166	13885			67051	
COMPLEX TOTALS (BEMIDJI-DNR REGION #1 HQDS.)	116638	175	11822.5	53166	13885			67051	
BLDG TOTALS (GARAGE:G-1)	0	101.8	762	2160	563			2723	
COMPLEX TOTALS (DNR-REGN.2.HQDS.GRAND RAPIDS)	0	101.8	762	2160	563			2723	
BLDG TOTALS (HEADQUARTERS REGION #2)	16980	0	1188	873	81			954	
COMPLEX TOTALS (GRAND RAPIDS-DNR,REGION#2 HQDS.)	16980	0	1188	873	81			954	
BLDG TOTALS (NORTHERN SERV.CNTR.GRAND RAPIDS)	6247	346.7	1458	4333	1111			5444	
COMPLEX TOTALS (NORTHERN SERVICE CENTER)	6247	346.7	1458	4333	1111			5444	
BLDG TOTALS (ROCHESTER HQDS.-DNR)	32595	35	2375	4651	1130			5781	
COMPLEX TOTALS (ROCHESTER HQDS.-DNR)	32595	35	2375	4651	1130			5781	
BLDG TOTALS (STILLWATER ARMORY)	2040	163	995	848	186			1034	
COMPLEX TOTALS (STILLWATER ARMORY)	2040	163	995	848	186			1034	
BLDG TOTALS (FRENCH RIVER SALMONID. HATCH.FAC)	11086	605.6	5449.94	10221	2670			12891	
COMPLEX TOTALS (DNR-DULUTH)	11086	605.6	5449.94	10221	2670			12891	
BLDG TOTALS (DETROIT LAKES-DOT)	8000	1992	10931	21373	5051			26444	
COMPLEX TOTALS (DETROIT LAKES-DOT)	8000	1992	10931	21373	5051			26444	
BLDG TOTALS (ROCHESTER HQDS.-DOT)	26074	1303	8699	23850	6230			30080	

COMPLEX TOTALS (ROCHESTER HQS.-DOT)	26074	1303	8699	23850	6230	30080
BLDG TOTALS (ST CLOUD-DOT) COMPLEX TOTALS (ST CLOUD-DOT)	6600 6600	917 917	3707 3707	9391 9391	2348 2348	11739 11739
BLDG TOTALS (HEADQUARTERS) COMPLEX TOTALS (VIRGINIA DOT)	0 0	202 202	808 808	3600 3600	941 941	4541 4541
BLDG TOTALS (WINDOM-DOT) COMPLEX TOTALS (WINDOM-DOT)	4407 4407	778 778	3656 3656	14530 14530	3793 3793	18323 18323
BLDG TOTALS (IRON RANGE CENTER-CHISHOLM) COMPLEX TOTALS (INTERPRETATIVE CNTR.)	81884 81884	675.2 675.2	19100 19100	55948 55948	14621 14621	70569 70569
BLDG TOTALS (IRON RANGE CENTER) COMPLEX TOTALS (RESEARCH-CHISHOLM)	9758 9758	82.1 82.1	985 985	617 617	112 112	729 729
BLDG TOTALS (ADMINISTRATION/BLDG #332) BLDG TOTALS (COLISEUM/BLDG #501) BLDG TOTALS (GREENHOUSE/BLDG #462) BLDG TOTALS (0461 RESIDENCE/BLDG #461) BLDG TOTALS (0211 RESIDENCE/BLDG #211) BLDG TOTALS (0173 RESIDENCE/BLDG #173) BLDG TOTALS (SERVICE BLDG/BLDG #331) COMPLEX TOTALS (MINNESOTA STATE FAIRGROUNDS)	38790 515102 0 0 0 0 10721 564818	525.5 3079 2012 94.5 124.8 51.1 1290.9 7184.8	6083 29906 14416 43236 557 1263 2677 7217 59565	4640 43170 43236 11298 296 1559 521 3193 1057 8941 104984	1128 11279 11298 54449 296 1559 3193 1320 263 2270 27055	5768 54449 54534 11298 296 1559 3193 1320 263 11211 132039
BLDG TOTALS (EDUCATION AND ARTS BLDG #13) BLDG TOTALS (MAINTENANCE AND SERVICE) BLDG TOTALS (MEMORIAL HALL) BLDG TOTALS (BEAVER) BLDG TOTALS (HOBSON) BLDG TOTALS (INDUSTRIAL EDUCATION BLDG.#11) BLDG TOTALS (LIMNOLOGY #4) COMPLEX TOTALS (BEMIDJI STATE UNIVERSITY)	61693 16417 50047 405200 43982 78403 24410 690152	9773.1 467 2689 2726 1722 1934.5 871 20252.6	53100 3484 18112 35226 12442 15553 6493 144600	175884 15902 66556 78000 32000 53879 23004 445225	45592 4097 16310 20388 8364 12773 5265 112789	221476 19977 82866 98388 40364 66652 28269 558014
REPORT TOTALS	2204687	50598.9	385862.87	1024067	261117	1285184

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION
 SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : MINNEAPOLIS COMMUNITY COLLEGE

BUILDING : ADMINISTRATION/CLASSROOM

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT: TYPE	DESCRIPTION	KWH SAVED : REF. : NUMBER:	MMBTU SAVED : FER : YEAR	DOLLAR SAVED : PER : YEAR	FIRST COST	KIND (FOOT) (NOTE): :(#1)	EXTRA COST (FT NOTE): :(#2)	TOTAL ADJUSTED: COST	PAYBACK: YEARS
7004 4 ENVEL REPAIR WINDOW GASKETS		0	3	.21	0	1	0	0	0
7005 5 ENVEL REPLACE CLOSERS ON VESTIBULE DOORS		0	50	351	0	1	0	0	0
7007 6 ENVEL RECAULK JOINTS		0	25	175	50	3	8	58	.28
7008 7 ENVEL INSTALL NEW DOOR SWEEPS		0	3	23	52	3	8	60	2.26
7009 8 ENVEL INSTALL NEW DOOR STOP&WEATHERSTRIPPING		0	9	65	64	3	10	74	.98
7011 9 ENVEL INSTALL NEW DOOR SWEEPS		0	1	9	21	3	3	24	2.33
7014 14 HVAC MODIFY TEMP. SEQUENCE CONTROL		16315	168	1831	800	4	209	1009	.43
7016 15 HVAC MODIFY TEMP. CONTROL SEQUENCE		4894	136	1150	400	4	104	504	.34
7018 18 HVAC INSTALL ELECTRICAL INTERVAL TIMER		1468	86	663	1050	4	274	1324	1.58
7019 20 HVAC MODIFY HEATING PUMP CONTROL		2252	44	402	400	4	104	504	.99
7020 21 HVAC INSTALL NEW THERMOSTAT		0	88	617	800	4	209	1009	1.29
7021 22 HVAC TWO NEW THERMOSTATS		22080	0	883	1500	4	392	1892	1.69
7022 23 LIGHT DISCONNECT LAMPS		4032	0	161	0	1	0	0	0
7023 24 LIGHT TURN OFF LIGHTS IN UNOCCUPIED AREAS		1310	0	53	0	1	0	0	0
7024 25 ELEC REWIRE SWITCHES, INSTALL PHOTOCELL		1612	0	65	160	4	41	201	2.46
7025 26 LIGHT REPLACE FIXTURE W/FLUORESCENT&PHOTOCELL		5367	0	215	575	4	150	725	2.67
BUILDING TOTALS (ADMINISTRATION/CLASSROOM)		59330	613	6684	5872		1512	7384	

===== DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION =====
 ===== SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE =====

= COMPLEX : MINNEAPOLIS COMMUNITY COLLEGE =

= BUILDING : GYMNASIUM =

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT:TYPE: REF.: NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT): (NOTE): (#1):	EXTRA COST (FT NOTE): (#2):	TOTAL ADJUSTED COST	PAYBACK: YEARS: :
7037 38 ENVEL INSTALL WEATHERSTRIPPING&RECAULK	0 21 145	432	4	112	544	2.97			
7038 39 ENVEL INSTALL DOOR SWEEPS&WEATHERSTRIPPING	0 3 19	44	2	2	46	2.31			
7039 41 ELEC CONNECT OUTSIDE SENSOR	1609 0 64	300	4	78	378	4.68			
7040 42 ELEC PROVIDE HOT WATER RESET	0 85 597	1500	4	392	1892	2.51			
7041 43 HVAC MODIFY TEMP.CONTROL SEQUENCE	0 122 856	300	4	78	378	.35			
7042 45 HVAC MODIFY TEMP.CONTROL SEQUENCE	7342 26 480	600	4	156	756	1.25			
7043 47 HVAC MODIFY TEMP.CONTROL SEQUENCE	0 15 105	300	4	78	378	2.85			
7044 50 HVAC REDUCE HOT WATER TEMPERATURE	0 20 140	0	1	0	0	0			
7046 52 LIGHT DISCONNECT LAMPS	5174 0 207	0	1	0	0	0			
BUILDING TOTALS (GYMNASIUM)	14125 292 2613	3476		896	4372				

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION
 SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : MINNEAPOLIS COMMUNITY COLLEGE =

= BUILDING : LIBRARY =

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT: TYPE : REF. : : NUMBER:	DESCRIPTION	KWH SAVED : PER YEAR	MMBTU SAVED : PER YEAR	DOLLAR SAVED : PER YEAR	FIRST COST : (FOOT) :(#1)	KIND :(NOTE): :(#1)	EXTRA COST :(FT NOTE): :(#2)	TOTAL ADJUSTED COST	PAYBACK YEARS :
7049 55 ENVEL INSTALL NEW WEATHERSTRIPPING	0 3 19 44 2 2 46 2.31								
7050 56 ENVEL RECAULK	0 17 120 20 2 1 21 .16								
7051 57 ENVEL REPLACE DOOR STOPS	0 20 140 70 2 4 74 .5								
7052 58 ENVEL INSTALL A NEW DOOR ASSEMBLY	0 119 835 1500 4 392 1892 1.79								
7053 60 HVAC MODIFY TEMP.CONTROL SEQUENCE	0 96 673 2100 4 548 2648 3.12								
7054 61 HVAC MODIFY MULTIZONE UNITS CONTROL SYSTEM	0 192 1347 5400 4 1411 6811 4								
7055 62 HVAC RAISE MIXED AIR SETTING	0 168 1180 0 1 0 0 0								
7056 64 LIGHT TURN OFF LIGHTS IN UNOCCUPIED AREAS	3200 0 15 0 1 0 0 0								
7057 65 LIGHT TURN OFF LIGHTS IN UNOCCUPIED AREAS&CLEAN FIXTURES	7050 0 315 500 2 30 530 1.58								
7058 66 LIGHT DISCONNECT INCANDESCENT FIXTURES	5796 0 259 650 4 169 819 2.5								
BUILDING TOTALS (LIBRARY)	16046 615 4903 10284 2557 12841								

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION
 SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : MINNEAPOLIS COMMUNITY COLLEGE =

= BUILDING : MEMORIAL HALL =

SYSTEM:CONSUL:SCHEME:	NUMBER:REPORT:TYPE:	REF.: NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE): (#1)	EXTRA COST (FT NOTE): (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
7061	69	ENVEL	REMOVE OR COVER WINDOW AIR CONDITIONER	0	20	140	0	1	0	0	0
7062	70	ENVEL	REPLACE BROKEN WINDOWS	0	0	0	0	1	0	0	0
7063	71	ENVEL	REPAIR OR REPLACE DOOR CLOSERS	0	10	70	0	1	0	0	0
7064	72	ENVEL	INSTALL NEW DOOR SWEEP	0	3	18	42	2	2	44	2.33
7065	73	ENVEL	INSTALL NEW WEATHERSTRIPPING	0	35	244	486	2	29	515	1.99
7066	74	ENVEL	INSTALL NEW DOOR	0	89	625	1000	4	261	1261	1.6
7067	75	ENVEL	ADD 6" INSULATION	0	238	1670	7800	4	2038	9838	4.67
7069	77	ENVEL	INSTALL INSULATED PANELS OVER WINDOWS	0	153	1074	5280	4	1380	6660	4.91
7072	80	HVAC	RAISE MIXED AIR TEMPERATURE	0	78	547	0	1	0	0	0
7073	81	HVAC	CLOSE OFF KITCHEN EXHAUST	0	43	302	0	1	0	0	0
7074	82	HVAC	SEAL OFF ROOF VENTILATORS	0	43	302	225	4	58	283	.74
7075	84	HVAC	INSTALL NEW RADIATOR VALVES	0	127	892	1920	4	501	2421	2.15
7076	85	HVAC	INSTALL INTERVAL TIMERS	1117	32	275	700	4	182	882	2.54
7077	87	HVAC	INSTALL ENERGY CONSERVATION STICKERS	10878	0	500	25	2	1	26	.05
7078	88	ELEC	REWIRE LIGHT SWITCHES	940	0	43	160	4	41	201	3.72
BUILDING TOTALS (MEMORIAL HALL)				12935	871	6702	17638		4493	22131	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : MINNEAPOLIS COMMUNITY COLLEGE

BUILDING : MULTIPLE BUILDINGS

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT: TYPE: REF.: NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT): (NOTE): (#1)	EXTRA (FT NOTE): (#2)	TOTAL ADJUSTED: COST	PAYBACK: YEARS
7001 1 HVAC REDUCE PEAK STEAM DEMAND		0	0	0	1	0	0	0	0
7002 2 ELEC INSTALL CAPACITORS		0	0	2209	3468	4	906	4374	1.56
7003 3 HVAC INSTALL CENTRAL AUTOMATION SYSTEM OPTION A		233558	1564	20671	61500	4	16076	77576	2.97
BUILDING TOTALS (MULTIPLE BUILDINGS)		233558	1564	22880	64968		16982	81950	
COMPLEX TOTALS (MINNEAPOLIS COMMUNITY COLLEGE)		335994	3955	43782	102238		26440	128678	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : DULUTH NATIONAL GUARD ARMORY

BUILDING : DULUTH NATIONAL GUARD ARMORY

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT:TYPE: REF.: NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE): (#1):	EXTRA (FT NOTE): (#2):	TOTAL ADJUSTED: COST	PAYBACK: YEARS
7761 1 ENVEL ADJUST OVERHEAD DOOR.	0 6.7	72.16	20	1 0	20	.27			
7762 2 ENVEL WEATHERSTRIP PERS. DOOR.	0 1.1	11.85	15	3 2	17	1.26			
7764 3 ENVEL INSULATE CEILING.	0 3507	3882	19414	4 5074	24488	5			
7766 5 HVAC NIGHT SET-BACK.	0 450	3150	2000	4 522	2522	.63			
7767 6 AUTO BUILDING AUTOMATIC SYSTEM.	7548 100.8	1621.53	4000	4 1045	5045	2.46			
7768 7 HVAC PUMP CONTROL.	914 0	64.89	130	4 33	163	2			
7770 9 HVAC READJUST RETURN HOT WATER FROM 120 DEG. TO 110 DEG.F.	0 4	40	0	1 0	0	0			
7771 10 HVAC INSTALL FLUE GAS THERMOSTAT.	0 8	80	150	4 39	189	1.87			
7772 11 LIGHT EXTERIOR LIGHTING:PARKING LOT.	9280 0	587	200	4 52	252	.34			
7773 12 LIGHT REPLACE 40 WATT LAMPS W/34W.	15277 0	1084	640	2 38	678	.59			
BUILDING TOTALS (DULUTH NATIONAL GUARD ARMORY)	32019	4077.6	10593.43	26569	6805	33374			
COMPLEX TOTALS (DULUTH NATIONAL GUARD ARMORY)	32019	4077.6	10593.43	26569	6805	33374			

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : MANKATO ARMORY

BUILDING : MANKATO ARMORY

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT: TYPE: : REF.: : NUMBER:	DESCRIPTION	KWH SAVED : PER YEAR	MMBTU SAVED : PER YEAR	DOLLAR SAVED : PER YEAR	FIRST COST	KIND (FOOT) (NOTE) :(#1):	EXTRA (FT NOTE) :(#2):	TOTAL ADJUSTED COST	PAYBACK YEARS
7098 1 ENVEL WEATHERSTRIP DOORS	0 33 137	280 3 46	326 2.04						
7102 1 HVAC INSTALL A FLUE GAS THERMOMETER	0 17 71	100 2 6	106 1.4						
7103 2 HVAC INSTALL MOTORIZED DAMPER IN ATTIC DUCT	0 37 154	500 4 130	630 3.24						
7104 3 HVAC INSTALL CONTROL VALVES ON 15 RADIATORS	0 160 665	2900 4 758	3658 4.36						
7105 4 HVAC INSULATE HOT WATER PIPING	0 40 166	450 4 117	567 2.71						
7106 5 HVAC INSTALL MOTORIZED FLUE DAMPER	0 89 370	1800 4 470	2270 4.86						
7111 1 ELEC DISCONNECT LIGHT FIXTURES	487 0 89	180 3 29	209 2.02						
BUILDING TOTALS (MANKATO ARMORY)	487 376 1652	6210 1556	7766						
COMPLEX TOTALS (MANKATO ARMORY)	487 376 1652	6210 1556	7766						

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : ROCHESTER ARMORY

BUILDING : ROCHESTER ARMORY

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
NUMBER	REPORT	TYPE									
		REF.									
		NUMBER									
7137	2	ENVEL	ALIGNED O.H.Door-RIFLE RANGE	0	50	498	1000	4	261	1261	2
7138	3	ENVEL	WEATHERSTRIP DOORS	0	57	568	750	4	196	946	1.32
7139	4	ENVEL	REPAIR CONCRETE BLOCK OMS#2	0	0	0	150	4	39	189	0
7140	1	ELEC	TIMER FOR POP MACHINE	3200	0	164	250	4	65	315	1.52
7141	2	LIGHT	REPLACE 200 WATTS INCANDESCENT LAMP W/ER-40	1578	0	82	40	4	10	50	.48
7142	3	LIGHT	USE 34 WATTS FLUORESCENT LAMP INSTEAD OF 40 WATTS	11823	0	609	887	4	231	1118	1.45
7143	4	LIGHT	REPLACE MV 400 WATTS LAMP WITH 250 WATTS	5040	0	260	0	1	0	0	0
7144	1	HVAC	REPAIR FLUE GAS TEMP GARAGE	0	0	0	200	2	12	212	0
7145	2	HVAC	BOILER OPTIMIZATION	0	100	998	1200	4	313	1513	1.2
7146	3	HVAC	TURN OFF ONE CIRCULATION WATER PUMP-BOILER	7560	8	469	0	1	0	0	0
7147	4	HVAC	MAINTAIN 110 DEGREES F FOR DOMESTIC HOT WATER	0	15	150	0	1	0	0	0
7148	5	HVAC	TEMP SETBACK TIMER GYM AREA UNITS	1240	72	782	500	4	130	630	.63
7149	6	HVAC	BLANK OFF RELIEF OPENINGS ON GYM	0	5	50	100	4	26	126	2
7150	7	HVAC	CALIBRATE THERMOSTAT&CONTROL	0	15	150	250	4	65	315	1.66
7151	8	HVAC	OMS BLDG TEMP SETBACK TIMER	0	30	300	500	4	130	630	1.66
7152	9	HVAC	TIMER ON EXHAUST FAN OMS BUILDING	0	10	100	175	4	45	220	1.75
7280	10	HVAC	TEMPERATURE SETBACK THERMOSTAT RIFLE RANGE	0	15	155	250	4	65	315	1.61
BUILDING TOTALS (ROCHESTER ARMORY)				30441	377	5335	6252		1588	7840	
COMPLEX TOTALS (ROCHESTER ARMORY)				30441	377	5335	6252		1588	7840	

===== DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION =====
 ===== SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE =====

= COMPLEX : ST CLOUD ARMORY =

= BUILDING : ST CLOUD ARMORY =

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT:TYPE: : REF.: : NUMBER:	DESCRIPTION	KWH SAVED : PER : YEAR	MMBTU SAVED : PER : YEAR	DOLLAR SAVED : PER : YEAR	FIRST COST :(FOOT) :(NOTE) :(#1):	KIND :(NOTE): :(#1):	EXTRA COST :(FT NOTE) :(#2):	TOTAL ADJUSTED COST :(#2):	PAYBACK YEARS :
7284 M-2 HVAC	ELIMINATE EXCESS EXHAUST AIR	450	80	340	300	4	78	378	.88
7285 M-1 HVAC	STEAM CONTROL VALVE	0	724	2690	3750	4	980	4730	1.39
7286 E-5 LIGHT	CORRIDOR LIGHTING REPLACEMENT	2040	0	621	900	4	235	1135	1.44
7287 E-6 LIGHT	STORAGE LIGHTING REPLACEMENT	2240	0	631	1050	4	274	1324	1.66
7288 BE-9 MECH	INSULATE WALL ABOVE CEILING AT WINDOWS	0	8	31	71	2	4	75	2.29
7289 M-3 HVAC	RENOVATE SETBACK CONTROLS	0	70	270	680	4	177	857	2.51
7290 E-2 LIGHT	DRILL HALL LIGHTING REPLACEMENT	5500	0	946	2475	4	646	3121	2.61
7291 E-3 LIGHT	VEHICLE STORAGE LIGHTING REPLACEMENT	4000	0	638	1800	4	470	2270	2.82
7292 BE-7 ENVEL	OPAQUE GLAZED AREA AT ENTRY	0	137	535	1728	4	451	2179	3.22
7293 E-1 LIGHT	RIFLE RANGE LIGHTING REPLACEMENT	1170	0	131	450	4	117	567	3.43
7294 BE-4 ENVEL	INSULATE GLASS	0	141	549	2035	3	337	2372	3.7
7295 BE-1 ENVEL	ADD SECOND GLAZING TO GROUND FLOOR WINDOWS	0	103	401	1536	2	92	1628	3.83
7296 BE-2 ENVEL	INSULATE WALLS AT WINGS	0	240	936	3675	3	610	4285	3.92
BUILDING TOTALS (ST CLOUD ARMORY)		15400	1503	8719	20450		4471	24921	
COMPLEX TOTALS (ST CLOUD ARMORY)		15400	1503	8719	20450		4471	24921	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : ST.PAUL HOLMAN FIELD ARMORY

BUILDING : ST.PAUL HOLMAN FIELD ARMORY

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT:TYPE: REF.: NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST (FOOT) (NOTE) (#1)	KIND (#2)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
7406 1 HVAC	REWIRE DAMPERS IN BOILER ROOM & INSTALL.	0	59	312	1150	4	300	1450	3.68
7407 2 HVAC	REMOVE EXHAUST FAN FROM LUNCH ROOM.	0	5	26	0	1	0	0	0
7408 3 HVAC	DISCONNECT RADIATOR IN CONTROL TOWER.	0	39	202	0	1	0	0	0
7409 5 HVAC	INSTALL LOCKING THERMOSTAT COVERS ON UNIT HEATERS.	0	0	0	150	4	39	189	0
7410 6 HVAC	INSTALL FLOW RESTRICTORS ON KITCHEN AND REST ROOM FAUCETS.	0	4	19	10	3	1	11	.52
7411 7 ENVEL	WEATHERSTRIP AND CAULK WINDOW AIR CONDITIONING UNITS.	0	67	356	250	3	41	291	.7
7412 9 HVAC	INSTALL STEAM RESET CONTROLS ON BOILERS.	0	1012	5374	10300	4	2692	12992	1.91
7413 11 HVAC	INSTALL 12 DЕSTRATIFICATION FANS IN THE HANGER.	3666	798	4091	9000	4	2352	11352	2.19
7414 12 HVAC	INSULATE HOT WATER HEATER AND PIPING THROUGHOUT THE BUILDING.	0	289	1532	4750	4	1241	5991	3.1
7415 13 HVAC	INSULATE STEAM PIPES THROUGHOUT THE BUILDING.	0	130	690	1900	4	496	2396	2.75
7416 16 HVAC	INSULATE CONDENSATE TANKS AND PIPING.	0	21	109	440	4	115	555	4.03
7418 4 LIGHT	DISCONNECT FIXTURES IN THE LOBBY AND FRONT OFFICES.	5952	0	238	0	1	0	0	0
7419 15 LIGHT	REPLACE INCANDESCENT FIXTURES IN OFFICES, CORRIDORS AND REST ROOMS WITH FLUORESCENT.	43934	0	1757	6800	4	1777	8577	3.87
7420 19 LIGHT	REPLACE INCANDESCENT FIXTURES IN THE HANGER WITH METAL HALIDE FIXTURES.	76070	0	4635	23100	4	6038	29138	4.98
7422 8 ENVEL	REPAIR BOTTOM COVER PLATE ON 4 OVERHEAD HANGER DOORS.	0	62	330	300	4	78	378	.9
7423 10 ENVEL	SPRAY MINERAL-WOOL INSULATION ON 4 OVERHEAD DOORS.	0	583	3096	6400	4	1672	8072	2.06
7424 14 ENVEL	ADD 11" FIBERGLASS INSULATION ABOVE CEILING OF NORTH HANGAR.	0	960	5098	17700	4	4626	22326	3.47
7425 17 ENVEL	SPRAY MINERAL-WOOL INSULATION ON 8 CEILING HOPPERS FOR UNIT HEATERS.	0	131	695	3000	4	784	3784	4.31
BUILDING TOTALS (ST.PAUL HOLMAN FIELD ARMORY)				129622	4160	28560	85250	22252	107502

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION
 SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : ST.PAUL ARMORY =

= BUILDING : ST.PAUL ARMORY =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
NUMBER	REPORT	TYPE									
	REF.										
	NUMBER										
7381	1	HVAC	TURN STEAM VALVE OFF ON VENTILATION UNITS 3 & 4.	0	0	0	0	1	0	0	0
7382	2	HVAC	LOWER AQUASTAT TEMPERATURE ON DOMESTIC CIRCULATION PUMP.	163	0	7	0	1	0	0	0
7383	3	HVAC	CLEAN KITCHEN EXHAUST FAN AND SERVICE REFRIGERATOR.	0	5	37	0	1	0	0	0
7384	4	HVAC	INSTALL THERMOSTAT ON EQUIPMENT ROOM UNIT HEATER.	0	84	571	250	4	65	315	.43
7385	8	HVAC	INSTALL THERMOSTAT CONTROL VALVES ON RADIATION.	0	367	2496	2000	4	522	2522	.8
7386	9	HVAC	INSTALL NIGHT SETBACK IN SUPPLY ROOMS.	0	105	717	800	4	209	1009	1.11
7387	10	HVAC	INSTALL STRATIFICATION FANS IN THE DRILL HALL.	1440	321	2243	3800	4	993	4793	1.69
7388	16	HVAC	INSULATE CONDENSATE RETURN PIPING.	0	197	0	2220	4	580	2800	0
7389	5	HVAC	CLEAN CONDENSOR COIL IN KITCHEN REFRIGERATOR.	1622	0	65	30	2	1	31	.46
7390	11	LIGHT	INSTALL A FLUORESCENT LIGHT IN CHAIR STORAGE ROOM.	1830	0	114	220	3	36	256	1.92
7391	12	LIGHT	REPLACE INCANDESCENT FIXTURE WITH FLUORESCENT IN SUPPLY ROOMS.	12560	0	584	1140	4	297	1437	1.95
7392	13	LIGHT	REPLACE INCANDESCENT FIXTURES WITH FLUORESCENT IN REST ROOMS.	3122	0	168	390	4	101	491	2.32
7393	14	LIGHT	USE LOWER WATTAGE LAMPS IN OFFICES AND REPLACE WITH BETTER LENS.	7938	0	318	800	4	209	1009	2.51
7394	15	LIGHT	REPLACE INCANDESCENT FIXTURES WITH FLUORESCENT IN CORRIDORS.	37800	0	1737	4300	4	1124	5424	2.47
7395	17	LIGHT	REPLACE INCANDESCENT FIXTURES WITH HPS ON BUILDING FAÇADE.	14540	0	590	2300	4	601	2901	3.89
7397	6	ENVEL	INSTALL WEATHERSTRIPPING ON OVERHEAD DOORS.	0	37	253	192	4	50	242	.75
7398	7	ENVEL	SPRAY MINERAL-WOOL INSULATION ON THE INTERIOR OF OVERHEAD DOORS.	0	57	386	313	4	81	394	.81
BUILDING TOTALS (ST.PAUL ARMORY)				81015	1173	10286	18755		4869	23624	
COMPLEX TOTALS (ST.PAUL ARMORY)				210637	5333	38846	104005		27121	131126	

===== DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION =====
 ===== SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE =====

= COMPLEX : WINDOM ARMORY =

= BUILDING : WINDOM ARMORY =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE)	EXTRA COST (FT NOTE) (#1)	TOTAL ADJUSTED COST	PAYBACK YEARS
NUMBER	REPORT	TYPE		:	:	:	:	:	:	:	:
	REF.										
	NUMBER										
7087	6	ENVEL	REPLACE REAR DOOR	0	23	85	320	4	83	403	3.76
7090	3	HVAC	INSTALL GAS THERMOMETER	0	9	33	100	2	6	106	3.03
7095	8	HVAC	INSTALL CONTROL VALVES ON 10 RADIATORS	0	31	115	500	4	130	630	4.34
7097	1	LIGHT	MODIFY LIGHTING IN THREE OFFICES	1242	0	50	198	3	32	230	3.96
BUILDING TOTALS (WINDOM ARMORY)				1242	63	283	1118		251	1369	
COMPLEX TOTALS (WINDOM ARMORY)				1242	63	283	1118		251	1369	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION
 SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : WORTHINGTON ARMORY =

= BUILDING : WORTHINGTON ARMORY =

SYSTEM:	CONSUL:	SCHEME:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT. NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
NUMBER:	REPORT:	TYPE:									
7112	1	ENVEL	WEATHERSTRIP THREE DRILL HALLS	0	21	107	250	3	41	291	2.33
7117	5	ENVEL	CAULK WINDOWS	0	10	50	105	2	6	111	2.1
7118	1	HVAC	INSULATE 40 FEET OF STEAM PIPE	0	31	153	180	4	47	227	1.17
7119	2	HVAC	INSTALL CONTROL VALVES ON 15 RADIATORS	0	38.5	193	800	4	209	1009	4.14
7124	1	LIGHT	REPLACE 2 INCANDESCENT FIXTURES WITH FLUORESCENT	1188	0	48	100	3	16	116	2.08
BUILDING TOTALS (WORTHINGTON ARMORY)				1188	100.5	551	1435		319	1754	
COMPLEX TOTALS (WORTHINGTON ARMORY)				1188	100.5	551	1435		319	1754	

===== DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION =====
 ===== SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE =====

===== COMPLEX : BEMIDJI-DNR REGION #1 HQRS. =====

===== BUILDING : HEADQUARTERS-REGION #1 BEMIDJI =====

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT: TYPE REF.: NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
7835 1.1 ENVEL REMOVE 1036 SQ.FT. OF GLASS AND INSTALL MATCHING INSULATED WALL. NOTE: SALVAGE VALUE OF GLASS NOT INCLUDED.	0	147	3057	14750	4	3855	18605	4.82	
7836 2.1 HVAC INSTALL AN OIL FIRED HOT WATER HEATING SYSTEM COMPLETE WITH FIN TUBE RADIATION, CONVECTORS & CONTROLS.	94461	28	7289	35000	4	9149	44149	4.8	
7837 2.2 HVAC INSTALL ECONOMIZER CYCLE.	7172	0	414	2000	4	522	2522	4.83	
7838 4.1 LIGHT REF.NO.102: USE 18-33% POWER REDUCERS.	1071	0	76	180	4	47	227	2.36	
7839 4.2 LIGHT REF.NO.103: USE 8-33% P.R.	476	0	34	80	4	20	100	2.35	
7840 4.3 LIGHT REF.NO. 104: USE 4-33% P.R.	238	0	17	40	4	10	50	2.35	
7841 4.4 LIGHT REF.NO. 105: NO MODIFICATIONS.	0	0	0	0	1	0	0	0	
7842 4.5 LIGHT REF.NO.106: IF USED FOR OFFICE, REPLACE 12-150W-I W/6-2L-F-FIXTURES W/34W-WSL.	3452	0	245	510	4	133	643	2.08	
7843 4.6 LIGHT REF.NO.107: USE 2-33% P.R.	119	0	8	20	4	5	25	2.5	
7844 4.7 LIGHT REF.NO. 108: NO MODIFICATIONS.	0	0	0	0	1	0	0	0	
7845 4.8 LIGHT REF.NO. 109: REPLACE 2-200 W-I W/2-120 ER-I.	392	0	28	20	2	1	21	.71	
7846 4.9 LIGHT REF.NO.110: USE 2-33% P.R.	119	0	8	20	4	5	25	2.5	
7847 4.10 LIGHT REF.NO.111: NO MODIFICATIONS.	0	0	0	0	1	0	0	0	
7848 4.11 LIGHT REF.NO.112: NO MODIFICATIONS.	0	0	0	0	1	0	0	0	
7849 4.12 LIGHT REF.NO.113: REPLACE 1-150W-I W/1-25W F ECON NOVA.	77	0	5.5	26	4	6	32	4.72	
7850 4.13 LIGHT REF.NO.202: REPLACE 10-150W-I W/10-75W-ER, 10-300W-I W/10-120ER, AND 6-200W-I W/6-120W-ER.	7514	0	533	260	4	67	327	.49	
7851 4.14 LIGHT REF.NO.203: USE 2-33% P.R.	119	0	8	20	4	5	25	2.5	
7852 4.15 LIGHT REF.NO.204: NO MODIFICATIONS.	0	0	0	0	1	0	0	0	
7853 4.16 LIGHT REF.NO.205: USE 4-33% P.R.	238	0	17	40	4	10	50	2.35	
7854 4.17 LIGHT REF.NO.206: NO MODIFICATIONS.	0	0	0	0	1	0	0	0	
7855 4.18 LIGHT REF.NO.207: NO MODIFICATIONS.	0	0	0	0	1	0	0	0	
7856 4.19 LIGHT REF.NO.208: USE 4-33% P.R.	238	0	17	40	4	10	50	2.35	
7857 4.20 LIGHT REF.NO.209: NO MODIFICATIONS.	0	0	0	0	1	0	0	0	
7858 4.21 LIGHT REF.NO.210: USE 4-33% P.R.	238	0	17	40	4	10	50	2.35	
7859 4.22 LIGHT REF.NO.211: USE 4-33% P.R.	238	0	17	40	4	10	50	2.35	

7860	4.23	LIGHT	REF.NO.212:NO MODIFICATIONS.	0	0	0	0	1	0	0	0
7861	4.24	LIGHT	REF.NO.213:NO MODIFICATIONS.	0	0	0	0	1	0	0	0
7862	4.25	LIGHT	REF.NO.214:USE 2-33% P.R.	119	0	8	20	4	5	25	2.5
7863	4.26	LIGHT	REF.NO.215:NO MODIFICATIONS.	0	0	0	0	1	0	0	0
7864	4.27	LIGHT	REF.NO.216:USE 2-33% P.R.	119	0	8	20	4	5	25	2.5
7865	4.28	LIGHT	REF.NO.217:NO MODIFICATIONS.	0	0	0	0	1	0	0	0
7866	4.29	LIGHT	REF.NO.218:USE 2-33% P.R.	119	0	8	20	4	5	25	2.5
7867	4.30	LIGHT	REF.NO.219:NO MODIFICATIONS.	0	0	0	0	1	0	0	0
7868	4.31	LIGHT	REF.NO.220:USE 2-33% P.R.	119	0	8	20	4	5	25	2.5
7869	4.32	LIGHT	REF.NO.221:NO MODIFICATIONS.	0	0	0	0	1	0	0	0
BUILDING TOTALS (HEADQUARTERS-REGION #1 BEMIDJI)				116638	175	11822.5	53166	13885	67051		
COMPLEX TOTALS (BEMIDJI-DNR REGION #1 HQS.)				116638	175	11822.5	53166	13885	67051		

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : DNR-REGN.2.HDQS.GRAND RAPIDS =

BUILDING : GARAGE:G-1 =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED	MMBTU SAVED	DOLLAR SAVED	FIRST COST	KIND (FOOT)	EXTRA (FT NOTE)	TOTAL ADJUSTED	PAYBACK YEARS
NUMBER	REPORT	TYPE		PER YEAR	PER YEAR	PER YEAR		(#1)	(#2)	COST	
7826	22	ENVEL	PARTITION ZONING.	0	100	749	2100	4	548	2648	2.8
7827	23	ENVEL	WEATHERSTRIP NORTH OVERHEAD DOOR.	0	1.8	13	60	4	15	75	4.61
BUILDING TOTALS (GARAGE:G-1)				0	101.8	762	2160		563	2723	
COMPLEX TOTALS (DNR-REGN.2.HDQS.GRAND RAPIDS)				0	101.8	762	2160		563	2723	

===== DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION =====
 ===== SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE =====

= COMPLEX : GRAND RAPIDS-DNR, REGION#2 HQQS. =

= BUILDING : HEADQUARTERS REGION #2 =

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT:TYPE: REF.: NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT): (NOTE): (#1):	EXTRA (FT NOTE): (#2):	TOTAL ADJUSTED COST	PAYBACK: YEARS
7829 1 HVAC OVERHEAD WATER PUMP CONTROL.	599 0 42 130 4 33 163 3.09								
7832 3 LIGHT 1064-34 WATT FLUORESCENT LAMPS.	14651 0 1025 723 2 43 766 .7								
7833 4 LIGHT REDUCE EXTERIOR LIGHTING.	1730 0 121 20 4 5 25 .16								
7834 5 ENVEL WALLS AND ROOFS MEET CODE.	0 0 0 0 1 0 0 0								
BUILDING TOTALS (HEADQUARTERS REGION #2)	16980 0 1188 873 81 954								
COMPLEX TOTALS (GRAND RAPIDS-DNR,REGION#2 HQQS.)	16980 0 1188 873 81 954								

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION
 SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : NORTHERN SERVICE CENTER =

= BUILDING : NORTHERN SERV.CNTR.GRAND RAPIDS =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) :(#1):	EXTRA COST (FT NOTE) :(#2):	TOTAL ADJUSTED COST	PAYBACK YEARS
7810	6	ENVEL	WEATHERSTRIP OVERHEAD DOOR AND PERSONNEL DOOR EAST WALL OFFICE BUILDING.	0	18.4	55	95	4	24	119	1.72
7811	7	ENVEL	WEATHERSTRIP OVERHEAD DOOR, PERSONNEL DOOR AND WELD SHOP.	0	26	76	140	4	36	176	1.84
7812	8	ENVEL	WEATHERSTRIP OVERHEAD DOOR, PERSONNEL DOOR AND GARAGE.	0	27.6	81	180	4	47	227	2.22
7816	12	HVAC	ADD SELF CONTAINED STEAM RADIATION VALVES.	0	33	100	500	4	130	630	5
7817	13	HVAC	INSTALL NIGHT SET-BACK CONTROLS IN GARAGE AND SHOPS.	0	114	334	1250	4	326	1576	3.74
7818	14	HVAC	INSTALL NIGHT SET-BACK CONTROLS IN OFFICE.	0	60	175	500	4	130	630	2.85
7819	15	HVAC	SEAL FRESH AIR OPENING OF GARAGE, AIR HANDLING UNIT.	0	24.8	73	280	4	73	353	3.83
7821	17	HVAC	REMOVE UN-USED EXHAUST FAN IN PAINT SHOP.	0	29.8	88	380	4	99	479	4.31
7822	18	HVAC	PROVIDE THERMOSTAT FOR 2 UNIT HEATERS.	0	13.1	39	160	4	41	201	4.1
7823	19	ELEC	INSTALL NIGHT LIGHT CONTROL.	600	0	42	175	4	45	220	4.16
7824	20	LIGHT	CONVERT INCANDESCENT LIGHTS TO 8-FLORESCENT FIXTURES.	4160	0	291	600	4	156	756	2.06
7825	21	LIGHT	REPLACE 108 TO 34 WATT FLORESCENT LAMPS IN OFFICE.	1487	0	104	73	2	4	77	.7
BUILDING TOTALS (NORTHERN SERV.CNTR.GRAND RAPIDS)				6247	346.7	1458	4333		1111	5444	
COMPLEX TOTALS (NORTHERN SERVICE CENTER)				6247	346.7	1458	4333		1111	5444	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : ROCHESTER HDQS.-DNR =

= BUILDING : ROCHESTER HDQS.-DNR =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (#1)	EXTRA (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
7127	2	ENVEL	INSUALTE FOUND WALL OR COVER WITH DIRT	0	20	220	700	4	182	882	3.18
7128	1	LIGHT	INSTALL 34 WATTS FLUORESCENT LAMPS	3760	0	227	406	2	24	430	1.78
7129	2	LIGHT	TIMER ON POP MACHINE	1440	0	88	125	4	32	157	1.42
7130	1	HVAC	INSTALL SETBACK THERMOSTAT WITH TIMER	5000	0	306	300	4	78	378	.98
7131	2	HVAC	INSTALL SETBACK THERMOSTAT FOR OIL HEATERS	0	15	165	300	4	78	378	1.81
7132	3	HVAC	MOTION DETECT THERMOSTAT FOR NIGHT SETBACK	18000	0	1101	2520	4	658	3178	2.28
BUILDING TOTALS (ROCHESTER HDQS.-DNR)				32595	35	2375	4651		1130	5781	
COMPLEX TOTALS (ROCHESTER HDQS.-DNR)				32595	35	2375	4651		1130	5781	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION
 SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : STILLWATER ARMORY =

= BUILDING : STILLWATER ARMORY =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED	MMBTU SAVED	DOLLAR SAVED	FIRST COST	KIND (FOOT)	EXTRA COST (FT NOTE)	TOTAL ADJUSTED COST	PAYBACK YEARS
NUMBER	REPORT	TYPE		PER YEAR	PER YEAR	PER YEAR		(NOTE) (#1)	(#2)		
7429	1	HVAC	INSTALL A PROGRAMMABLE THERMOSTAT FOR NIGHT SETBACK.	0	132	671	400	4	104	504	.59
7432	3	ELEC	REMOVE LAMPS AND BALLASTS IN THE 2ND FLOOR OFFICES.	1227	0	94	168	2	10	178	1.78
7433	4	ELEC	REPLACE INCANDESCENT FIXTURES IN RESTROOMS WITH FLUORESCENT.	813	0	73	160	4	41	201	2.19
7436	2	ENVEL	INSTALL WEATHERSTRIPPING ON THE DRILL AREA AND BASEMENT DOORS.	0	31	157	120	4	31	151	.76
BUILDING TOTALS (STILLWATER ARMORY)				2040	163	995	848		186	1034	
COMPLEX TOTALS (STILLWATER ARMORY)				2040	163	995	848		186	1034	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION
 SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : DNR-DULUTH =

= BUILDING : FRENCH RIVER SALMONID HATCH.FAC =

SYSTEM:CONSUL:SCHEME:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE): (#1):	EXTRA COST (FT NOTE): (#2):	TOTAL ADJUSTED: COST	PAYBACK: YEARS
NUMBER:REPORT:TYPE:									
REF.:									
NUMBER:									
7870 1 ENVEL	ADJUST OVERHEAD DOORS AND WEATHERSTRIP.	0	8.4	24.16	100	4	26	126	1.06
7871 2 ENVEL	INSULATE CEILING.	0	79.4	890	3921	4	998	4819	4.29
7876 6 HVAC	INSTALL 2 STACK DAMPERS.	0	511	3903	4500	4	1176	5676	1.15
7877 7 HVAC	INSTALL STACK THERMOSTAT.	0	6.8	75	300	4	78	378	4
7878 8 ELEC	INSTALL DIMMER.	11086	0	487.78	1500	4	392	1892	3.07
BUILDING TOTALS (FRENCH RIVER SALMONID HATCH.FAC)		11086	605.6	5449.94	10221		2670	12891	
COMPLEX TOTALS (DNR-DULUTH)		11086	605.6	5449.94	10221		2670	12891	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : DETROIT LAKES-DOT =

= BUILDING : DETROIT LAKES-DOT =

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT:TYPE: : REF. : : NUMBER:	DESCRIPTION	KWH SAVED : PER YEAR	MMBTU SAVED : PER YEAR	DOLLAR SAVED : PER YEAR	FIRST COST :(FOOT) :(NOTE): :(#1):	KIND :(FT NOTE) :(#2):	EXTRA COST :(FT NOTE) :(#2):	TOTAL ADJUSTED COST	PAYBACK YEARS
7326 M-1 HVAC	INSTALL SHUT-OFF FAN IN ADMINISTRATION WING	8000	375	2350	400	4	104	504	.17
7327 M-2 HVAC	CONTROL VALVE FOR STEAM SUPPLY	0	850	4445	4500	4	1176	5676	1.01
7328 BE-5 ENVEL	INSULATE WALL ABOVE CEILING AT OFFICES	0	79	427	1063	3	176	1239	2.48
7329 BE-7 ENVEL	RECONSTRUCT SOUTH SHOP GLAZING	0	276	1490	4580	3	760	5340	3.07
7330 BE-4 ELEC	REPLACE DOOR CLOSURE SYSTEM	0	16	85	300	4	78	378	3.52
7331 BE-10 ENVEL	INSULATE WALLS AT DETACHED STORAGE	0	70	376	1800	4	470	2270	4.78
7332 BE-8 ENVEL	INSULATE WALL BETWEEN STORAGE AREAS	0	326	1758	8750	4	2287	11037	4.97
BUILDING TOTALS (DETROIT LAKES-DOT)				8000	1992	10931	21393	5051	26444
COMPLEX TOTALS (DETROIT LAKES-DOT)				8000	1992	10931	21393	5051	26444

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : ROCHESTER HDQS.-DOT

BUILDING : ROCHESTER HDQS.-DOT

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT: TYPE :	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
7160 1 ENVEL EDUCATE PERSONNEL TO SHUT O.H.Door	0 75 417	0	1	0	0			0	0
7161 2 ENVEL WEATHERSTRIP FEW DOORS	0 50 278	0	4	400	4	104	504	1.43	
7164 1 HVAC MAINTAIN 105 DEGREES F IN DOMESTIC HOT WATER TANK	0 25 139	0	1	0	0		0	0	
7165 2 HVAC NIGHT SETBACK FOR UNOCCUPIED PERIOD	0 125 696	0	4	500	4	130	630	.71	
7166 3 HVAC BOILER OPTIMIZATION PROGRAM-STEAM METERS,PORTABLE OXYGEN METER,PREHEAT COMB.AIR,ISOLATE OFF LINE BOILER.	0 210 1169	0	4	2500	4	653	3153	2.13	
7167 4 HVAC REPLACE O.A. DAMPER FOR EVAPORATOR COOLER	0 60 334	0	4	650	4	169	819	1.94	
7168 5 HVAC MODIFICATION OF PIPING REHEAT AND RADIATION PUMP	0 197 1097	0	4	1800	4	470	2270	1.64	
7169 6 HVAC BLANK OFF O.A. FOR S-7	0 10 57	0	4	50	4	13	63	.87	
7170 7 AUTO EMS CONTROL PANEL-OPT. START/STOP,DUTY CYCLE	21270 551 4270	0	4	15000	4	3921	18921	3.51	
7171 8 HVAC RAISED DISCHARGED AIR TEMP. FOR S-8	3400 0 143	0	1	0	0		0	0	
7172 9 HVAC DUAL SETPOINT FOR MIXED AIR UNIT S-8	0 0 0	0	4	400	4	104	504	0	
7174 2 ENVEL ROOF RETROFIT	0 0 0	0	1	0	0		0	0	
7282 1 LIGHT CONVERT INCANDESCENT LAMP TO FLUORESCENT LAMP	1404 0 99	0	4	150	4	39	189	1.51	
7283 2 LIGHT INSTALL MERCURY VAPOR IN REPAIR AREA.	0 0 0	0	4	2400	4	627	3027	0	
BUILDING TOTALS: (ROCHESTER HDQS.-DOT)	26074 1303 8699	23850	6230	30080					
COMPLEX TOTALS (ROCHESTER HDQS.-DOT)	26074 1303 8699	23850	6230	30080					

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : ST CLOUD-DOT

BUILDING : ST CLOUD-DOT

SYSTEM:CONSUL:SCHEME:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED: COST	PAYBACK YEARS
NUMBER:REPORT: TYPE :									
REF.:									
NUMBER:									
7304 M-4 ELEC	INSTALL TIMED SWITCHES IN REPAIR SHOP	300	40	165	100	4	26	126	.6
7305 E-3 ELEC	INSTALL TASK LIGHTING IN RADIO ROOM	440	0	98	160	4	41	201	1.63
7306 M-1 HVAC	UNIT HEATER CONTROL	0	585	2070	4875	4	1274	6149	2.35
7307 E-4 LIGHT	CONVERT 4 LAMP TO 2 LAMP FLUORESCENT	800	0	100	250	4	65	315	2.5
7308 E-2 LIGHT	OFFICE LIGHTING REPLACEMENT	60	0	25	65	4	16	81	2.6
7309 M-2 HVAC	DAY/NIGHT TEMPERATURE SETBACK	4000	80	450	1300	4	339	1639	2.88
7310 BE-1 ENVEL	INSULATE ABOVE CEILING AT BASEMENT WALL	0	82	311	940	3	156	1096	3.02
7311 BE-7 ENVEL	OPAQUE TRANSOMS OF PASS DOORS	0	10	38	126	3	20	146	3.31
7312 M-3 HVAC	SUMMER DOMESTIC WATER HEATING	1000	120	450	1575	4	411	1986	3.5
BUILDING TOTALS (ST CLOUD-DOT)			6600	917	3707	9391		2348	11739
COMPLEX TOTALS (ST CLOUD-DOT)			6600	917	3707	9391		2348	11739

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : VIRGINIA DOT =

= BUILDING : HEADQUARTERS =

SYSTEM:CONSUL:SCHEME:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
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7899	2.1	HVAC	REVICE OFFICE HEATING SYSTEM-25 RADIATORS VALVES, 1-2"FLI CONTROL VALVE, SHUNTS AND BALANCE VALVE, 6 E.P. SWITCHES, WEATHER	0	202	808	3600	4	941	4541	4.45
BUILDING TOTALS (HEADQUARTERS)				0	202	808	3600		941	4541	
COMPLEX TOTALS (VIRGINIA DOT)				0	202	808	3600		941	4541	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : WINDOM-DOT

BUILDING : WINDOM-DOT

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST (FOOT) (NOTE): (#1)	KIND (#1): (#2)	EXTRA COST (FT NOTE) (#1): (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
7266	1	HVAC	INSTALL MOTORIZED STEAM VALVE FOR AREA 3.	0	114	430	1800	4	470	2270	4.18
7267	2	HVAC	INSTALL FLUE DAMPER CONTROLS.	0	182	684	3100	4	810	3910	4.53
7268	3	HVAC	INSTALL FLUE GAS THERMOMETERS.	0	18	68	230	4	60	290	3.38
7269	4	HVAC	RELOCATE INTAKE FOR AIR COMPRESSOR.	819	0	21	100	4	26	126	4.76
7270	5	HVAC	DUTY CYCLE TWO TOILET FANS.	0	35	138	400	4	104	504	2.12
7271	6	HVAC	REVISE UNIT HEATER CONTROL IN SHOP(AREA 2).	0	189	709	2800	4	731	3531	3.94
7272	7	HVAC	REVISE UNIT HEATER CONTROL IN AREA 3.	0	184	692	2800	4	731	3531	4.04
7276	11	HVAC	UPGRADE CONTROLS FOR OFFICE HVAC.	2788	56	283	1200	4	313	1513	4.24
7278	1	LIGHT	DISCONNECT 25 PAIR OF FLUORESCENT LAMPS, REPLACE 20 INCANDESCENT FIXTURES.	800	0	353	1150	4	300	1450	3.25
7279	2	MECH	INSTALL DEMAND METER AND ALARM.	0	0	228	950	4	248	1198	4.16
BUILDING TOTALS (WINDOM-DOT)				4407	778	3656	14530		3793	18323	
COMPLEX TOTALS (WINDOM-DOT)				4407	778	3656	14530		3793	18323	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : INTERPRETATIVE CNTR. =

= BUILDING : IRON RANGE CENTER-CHISHOLM =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
7794	11	ENVEL	WEATHERSTRIP OVERHEAD DOOR IN RECEIVING AREA.	0	2.5	31	90	4	23	113	2.9
7795	12	AUTO	BUILDING AUTOMATION SYSTEM.	16259	0	8040	40000	4	10456	50456	4.97
7796	13	HVAC	MODIFY RETURN AIR SYSTEMS.	0	601	6890	7800	4	2038	9838	1.13
7797	14	HVAC	PROJECTION ROOM: EXHAUST FAN CONTROL.	0	37	404	200	4	52	252	.49
7798	15	HVAC	JANITOR ROOM: EXHAUST FAN CONTROL.	0	27.3	298	0	1	0	0	0
7799	16	HVAC	ENTRANCE UNIT CABINET HEATER CONTROL.	0	5	62	250	4	65	315	4.03
7800	17	HVAC	LOWER DOMESTIC HOT WATER TEMPERATURE.	0	2.4	30	0	1	0	0	0
7801	18	LIGHT	REPLACE 36 SPOT LIGHTS WITH LOW VOLTAGE.	33415	0	1704	4608	4	1204	5812	2.7
7802	19	LIGHT	DIM INCANDESCENT LIGHTS ON BRIDGE WITH PHOTOCELL.	12678	0	646	1600	4	418	2018	2.47
7803	20	LIGHT	REPLACE 25 INCANDESCENT FIXTURES WITH 19 FLORESCENT FIXTURES.	13891	0	708	1300	4	339	1639	1.83
7804	21	LIGHT	REDUCE LIGHT LEVEL IN STAIR OF BRIDGE DISPLAY.	5641	0	287	100	4	26	126	.34
BUILDING TOTALS (IRON RANGE CENTER-CHISHOLM)				81884	675.2	19100	55948		14621	70569	
COMPLEX TOTALS (INTERPRETATIVE CNTR.)				81884	675.2	19100	55948		14621	70569	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION
 SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : RESEARCH-CHISHOLM =

= BUILDING : IRON RANGE CENTER =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
NUMBER	REPORT	TYPE									
	REF.										
	NUMBER										
7784	2	HVAC	RESCHEDULE TIME CLOCK FOR OUTSIDE AIR DAMPER.	0	10.3	168	0	1	0	0	0
7786	3	HVAC	INSTALL PUMP CONTROL TIMER.	968	0	49	130	4	33	163	2.65
7787	4	HVAC	INSTALL ENTRANCE CABINET HEATER CONTROL.	0	4	50	200	4	52	252	4
7788	5	HVAC	INSTALL TOILET EXHAUST TIMER.	0	65	94	60	4	15	75	.63
7789	6	HVAC	LOWER DOMESTIC HOT WATER TEMPERATURE.	0	2.8	35	0	1	0	0	0
7791	8	ELEC	INSTALL 290-34 WATT FLOOD LAMPS.	8404	0	563	197	2	11	208	.34
7792	9	ELEC	REPLACE 2 INCANDESCENT LAMPS WITH FLOOD LAMP AND ADAPTER.	386	0	26	30	2	1	31	1.15
BUILDING TOTALS (IRON RANGE CENTER)				9758	82.1	985	617		112	729	
COMPLEX TOTALS (RESEARCH-CHISHOLM)				9758	82.1	985	617		112	729	

===== DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION =====
 ===== SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE =====

= COMPLEX : MINNESOTA STATE FAIRGROUNDS =

= BUILDING : ADMINISTRATION/BLDG #332 =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
NUMBER	REPORT	TYPE									
	REF.										
	NUMBER										
7251	5	ENVEL	REPLACE DOOR WEATHERSTRIPPING.	0	9	47	138	3	22	160	2.93
7252	1	HVAC	INSTALL A RETURN AIR RESET CONTROLLER ON MAIN AIR HANDLING UNIT.	0	175	2494	440	4	115	555	.17
7253	2	HVAC	INSTALL LOW-LEAK DAMPER.	0	147	770	726	4	189	915	.94
7254	3	HVAC	INSTALL THERMOSTAT TO CYCLE AIR HANDLER UNIT TO SUPPLY HEATING&COOLING ONLY AS NEEDED.	7150	0	302	500	4	130	630	1.65
7255	4	HVAC	INSTALL AUTOMATIC SET-BACK THERMOSTAT.	0	98	514	853	4	222	1075	1.65
7256	5	HVAC	INSTALL ENTHALPY CHANGEOVER CONTROL ON MAIN AIR HANDLING UNIT.	9842	0	531	743	4	194	937	1.39
7257	6	HVAC	MEASURE FURNACE EFFICIENCY REGULARLY AND SERVICE BURNER.	0	83.3	436	200	3	33	233	.45
7258	7	HVAC	ELIMINATE VESTIBULE HEATING.	0	13.2	69	0	1	0	0	0
7259	1	ELEC	INSTALL SUBMETER FOR ELECTRICAL USE RECORDING.	10000	0	422	800	4	209	1009	1.89
7260	2	LIGHT	REMOVE EXCESS FLUORESCENT LAMPS AND BALLASTS.	11798	0	498	240	2	14	254	.48
BUILDING TOTALS (ADMINISTRATION/BLDG #332)				38790	525.5	6083	4640		1128	5768	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : MINNESOTA STATE FAIRGROUNDS

BUILDING : COLISEUM/BLDG #501

SYSTEM:	CONSUL:	SCHEME:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
NUMBER:	REPORT:	TYPE:									
		REF.:									
		NUMBER:									
7231	4	ENVEL	RE-INSULATE AND RE-ROOF TO UPGRADE FROM R-6.6 TO R-19.6	0	0	0	0	1	0	0	0
7232	1	HVAC	CHANGE CONTROL SEQUENCE OF RINK AREA RETURN AIR DAMPER	0	236	1237	600	4	156	756	.48
7233	2	HVAC	CYCLE THE HEATING UNIT FANS	45251	0	1910	1540	4	402	1942	.8
7234	3	HVAC	INSTALL LOCAL ON/OFF TIMER SWITCHES ON LOCKER ROOM FANS	1386	94	545	521	4	136	657	.95
7235	4	HVAC	INSTALL A THERMOSTATIC CONTROL TO CYCLE MECHANICAL ROOM EXHAUST FAN	1764	0	95	100	4	26	126	1.05
7236	5	HVAC	INSTALL REMOVABLE PANEL OVER 3/4 OF DAMPER OPENING. INSTALL LOWLEAK DAMPERS OVER BALANCE. (2 SYSTEMS)	0	783	4103	4525	4	1182	5707	1.1
7237	6	HVAC	INSTALL TIMECLOCK AND EXACT TEMPERATURE DIALS ON HEATING/COOLING SYSTEMS(2).	0	997	5224	5500	4	1437	6937	1.05
7238	7	HVAC	INSTALL HEAT RECOVERY UNIT ON SW#2 FURNACE FOR ICE RESURFACE HOT WATER	46147	0	1675	5158	4	1348	6506	3.07
7240	9	HVAC	USE ICE RINK COVER	121839	0	4423	20706	4	5412	26118	4.68
7241	10	HVAC	ELIMINATE THE THAW PIT MELTING SYSTEM&BUILD ICE SHAVING STORAGE FOR DAILY HAUL AWAY	265000	0	4200	4400	4	1150	5550	1.04
7242	11	HVAC	CLOSE HEAT SUPPLY TO MECHANICAL EQUIPMENT ROOMS AND CLOSE THE MECHANICAL ROOM RETURN AIR DAMPER	0	669	3506	60	4	15	75	.01
7243	12	HVAC	ADJUST DAMPER LINKAGE ON N.E. SYSTEM OUTSIDE AIR DAMPER	0	300	1572	60	4	15	75	.03
7244	13	HVAC	REDUCE HOT WATER USE FOR ICE RESURFACING BY 50% BY RESURFACING WITH COLD WATER EVERY OTHER TIME	33715	0	1416	0	1	0	0	0
BUILDING TOTALS (COLISEUM/BLDG #501)				515102	3079	29906	43170		11279	54449	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : MINNESOTA STATE FAIRGROUNDS =

= BUILDING : GREENHOUSE/BLDG #462 =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE)	EXTRA (#1) (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
7206	1	ENVEL	INSULATE THE NORTH SIDEWALL WITH FOIL-FACED FOAM BOARD	0	147	1052	413	4	107	520	.39
7207	2	ENVEL	ADD RIGID FOAM INSULATION BOARD OVER FOUNDATION WALL	0	133	948	676	4	176	852	.71
7208	3	ENVEL	REPLACE ENDWALL AND SIDEWALL SINGLE-GLAZED GLASS WITH DOUBLE WALL POLYCARBONATE	0	193	1380	5571	4	1456	7027	4.03
7209	4	ENVEL	REPLACE ROOF WITH DOUBLE LAYER POLYCARBONATE	0	930	6640	26913	4	7008	33821	4.03
7210	1	HVAC	INSULATE BARE STEAM PIPING AROUND THE BOILERS	0	117	835	303	4	79	382	.36
7211	2	HVAC	INSULATE TURBULATORS ON ONE BOILER	0	199	1419	660	4	172	832	.46
7212	3	HVAC	INSULATE A NEW MODULATING BURNER ON ONE BOILER	0	300	2142	8800	4	2300	11100	4.1
BUILDING TOTALS (GREENHOUSE/BLDG #462)				0	2019	14416	43236		11298	54534	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : MINNESOTA STATE FAIRGROUNDS

BUILDING : 0461 RESIDENCE/BLDG #461

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA (FT NOTE) (#2)	TOTAL COST	PAYBACK ADJUSTED COST YEARS
7175	1	ENVEL	CAULK ALL WINDOWS	0	23.6	139	95	3	15	110	.68
7176	2	ENVEL	WEATHERSTRIP 2 DOORS	0	7.2	42	60	3	9	69	1.42
7177	3	ENVEL	INSULATE RIM JOINTS	0	9	53	148	3	24	172	2.79
7180	1	MECH	INSTALL DRYER VENT DIVERTER	0	2.2	13	20	3	3	23	1.53
7181	2	HVAC	INSTALL SETBACK THERMOSTATS.2 ZONES	0	20.8	123	300	4	78	378	2.43
7182	3	HVAC	INSTALL ELECTRONIC IGNITION AND FLUE DAMPER ON HOT WATER BOILER	0	28.1	166	540	4	141	681	3.25
7183	4	HVAC	INSTALL WATER HEATER THERMAL FLUE DAMPER	0	3.6	21	100	4	26	126	4.76
BUILDING TOTALS (0461 RESIDENCE/BLDG #461)				0	94.5	557	1263		296	1559	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : MINNESOTA STATE FAIRGROUNDS =

= BUILDING : 0211 RESIDENCE/BLDG #211 =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE)	EXTRA COST (#1)	TOTAL ADJUSTED COST	PAYBACK YEARS
NUMBER	REPORT	TYPE						(#1)	(FT NOTE) (#2)		
7185	1	ENVEL	CAULK CRAWL SPACE SILL.	0	3.5	30	14	3	2	16	.46
7186	2	ENVEL	WEATHERSTRIP 2 24"X40" WINDOWS	0	4.9	42	21	3	3	24	.5
7187	3	ENVEL	WEATHERSTRIP 2 DOORS	0	7.6	65	42	3	6	48	.64
7188	4	ENVEL	INSULATE RIM JOINTS IN CRAWL SPACE	0	4.3	37	70	3	11	81	1.89
7189	5	ENVEL	ADD R-38 TO EXISTING R-5 CEILING INSULATION	0	57.9	499	1520	3	252	1772	3.04
7190	6	ENVEL	INSULATE CRAWL SPACE BLOCKS	0	3.9	34	140	3	23	163	4.11
7192	1	HVAC	INSULATE BARE HOT WATER PIPES	205	0	9	20	3	3	23	2.22
7193	2	HVAC	INSTALL HOT WATER BOILER STACK DAMPER	0	20.2	174	400	4	104	504	2.29
7194	3	HVAC	INSTALL NIGHT SETBACK THERMOSTATS.3 ZONES	0	22.5	194	450	4	117	567	2.31
BUILDING TOTALS (0211 RESIDENCE/BLDG #211)				205	124.8	1084	2677		521	3198	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : MINNESOTA STATE FAIRGROUNDS =

= BUILDING : 0173 RESIDENCE/BLDG #173 =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE)	EXTRA COST (FT NOTE) (#1)	TOTAL ADJUSTED COST	PAYBACK YEARS
7196	1	ENVEL	INSULATE RIM JOIST AREA	0	4	24	65	3	10	75	2.7
7200	1	MECH	INSTALL DRYER VENT DIVERTER	0	2.2	13	20	3	3	23	1.53
7201	2	HVAC	INSULATE BARE HEATING PIPES(20'@ 1")	0	2.8	17	32	3	5	37	1.88
7202	3	HVAC	INSTALL NIGHT SETBACK THERMOSTATS(2)	0	16.4	97	300	4	78	378	3.09
7203	4	HVAC	INSTALL ELECTRONIC IGNITION&FLUE DAMPER	0	22.1	130	540	4	141	681	4.15
7204	5	HVAC	INSTALL WATER HEATER THERMAL STACK DAMPER	0	3.6	21	100	4	26	126	4.76
BUILDING TOTALS (0173 RESIDENCE/BLDG #173)				0	51.1	302	1057		263	1320	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : MINNESOTA STATE FAIRGROUNDS =

= BUILDING : SERVICE BUILDING/BLDG #331 =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
7218	4	HVAC	CYCLE HEATING PUMPS FOR NIGHT SETBACK	0	598	3134	1100	4	287	1387	.35
7219	2	HVAC	INSTALL ELECTRONIC IGNITERS&FLUE DAMPERS ON HOT WATER BOILERS. (3 SYSTEMS)	0	249	1305	3300	4	862	4162	2.52
7220	3	HVAC	INSULATE HOT WATER HEATING PIPES	0	59	309	832	4	217	1049	2.69
7221	4	HVAC	INSTALL ELECTRONIC IGNITERS&FLUE DAMPERS ON 2 UNIT HEATERS	0	125	655	2200	4	575	2775	3.35
7222	5	HVAC	INSULATE DOMESTIC HOT WATER HEATING PIPES	0	4	21	79	4	20	99	3.76
7224	7	HVAC	ROUTINELY MEASURE BOILER EFFICIENCY AND ADJUST BURNERS AT LEAST ANNUALLY	0	249.3	1306	600	3	99	699	.45
7225	8	HVAC	REDUCE HOT WATER HEATER SETPOINTS TO LOW OR 110 DEGREES F	0	6.6	35	0	1	0	0	0
7226	1	ELEC	INSTALL SUBMETER FOR ELECTRICAL USE RECORDING	10000	0	422	800	4	209	1009	1.89
7227	2	LIGHT	REDUCE LAMPS&BALLAST IN SUPT.OFFICE BY APPROXIMATELY ONE-HALF	721	0	30	30	2	1	31	1
BUILDING TOTALS (SERVICE BUILDING/BLDG #331)				10721	1290.9	7217	8941		2270	11211	
COMPLEX TOTALS (MINNESOTA STATE FAIRGROUNDS)				564818	7184.8	59565	104984		27055	132039	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : BEMIDJI STATE UNIVERSITY

BUILDING : #13 LABORATORY SCHOOL

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT:TYPE: REF.: NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND: (FOOT): (NOTE): (#1):	EXTRA COST (FT NOTE): (#2):	TOTAL ADJUSTED: COST	PAYBACK: YEARS:
7496 1.1 ENVEL REPLACE OVERHEAD DOORS.	0 136	775	3000	4	784	3784	3.87		
7497 1.2 ENVEL REMOVE THE GLASS BLOCK AND INDIVIDUAL WINDOWS AND INSTALL INSULATED WALL W/THERMOFANE WINDOWS AND INSULATE BEHIND METAL PANELS.	0 3762	21443	95000	4	24833	119833	4.43		
7500 2.1 HVAC REPAIR AND REPLACE STEAM TRAPS.	0 228	1300	5200	4	1359	6559	4		
7501 2.2 HVAC REMOVE VACUUM PUMP AND INSTALL CONDENSATE PUMP.	6363 114	969	3475	4	908	4383	3.59		
7502 2.3 HVAC INSTALL CONDENSATE METER.	0 70	400	1700	4	444	2144	4.25		
7503 2.4 HVAC INSTALL NEW TEMPERATURE CONTROLS ON RADIATION AND UNIT HEATERS.	0 857	4885	23000	4	6012	29012	4.7		
7504 2.5 HVAC ROOM 17:MODIFY CONTROLS,BALANCE TO ASHRAE 62-1981 STANDARD. INSTALL 7 DAY TIMER.	0 226	1288	1700	4	444	2144	1.31		
7505 2.6 HVAC ROOM 117:MODIFY CONTROLS,BALANCE TO ASHRAE 62-1981 STANDARDS AND INSTALL 7 DAY TIMER.	1060 542	3142	4310	4	1126	5436	1.37		
7506 2.7 HVAC ROOM 225:MODIFY CONTROLS,BALANCE TO ASHRAE 62-1981 STANDARD AND INSTALL 7 DAY TIMER.	1060 488	2833	4310	4	1126	5436	1.52		
7507 2.8 HVAC 1ST,2ND,3RD FLOORS:MODIFY CONTROLS,BALANCE TO ASHRAE 62-1981 STANDARDS AND INSTALL 7 DAY TIMER.	1060 1853	10562	17000	4	4443	21443	1.6		
7508 2.9 HVAC ROOM 35:MODIFY CONTROLS,BALANCE TO ASHRAE 62-1981 STANDARD AND INSTALL 7 DAY TIMER.	1060 89	507	1600	4	418	2018	3.15		
7509 2.10 HVAC ROOM 34:MODIFY CONTROLS,BALANCE TO ASHRAE 62-1981 STANDARD AND INSTALL 7 DAY TIMER.	1060 77	439	1500	4	392	1892	3.41		
7510 2.11 HVAC INSTALL 7 DAY TIMER ON TOILET EXHAUST FANS #3,4&5.	5446 0	272	1000	4	261	1261	3.67		
7511 2.12 HVAC INSTALL DAMPERS,OPERATORS AND REVERSE STAT ON TRANSFORMER VENT SYSTEM.	0 66	376	1450	4	379	1829	3.85		
7512 2.13 HVAC CONNECT TO CENTRAL E.M. SYSTEM.	0 1240	1405	6500	4	1699	8199	4.62		
7513 3.1 HVAC SET DOMESTIC WATER HEATER TEMPERATURE AT 110 DEGREES F.	0 15	85	0	1	0	0	0		
7514 3.2 HVAC INSTALL ELECTRIC WATER HEATER.	1515 2.3	207	630	4	164	794	3.04		
7515 3.3 HVAC INSTALL 7 DAY TIME CLOCK ON PUMP AND HEATER.	1310 7.8	110	450	4	117	567	4.09		

7516	4.1	LIGHT	ROOM 1-STORAGE:REPLACE 2-100W-I W/20W-F.	240	0	12	30	2	1	31	2.5
7517	4.2	LIGHT	ROOM 2-WAITING:REPLACE 4-40W-F W/4-34W-WSL AND USE 2-33% P.R.	158	0	8	18	2	1	19	2.25
7518	4.3	LIGHT	ROOM 3-MUSIC:REPLACE 12-40W -F W/12-34W-WSL AND USE 6-33% P.R.	473	0	24	54	2	3	57	2.25
7519	4.4	LIGHT	ROOM 4-ISOLATION:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7520	4.5	LIGHT	ROOM 5 NURSE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7521	4.6	LIGHT	ROOM 6-TOILET:REPLACE 1-100W-I W/1-20W-F.	180	0	9	15	4	3	18	1.66
7522	4.7	LIGHT	ROOM 7-TOILET:REPLACE 1-100W-I W/1-20W-F.	180	0	9	15	4	3	18	1.66
7523	4.8	LIGHT	ROOM 8-BOOK:REPLACE 4-150W-I W/4-IL-F-FIX W/34W-WSL.	696	0	35	120	4	31	151	3.42
7524	4.9	LIGHT	ROOM 9-STORAGE:REPLACE 1-200W-I W/1-IL-F-FIX W/34W-WSL.	249	0	13	30	4	7	37	2.3
7525	4.10	LIGHT	ROOM 10-OFFICE:REPLACE 40W-F W/4-34W-WSL.	60	0	3	4	2	0	4	1.33
7526	4.11	LIGHT	ROOM 11-PAINT:REPLACE 2-100W-I W/2-20W-F AND 1-200W-I W/1-IL-F-FIX W/34W-WSL.	734	0	37	60	4	15	75	1.62
7527	4.12	LIGHT	ROOM 12-WORK:REPLACE 1-100W-I W/1-20W-F AND USE 4-34W-F-WSL.	260	0	13	19	4	4	23	1.46
7528	4.13	LIGHT	ROOM 12A-JANITOR:REPLACE 2-200W-I W/2-IL-F-FIX W/34W-WSL.	498	0	25	60	4	15	75	2.4
7529	4.14	LIGHT	ROOM 13-STORAGE:REPLACE 6-200W-I W/6-IL-F-FIX W/34W-WSL.	563	0	28	120	4	31	151	4.28
7530	4.15	LIGHT	ROOM 14-MECH:REPLACE 3-200W-I W/3-IL-F-FIX W/34W-WSL:	373	0	19	90	4	23	113	4.73
7531	4.16	LIGHT	ROOM 15-HALL:REPLACE 30-40W-F W/34W-F-WSL 1-100W-I W/1-20W-F.	585	0	29	45	2	2	47	1.55
7532	4.17	LIGHT	ROOM 16-TUNNELS:REPLACE 2-100W-I W/2-20W-F.	360	0	18	30	4	7	37	1.66
7533	4.18	LIGHT	ROOM 17-PLAY:REPLACE 80-40W-F W/80-34W-F-WSL AND USE 10-33% P.R.	1620	0	81	150	2	9	159	1.85
7534	4.19	LIGHT	STAIRS:REPLACE 6-40W-F W/6-34W-WSL.	81	0	4	6	2	0	6	1.5
7535	4.20	LIGHT	ROOM 18-HALL:REPLACE 1-100W-I W/1-20W-F.	120	0	6	15	4	3	18	2.5
7536	4.21	LIGHT	ROOM 19-CLOSETS&TOILETS:REPLACE 3-100W -I W/3-20W-F.	360	0	18	45	4	11	56	2.5
7537	4.22	LIGHT	ROOM 24-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7538	4.24	LIGHT	ROOM 29 THRU 32 BOYS SHOWER:REPLACE 2-300W-I W/2-IL-F-FIX AND REPLACE 6-100W-I W/6-20W-F.	1518	0	76	180	4	47	227	2.36
7539	4.25	LIGHT	ROOM 33-ARTS:REPLACE 6-40W-F W/6-34W-F.	81	0	4	6	2	0	6	1.5
7540	4.23	LIGHT	RM 25 THRU 28 GIRLS SHOWERS	1518	0	76	180	4	47	227	2.36
7541	4.26	LIGHT	ROOM 34-PLANNING:REPLACE 6-40W-F W/6-34W-F.	81	0	4	6	2	0	6	1.5
7542	4.27	LIGHT	ROOM 35-ARTS:REPLACE 4-100W-I	1580	0	79	126	2	7	133	1.59

W/4-20W-F, REPLACE 1-200W-I
W/1-IL-F-FIX-34W, REPLACE
36-40W-F W/36-34W-F-WSL.

7543	4.28	LIGHT	ROOM 36-RECEIVING:REPLACE 2-150W AND 2-100W-I W/4-20W-F.	630	0	32	80	4	20	100	2.5
7544	4.29	LIGHT	ROOM 101-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7545	4.30	LIGHT	ROOM 102-WORK:REPLACE 8-40W-F W/8-34W-WSL.	108	0	6	8	2	0	8	1.33
7546	4.31	LIGHT	ROOM 103-CLASS:REPLACE 32-40W-F W/32-34W-WSL.	432	0	22	32	2	1	33	1.45
7547	4.32	LIGHT	ROOM 104-COATS:REPLACE 4-40W-F W/4-34-WSL.	54	0	3	4	2	0	4	1.33
7548	4.33	LIGHT	ROOM 105 THRU 108 TOILETS:REPLACE 4-100W-I W/4-20W-F:	720	0	36	60	4	15	75	1.66
7549	4.34	LIGHT	ROOM 109-JANITOR:REPLACE 1-100W-I W/1-20W-F.	120	0	6	15	4	3	18	2.5
7550	4.35	LIGHT	ROOM 110-COATS:REPLACE 4-40W-F W/34W-WSL.	54	0	3	4	2	0	4	1.33
7551	4.36	LIGHT	ROOM 111-CLASS:REPLACE 32-40W-F W/3L-34W-WSL.	432	0	22	32	2	1	33	1.45
7552	4.37	LIGHT	ROOM 112-WORK:REPLACE 8-40W-F W/8-34W-WSL.	108	0	5	8	2	0	8	1.6
7553	4.38	LIGHT	ROOM 113-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7554	4.39	LIGHT	ROOM 114-WORK:REPLACE 4-40W-F W/4-34W-WSL AND 1-100W-I W/1-20-F.	234	0	12	19	2	1	20	1.58
7555	4.40	LIGHT	ROOM 115-BOOK:REPLACE 1-150W-I W/1-20W-F.	195	0	10	15	4	3	18	1.5
7556	4.41	LIGHT	ROOM 116-LOBBY:REPLACE 10-40W-F W/10-34W-F AND USE 3-33% P.R.	405	0	20	31	2	1	32	1.55
7557	4.42	LIGHT	ROOM 117-CAFE:REPLACE 68-40W-F W/68-34W-F-WSL.	918	0	46	68	2	4	72	1.47
7558	4.43	LIGHT	ROOM 118-KITCHEN:REPLACE 12-40W-F W/12-34W-F-WSL.	162	0	8	12	2	0	12	1.5
7559	4.44	LIGHT	ROOM 119-MOD.KIT.:REPLACE 4-40W-F W/4-34W-F-WSL.	54	0	3	4	2	0	4	1.33
7560	4.45	LIGHT	ROOM 120-STAIRS:REPLACE 4-40W-F W/4-34W-WSL AND USE 3-50W SPOTS IN PLACE OF 3-150W SPOTS.	729	0	37	45	2	2	47	1.21
7561	4.46	LIGHT	ROOM 100-STAIRS:REPLACE 4-40W-F W/4-34-F-WSL.	54	0	3	4	2	0	4	1.33
7562	4.47	LIGHT	ROOM 121-WORK:REPLACE 8-40W-F W/8-34W-WSL AND USE 2-33% P.R.	216	0	11	22	2	1	23	2
7563	4.48	LIGHT	ROOM 122-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7564	4.49	LIGHT	ROOM 123-CLASS:REPLACE 44-40W-F W/44-34W-WSL.	594	0	30	44	2	2	46	1.46
7565	4.50	LIGHT	ROOM 124-HALL:REPLACE 1-100W-I W/1-20W-F.	351	0	18	26	2	1	27	1.44
7566	4.51	LIGHT	ROOM 125-CLOSET:REPLACE 1-100W-I W/1-20W-F.	180	0	9	15	4	3	18	1.66
7567	4.52	LIGHT	ROOM 126-COATS:REPLACE 4-40W-F W/4-34W-F-WSL.	54	0	3	4	2	0	4	1.33
7568	4.53	LIGHT	ROOM 127 THRU 130 TOILETS:REPLACE 4-100W-I	720	0	36	60	4	15	75	1.66

W/4-20W-F-WSL.												
7569	4.54	LIGHT	ROOM 131-COATS:REPLACE 4-40W-F W/34W-WSL.	36	0	2	4	2	0	4	2	
7570	4.55	LIGHT	ROOM 132-CLASS:REPLACE 32-40W-F W/32-34W-WSL.	432	0	22	32	2	1	33	1.45	
7571	4.56	LIGHT	ROOM 133-WORK:REPLACE 8-40W-F W/8-34W-WSL.	108	0	5	8	2	0	8	1.6	
7572	4.57	LIGHT	ROOM 134-OFFICE:REPLACE 4-40W-F W/34W-WSL.	36	0	2	4	2	0	4	2	
7573	4.58	LIGHT	STAIRS:REPLACE 4-40W-F W/4-34W-WSL.	36	0	2	4	2	0	4	2	
7574	4.59	LIGHT	ROOM 201:REPLACE 8-40W WITH 8-34W-WSL AND USE 2-33% P.R.	160	0	8	22	2	1	23	2.75	
7575	4.60	LIGHT	ROOM 202:REPLACE 2-200W-I W/2-IL-F-FIX W/34W.	498	0	25	60	4	15	75	2.4	
7576	4.61	LIGHT	ROOM 203-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33	
7577	4.62	LIGHT	ROOM 204-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33	
7578	4.63	LIGHT	ROOM 205-OFFICE:REPLACE 8-40W-F W/8-34W-WSL.	108	0	6	8	2	0	8	1.33	
7579	4.64	LIGHT	ROOM 206-BOOKS:REPLACE 1-200W-I W/1-IL-F-FIX W/34W-WSL.	374	0	19	30	4	7	37	1.57	
7580	4.65	LIGHT	ROOM 207-COATS:REPLACE 1-150W-I W/1-20W-F.	293	0	15	15	4	3	18	1	
7581	4.66	LIGHT	ROOM 208-WAITING:REPLACE 8-40W-F W/8-34W-WSL.	108	0	5	8	2	0	8	1.6	
7582	4.67	LIGHT	ROOM 209-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33	
7583	4.68	LIGHT	ROOM 210-OFFICE:REPALCE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33	
7584	4.69	LIGHT	ROOM 211-CLOSET:REPLACE 1-200W-I W/1-IL-F-FIX W/34W-WSL.	249	0	13	30	4	7	37	2.3	
7585	4.70	LIGHT	ROOM 212-CLOSET:REPLACE 1-100W-I W/1-20W-F.	180	0	9	15	4	3	18	1.66	
7586	4.71	LIGHT	ROOM 213-TOILET:REPLACE 1-100W-I-1-20W-F.	180	0	9	15	4	3	18	1.66	
7587	4.72	LIGHT	ROOM 214-TOILET:REPLACE 1-100W-I W/1-20W-F.	180	0	9	15	4	3	18	1.66	
7588	4.73	LIGHT	ROOM 215-TOILET:REPLACE 8-40W-F W/8-34W-WSL AND USE 4-33% P.R.	522	0	20	36	2	2	38	1.8	
7589	4.74	LIGHT	ROOM 216-COATS:REPLACE 4-40W-F W/34W-WSL AND USE 2-33% P.R.	162	0	8	18	2	1	19	2.25	
7590	4.75	LIGHT	ROOM 217-CLASS:REPLACE 32-40W-F W/32-34W-WSL.	432	0	22	32	2	1	33	1.45	
7591	4.76	LIGHT	ROOM 218:REPLACE 8-40W-F W/8-34W-WSL AND USE 2-33% P.R.	414	0	21	22	2	1	23	1.04	
7592	4.77	LIGHT	ROOM 219-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33	
7593	4.78	LIGHT	ROOM 220:REPLACE 8-40W-F W/8-34W-WSL.	108	0	6	8	2	0	8	1.33	
7594	4.79	LIGHT	ROOM 221-HALL:REPLACE 2-40W-F W/2-34W-WSL AND 1-100W-I W/1-20W-F.	207	0	10	17	2	1	18	1.7	
7595	4.80	LIGHT	ROOM 222-STAGE:REPLACE 9-150W-I W/75W-FR 30.	1012	0	50	50	4	13	63	1	

7596	4.81	LIGHT	ROOM 223-DRESSING:REPLACE 2-100W-I W/2-20W-F.	240	0	12	30	4	7	37	2.5
7597	4.82	LIGHT	ROOM 224-DRESSING:REPLACE 2-100W-I W/2-20W-F.	240	0	12	30	4	7	37	2.5
7598	4.83	LIGHT	ROOM 225-DRAMATIC:REPLACE 57-40W-F W/34W-WSL. REPLACE 3-150W-I W/3-75W-ER-30. REPLACE 1-1500W-I W/1-400W-METAL HALIDE.	3751	0	188	557	4	145	702	2.96
7599	4.84	LIGHT	STAIRS:REPLACE 4-40W W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7600	4.85	LIGHT	ROOM 226-WORK:REPLACE 12-40W-F W/12-34W-WSL.	162	0	9	12	2	0	12	1.33
7601	4.86	LIGHT	ROOM 227-WORK:REPLACE 8-40W-F W/8-34W-WSL.	108	0	6	8	2	0	8	1.33
7602	4.87	LIGHT	ROOM 228-OFFICES:REPLACE 4-40W-F W/34W-WSL.	54	0	3	4	2	0	4	1.33
7603	4.88	LIGHT	ROOM 229-CLASS:REPLACE 32-40W-F W/32-34W-WSL.	432	0	22	32	2	1	33	1.45
7604	4.89	LIGHT	ROOM 230-COATS:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7605	4.90	LIGHT	ROOM 231-HALL:REPLACE 30-40W-F W/30-34W-WSL.	405	0	20	30	2	1	31	1.5
7606	4.91	LIGHT	ROOM 232-JANITOR:REPLACE 1-100W-I W/1-20W-F.	180	0	9	15	4	3	18	1.66
7607	4.92	LIGHT	ROOM 233-TOILET ENTRY:REPLACE 1-100W-I W/1-20W-F.	180	0	9	15	4	3	18	1.66
7608	4.93	LIGHT	ROOM 234-TOILET:REPLACE 8-40W-F W/8-34W-WSL AND USE 2-33% P.R.	216	0	11	22	2	1	23	2
7609	4.94	LIGHT	ROOM 235-COATS:REPLACE 4-40W-F W/34W-WSL.	54	0	3	4	2	0	4	1.33
7610	4.95	LIGHT	ROOM 236-CLASS:REPLACE 32-40W-F W/32-34W-WSL.	432	0	22	32	2	1	33	1.45
7611	4.96	LIGHT	ROOM 237-WORK:REPLACE 8-40W-F W/8-34W-WSL AND USE 2-33% P.R.	216	0	11	22	2	1	23	2
7612	4.97	LIGHT	ROOM 238-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7613	4.98	LIGHT	STAIRS:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7614	4.99	LIGHT	ROOM 301-CLASS:REPLACE 32-40W-F W/32-34W-WSL.	432	0	22	32	2	1	33	1.45
7615	4.100	LIGHT	ROOM 302-STORAGE:REPLACE 4-40W-F W/4-34W-WSL AND USE 2-33% P.R.	162	0	8	18	2	1	19	2.25
7616	4.101	LIGHT	ROOM 303-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7617	4.102	LIGHT	ROOM 304&305-TOILETS:REPLACE 8-40W-F W/8 34W-WSL. AND USE 4-33% P.R. REPLACE 1-100W-I W/1-20W F.	504	0	25	51	4	13	64	2.04
7618	4.103	LIGHT	ROOM 306-JANITOR:REPLACE 1-100W-I W/1-20W-F.	180	0	9	15	4	3	18	1.66
7619	4.104	LIGHT	ROOM 307-CLASS:REPLACE 32-40W-F W/33-34W-WSL.	432	0	22	32	2	1	33	1.45
7620	4.105	LIGHT	ROOM 308-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7621	4.106	LIGHT	ROOM 309-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33

7622	4.107	LIGHT	ROOM 310-CLASS:REPLACE 32-40W-F W/32-34W-WSL.	432	0	22	32	2	1	33	1.45
7623	4.108	LIGHT	STAIRS:REPLACE 40-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7624	4.109	LIGHT	MECH:REPLACE 2-100W-I W/2-20W-F.	240	0	12	30	4	7	37	2.5
7625	4.110	LIGHT	ROOM 311-ART:REPLACE 44-40W-F W/34W-WSL.	594	0	30	44	2	2	46	1.46
7626	4.111	LIGHT	ROOM 312-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7627	4.112	LIGHT	ROOM 313-WORK:REPLACE 4-40W-F W/34W-WSL.	54	0	3	4	2	0	4	1.33
7628	4.113	LIGHT	ROOM 314-HALL:REPLACE 30-40W-F W/34W-WSL.	405	0	20	20	2	1	21	1
7629	4.114	LIGHT	ROOM 315-HALL:REPLACE 12-40W-F W/34W-WSL.	162	0	8	12	2	0	12	1.5
7630	4.115	LIGHT	ROOM 316-BOOKS:REPLACE 1-200W-I W/1-IL-F-FIX W/34W-WSL.	374	0	19	30	4	7	37	1.57
7631	4.116	LIGHT	ROOM 317-STORAGE:REPLACE 2-150W-I W/2-20W-F.	390	0	20	30	4	7	37	1.5
7632	4.117	LIGHT	ROOM 318-JANITOR:REPLACE 1-100W-I W/1-20W-F.	180	0	9	15	4	3	18	1.66
7633	4.118	LIGHT	ROOM 319-TOILET:REPLACE 1-100W-I W/1-20W-F.	180	0	9	15	4	3	18	1.66
7634	4.119	LIGHT	ROOM 320-TOILET:REPLACE 8-40W-F W/8-34W-WSL AND USE 4-33%P.R.	504	0	25	51	2	3	54	2.04
7635	4.120	LIGHT	ROOM 321-CLASS:REPLACE 32-40W-F W/32-34W-WSL.	432	0	22	32	2	1	33	1.45
7636	4.121	LIGHT	ROOM 322-OFFICE:REPLACE 4-40W-F W/4-34W-WSL.	54	0	3	4	2	0	4	1.33
7637	4.122	LIGHT	ROOM 323-STORAGE:REPLACE 1-200W-I W/1-IL-F-FIX W/34W-WSL.	374	0	19	30	4	7	37	1.57
7638	4.123	LIGHT	EXIT:REPLACE 12-35W W/12-6W-F W/TEE SHOT ADAPTER.	1997	0	100	180	4	47	227	1.8
BUILDING TOTALS (EDUCATION AND ARTS BUILDING #13)				61693	9773.1	53100	175884	45592	221476		

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : BEMIDJI STATE UNIV.

BUILDING : MAINTENANCE AND SERVICE

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT:TYPE: REF.: NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
7879 1.1 ENVEL REPLACE OVERHEAD DOOR RM 102 W/INSULATED UNIT	0 98	558	2400	4	627	3027	4.3		
7880 1.2 ENVEL FURISH ROOF INSULATION ONLY	0 209	1193	5840	4	1526	7366	4.89		
7882 1.4 ENVEL INSTALL INSULATED WALLS AROUND WINDOW AIR CONDITION UNITS & PROVIDE INSULATED WEATHER PROOF COVERS.	0 16	90	441	4	115	556	4.9		
7883 2.1 HVAC INSTALL UNIT HEATERS-ROOM #106	4847 0	242	1200	4	313	1513	4.95		
7884 2.2 HVAC INSTALL CONTROLS FOR NIGHT AND WEEKEND TEMPERATURE REDUCTION AND CONNECT TO E.M. SYSTEMS.	0 144	821	4000	4	1045	5045	4.97		
7885 4.1 LIGHT USE 76-34W-WSL IN PLACE OF 40W-F LAMPS	1026 0	51	76	2	4	80	1.49		
7886 4.2 LIGHT USE 24-34W-WSL IN PLACE OF 40W-F LAMPS	324 0	16	24	2	1	25	1.5		
7887 4.3 LIGHT USE 2-34W-WSL AND REPLACE 1-I-FIX W/1-1L-F FIX W/34W-WSL	374 0	19	60	2	3	63	3.15		
7888 4.4 LIGHT REPLACE 8-200W-I-FIX WITH 4-150W HPS	2250 0	113	500	4	130	630	4.42		
7889 4.5 LIGHT REPLACE 4-I-FIX WITH 4-1L-F-FIX WITH 34W-WSL	1494 0	75	240	4	62	302	3.2		
7890 4.6 LIGHT REPLACE 4-I-FIOX WITH 4-1L-F-FIX WITH 34W-WSL	1494 0	75	240	4	62	302	3.2		
7891 4.7 LIGHT USE 12 34W-WSL IN PLACE OF 40W-F LAMPS	162 0	8	12	2	0	12	1.5		
7892 4.8 LIGHT USE 8 34W-WSL IN PLACE OF 40W-F LAMPS	108 0	6	8	2	0	8	1.33		
7893 4.9 LIGHT USE 4-34-WSL IN PLACE OF 40W-F LAMPS	54 0	3	4	2	0	4	1.33		
7894 4.10 LIGHT USE 46 34W-WSL IN PLACE OF 40W-F LAMPS	621 0	31	46	2	2	48	1.48		
7895 4.11 LIGHT DISCONNECT 2-I-FIX AND INSTALL 2-1L F FIX WITH 34W-WSL	747 0	37	120	4	31	151	3.24		
7896 4.12 LIGHT USE 16 34W-WSL	216 0	11	16	2	0	16	1.45		
7897 4.13 LIGHT USE 6 50W MERCURY LAMPS IN PLACE OF 200W-I	2700 0	135	675	4	176	851	5		
BUILDING TOTALS (MAINTENANCE AND SERVICE)	16417 467	8484	15902	4097	19999				

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION
 SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : BEMIDJI STATE UNIVERSITY =

= BUILDING : MEMORIAL HALL =

SYSTEM:CONSUL:SCHEME:	DESCRIPTION			KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE): (#1):	EXTRA COST (FT NOTE): (#2):	TOTAL ADJUSTED COST	PAYBACK YEARS
NUMBER:REPORT:TYPE:	REF.:	NUMBER:									

7442	1.1	ENVEL	WEATHERSTRIP DOORS	0	162	923	1000	4	261	1261	1.08
7443	1.2	ENVEL	REMOVE 2-4 1/2 X 4 1/2 GRAVITY ROOF VENTS AND INSULATE.	0	91	518	940	4	245	1185	1.81
7444	1.3	ENVEL	INSULATE 4-40" X 36" F.A. INTAKES ON UV NO LONGER USED.	0	73	416	800	4	209	1009	1.92
7445	1.4	ENVEL	REMOVE GLASS BLOCK AND INSTALL AN INSULATE WALL.	0	340	1938	7020	4	1835	8855	3.62
7447	1.5A	ENVEL	FURNISH ROOF INSULATION ONLY.	0	416	2371	11574	4	3025	14599	4.88
7448	2.1	HVAC	INSTALL NEW PNEUMATIC ROD VALVES AND NEW DUAL THERMOSTATS ON BUILDING RADIATION.	0	478	2728	9000	4	2352	11352	3.29
7449	2.2	HVAC	PUT GYM,HALLS AND OFFICE RADIATION ON EM SYSTEM.	0	228	1300	5200	4	1359	6559	4
7450	2.3	HVAC	REMOVE VACUUM PUMP AND INSTALL CONDENSATE PUMP.	6363	114	968	3475	4	908	4383	3.58
7451	2.4	HVAC	REPAIR OR REPLACE STEAM TRAPS.	0	228	1300	5200	2	312	5512	4
7452	2.5	HVAC	INSTALL CONDENSATE METER.	0	70	399	1700	4	444	2144	4.26
7453	2.6	HVAC	MODIFY CONTROLS ON BOOKSTORE HVAC UNIT AND PRINTING OFFICE AIR CONDITIONING UNIT.	0	240	1653	5500	4	1437	6937	3.32
7454	2.7	HVAC	CONNECT BOOKSTORE AND PRINTING OFFICE TO CENTRAL EM SYSTEM.	0	106	604	2500	4	653	3153	4.13
7455	2.8	HVAC	INSTALL 2 NEW 48"DAMPERS AND CONTROLS ON GRAVITY EXHAUST HALL #301.	0	81	461	2000	4	522	2522	4.33
7456	3.2	HVAC	INSTALL ELECTRIC WATER HEATER.	1515	36	281	1250	4	326	1576	4.44
7457	3.1	HVAC	INSTALL 7 DAY TIME CLOCK OR CONNECT TO CENTRAL EM SYSTEM FOR 2-H.W.CIRCULATING PUMPS.	1747	26	235	450	4	117	567	1.91
7458	4.1	LIGHT	REPLACE 1-150W-I W/1-IL-F-FIX W/34W-WSL.	174	0	9	40	4	10	50	4.44
7459	4.2	LIGHT	ROOM 18:REPLACE 2-150W-I W/2-IL-F-FIX W/34W-WSL.	348	0	17	80	4	20	100	4.7
7460	4.3	LIGHT	ROOM 19:REPLACE 2-150W-I W/2-IL-F-FIX W/34W-WSL.	348	0	17	80	4	20	100	4.7
7461	4.4	LIGHT	ROOM 20:REPLACE 1-150W-I W/1-IL-F-FIX W/34W-WSL.	174	0	9	40	4	10	50	4.44
7462	4.5	LIGHT	ROOM 21:REPLACE 1-150W-I W/1-IL-F-FIX W/34W-WSL.	174	0	9	40	4	10	50	4.44
7463	4.6	LIGHT	ROOM 25:NO MODIFICATION.	0	0	0	0	1	0	0	0
7464	4.7	LIGHT	ROOM 26:REPLACE 6-150W-I W/6-IL-F-FIX W/34W-WSL.	1089	0	54	240	4	62	302	4.44

7465	4.8	LIGHT	ROOM 105:REPLACE 5-150W-I W/5-IL-F-FIX W/34W-WSL.	870	0	44	200	4	52	252	4.54		
7466	4.9	LIGHT	ROOM 114:REPLACE 1-150W-W/1-IL-F-FIX W/34W-WSL.	174	0	9	40	4	10	50	4.44		
7467	4.10	LIGHT	ROOM 117:REPLACE 7-150W-I-L W/7-IL-F-FIX W/34W-WSL.	1218	0	61	280	4	73	353	4.59		
7468	4.11	LIGHT	ROOM 118:REPLACE 7-150W-I W/7-IL-F-FIX W/34W-WSL.	1218	0	61	280	4	73	353	4.59		
7469	4.12	LIGHT	ROOM 123:REPLACE 2-150W-I W/2-IL-F-FIX W/34W-WSL.	348	0	17	80	4	20	100	4.7		
7470	4.13	LIGHT	ROOM 129:REPLACE 3-150W-I W/3-IL-F-FIX W/34W-WSL.	522	0	26	120	4	31	151	4.61		
7471	4.14	LIGHT	ROOM 130:REPLACE 3-150W-I W/3-IL-F-FIX W/34W-WSL.	522	0	26	120	4	31	151	4.61		
7472	4.15	LIGHT	ROOM 201:REPLACE 3-300W-I-FIX W/3-2L-F-FIX W/34W-WSL.	1044	0	52	225	4	58	283	4.32		
7473	4.16	LIGHT	ROOM 202:REPLACE 36-40W-F-LAMPS W/36-34W-WSL.	324	0	16	36	4	9	45	2.25		
7474	4.17	LIGHT	ROOM 203:REPLACE 5-150W-I W/5-IL-F-FIX W/34W-WSL.	870	0	44	200	4	52	252	4.54		
7475	4.18	LIGHT	ROOM 204:REPLACE 5-150W-I W/5-IL-F-FIX W/34W-WSL.	870	0	44	200	4	52	252	4.54		
7476	4.19	LIGHT	ROOM 210:REPLACE 2-150W-I W/2-IL-F-FIX W/34W-WSL.	348	0	18	80	4	20	100	4.44		
7477	4.20	LIGHT	ROOM 211:REPLACE 2-150W-I W/2-IL-F-FIX W/34W-WSL.	348	0	18	80	4	20	100	4.44		
7478	4.21	LIGHT	ROOM 215:REPLACE 5-150W-I W/2-IL-F-FIX W/34W-WSL.	870	0	44	200	4	52	252	4.54		
7479	4.22	LIGHT	ROOM 209:REPLACE 3-150W-I W/3-IL-F-FIX W/34W-WSL.	522	0	26	120	4	31	151	4.61		
7480	4.23	LIGHT	ROOM 213:REPLACE 3-150W-I W/3-IL-F-FIX W/34W-WSL.	522	0	26	120	4	31	151	4.61		
7481	4.24	LIGHT	ROOM 214:REPLACE 5-150W-I W/5-IL-F-FIX W/34W-WSL.	870	0	44	200	4	52	252	4.54		
7482	4.25	LIGHT	ROOM 216:NO MODIFICATION.	0	0	0	0	1	0	0	0		
7483	4.26	LIGHT	ROOM 216:NO MODIFICATION.	0	0	0	0	1	0	0	0		
7484	4.27	LIGHT	ROOM 218:REPLACE 3-150W-I W/3-IL-F-FIX W/34W-WSL.	522	0	26	120	4	31	151	4.61		
7485	4.28	LIGHT	ROOM 219:REPLACE 3-150W-I W/3-IL-F-FIX W/34W-WSL.	522	0	26	120	4	31	151	4.61		
7486	4.29	LIGHT	ROOM 320:REPLACE 24-500W-I W/24-150W HPS AND 20-300W-I W/10-70W HPS AND 10-50W HPS.	21480	0	1074	5000	4	1307	6307	4.65		
7487	4.30	LIGHT	ROOM 301:REPLACE 3-200W-I W/3-IL-F-FIX W/34W-WSL.	747	0	37	120	4	31	151	3.24		
7488	4.31	LIGHT	ROOM 302:REPLACE 40-40W-F-LAMPS W/34W-WSL.	360	0	18	40	2	2	42	2.22		
7489	4.32	LIGHT	ROOM 303:REPLACE 20-40W-F-LAMPS W/34W-WSL.	180	0	9	20	2	1	21	2.22		
7490	4.33	LIGHT	ROOM 304:REPLACE 32-40W-F LAMPS W/34W-WSL.	288	0	9	20	2	1	21	2.22		
7491	4.34	LIGHT	ROOM 312:REPLACE 2-200W-I W/2-IL-F-FIX W/34W-WSL.	504	0	25	80	4	20	100	3.2		
7492	4.35	LIGHT	ROOM 313:REPLACE 2-200W-I W/2-IL-F-FIX W/34W-WSL.	504	0	25	80	4	20	100	3.2		

7493	4.36	LIGHT	ROOM 315:REPLACE 6-40W-F LAMPS W/6-34W-WSL.	54	0	3	6	2	0	6	2
7494	4.37	LIGHT	ROOM 317:REPLACE 3-200W-I W/3-1L-F-FIX W/34W-WSL.	747	0	37	120	4	31	151	3.24
7495	4.38	LIGHT	ROOM 318:REPLACE 3-200W-I W/3-1L-F-FIX W/34W-WSL.	747	0	37	120	4	31	151	3.24
BUILDING TOTALS (MEMORIAL HALL)				50047	2689	18112	66556		16310	82866	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : BEMIDJI STATE UNIVERSITY

BUILDING : BEAVER

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK YEARS
7757	2.1	HVAC	INTER-CONNECT BEAVER AND HOBSON A.C.SYSTEMS.	233590	0	11679	22000	4	5750	27750	1.88
7758	2.2	HVAC	CONNECT A.C.SYSTEM TO CENTRAL E.M.SYSTEM.	116800	0	5840	20000	4	5228	25228	3.42
7760	2.3	HVAC	CUT F.A.TO CODE AND BALANCE, CONNECT TO CENTRAL P.M. SYSTEM. NITE CUT-BACK.	54810	2726	17707	36000	4	9410	45410	2.03
BUILDING TOTALS (BEAVER)				405200	2726	35226	78000		20388	98388	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : BEMIDJI STATE UNIVERSITY =

BUILDING : HOBSON =

SYSTEM	CONSUL	SCHEME	DESCRIPTION	KWH SAVED	MMBTU SAVED	DOLLAR SAVED	FIRST COST	KIND (FOOT)	EXTRA (NOTE)	TOTAL (FT NOTE)	PAYBACK ADJUSTED	YEARS
NUMBER	REPORT	TYPE		PER YEAR	PER YEAR	PER YEAR			COST			
								(#1)	(#2)			
7756	2.1	HVAC	CUT F.A. TO CODE. CONNECT TO CENTRAL E.M. SYSTEM. NIGHT CUT BACK.	43982	1792	12442	32000	4	8364	40364	2.57	
BUILDING TOTALS (HOBSON)				43982	1792	12442	32000		8364	40364		

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

COMPLEX : BEMIDJI STATE UNIVERSITY

BUILDING : INDUSTRIAL EDUCATION BLDG. #11

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT: TYPE :	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE): (#1):	EXTRA COST (FT NOTE) (#2):	TOTAL ADJUSTED COST	PAYBACK YEARS
7670 1.1 ENVEL REPLACE H.M. DOORS AND WEATHERSTRIP.	0 34 770 2400 4 627							3027	3.11
7671 1.2 ENVEL REPLACE O.H. DOORS AND WEATHERSTRIP.	0 208 1186 4000 4 1045							5045	3.37
7673 1.3 ENVEL ROOF-NO MODIFICATION:	0 0 0 0 1 0							0	0
7675 NOTE: ENVEL THE THERMALPANE GLASS SHOULD HAVE A SALVAGE VALUE WHICH WAS NOT CONSIDERED.	0 0 0 0 1 0							0	0
7676 2.1 HVAC KEEP STEAM TRAPS REPAIRED OR REPLACED.	0 228 1300 3800 2 228							4028	2.92
7677 2.2 HVAC INSTALL CONDENSATE METER W/TOTALIZER.	0 70 400 1700 4 444							2144	4.25
7678 2.3 HVAC INSTALL NEW DUAL-THERMOSTATS AND PNEUMATIC RADIATOR VALVES.	0 290 1699 8200 4 2143							10343	4.82
7679 2.4 HVAC CHANGE THE OPERATION OF HV-1, INSTALL FIN TUBE TO HEAT ROOM 101 AND INSTALL TIMER OR EXHAUST FAN #11.	4035 124 909 2400 4 627							3027	2.64
7680 2.5 HVAC INSTALL MANUAL TIMERS ON 14 EXHAUST HOODS AND FANS.	4746 199 1364 4200 4 1097							5297	3.07
7681 2.6 HVAC INSTALL NEW CONTROLS ON U.V. IN ROOM #237.	0 71 404 1300 4 339							1639	3.21
7682 2.7 HVAC INTERLOCK THE DUST COLLECTOR W/12 WOOD WORKING MACHINES.	12623 0 631 2400 4 627							3027	3.8
7683 2.8 HVAC CHANGE CONTROLS, ADJUST F.A., INSTALL STATIC PRESSURE SENSORS AND CONNECT TO CENTRAL E.M.SYSTEM.	0 665 3790 15050 4 3934							18984	3.97
7684 3.1 HVAC SET WATER HEATER TEMPERATURE AT 110 DEG.F.	0 15 85 0 1 0							0	0
7685 3.2 HVAC INSTALL ELECTRIC WATER HEATER.	1515 23 207 630 4 164							794	3.04
7686 3.3 HVAC INSTALL 7 DAY TIME CLOCK ON PUMP AND HEATER.	1310 7.5 110 450 4 117							567	4.09
7687 4.1 LIGHT ROOM 126-TUNNEL:USE 12-33% P.R.	702 0 35 120 2 7							127	3.42
7688 4.2 LIGHT FOUNDATION-TUNNEL:REPLACE 13-200W-I FIX W/13-IL-F FIX W/34W-WSL.	2158 0 108 390 4 101							491	3.61
7689 4.3 LIGHT ROOM 124-STAIRS:USE 10-34W-WSL LAMPS INSTEAD OF 10-40W-F.	135 0 7 10 2 0							10	1.42
7690 4.4 LIGHT EXIT LIGHTS:USE 6W-F W/ADAPTER INSTEAD OF 25W-I.	999 0 50 120 2 7							127	2.4
7691 4.5 LIGHT ROOM 100-MECH:REPLACE 6-200W -I-FIX W/6-ILF-FIX W/34W-WSL.	1494 0 75 180 4 47							227	2.4

	7692	4.6	LIGHT	ROOM 101-WOOD SHOP:USE 114-34W-WSL INSTEAD OF 40W-F.	1539	0	77	114	2	6	120	1.48
	7693	4.7	LIGHT	ROOM 102-FINISHING:USE 8-34W-WSL INSTEAD OF 40W-F AND USE 4-180W-WSL INSTEAD OF 4-220W-F.	312	0	16	30	4	7	37	1.87
	7694	4.8	LIGHT	ROOM 103-STORAGE:USE 2-IL-F-FIX INSTEAD OF 3-200W-I FIX.AND USE 2-34W-WSL.	357	0	18	60	4	15	75	3.33
	7695	4.9	LIGHT	ROOM 104-LUMBER:USE 2-IL-F-FIX INSTEAD OF 3-200W-I FIX.AND USE 2-34W-WSL.	357	0	18	60	4	15	75	3.33
	7696	4.10	LIGHT	ROOM 105-ED.:USE 54-34W-WSL INSTEAD OF 40W-F.	729	0	36	54	2	3	57	1.5
	7697	4.11	LIGHT	ROOM 106-METAL:USE 96-34W-WSL INSTEAD OF 40W-F.	1296	0	65	96	2	5	101	1.47
	7698	4.12	LIGHT	ROOM 107-STORAGE:USE 4-34W-WSL INSTEAD OF 4-40W-F.	36	0	2	4	2	0	4	2
	7699	4.13	LIGHT	ROOM	158	0	8	10	2	0	10	1.25
	7700	4.14	LIGHT	ROOM 111-TESTING:USE 8-34W-WSL IN PLACE OF 8-40W-F.	72	0	4	8	2	0	8	2
	7701	4.15	LIGHT	ROOM 112-STORAGE:USE 4-34W-WSL IN PLACE OF 4-40W-F.	36	0	2	4	2	0	4	2
	7702	4.16	LIGHT	ROOM 113-HOT METAL:USE 84-34W-WSL IN PLACE OF 84-40W-F.	1134	0	57	84	2	5	89	1.47
	7703	4.17	LIGHT	ROOM 114-STORAGE:NO MODIFICATION.	0	0	0	0	1	0	0	0
	7704	4.18	LIGHT	ROOM 115-GRAFIC:USE 100-34W-WSL IN PLACE OF 100-40W-F.	1350	0	68	100	2	6	106	1.47
	7705	4.19	LIGHT	ROOM 116-DARK ROOM:NO MODIFICATION.	0	0	0	0	1	0	0	0
	7706	4.20	LIGHT	ROOM 117-STORAGE:USE 4-34W-WSL IN PLACE OF 4-40W-F.	36	0	2	4	2	0	4	2
	7707	4.21	LIGHT	ROOM 118-STORAGE:USE 4-34W-WSL IN PLACE OF 4-40W-F.	36	0	2	4	2	0	4	2
	7708	4.22	LIGHT	ROOM 119-CERAMICS:USE 12-33% P.R. AND USE 48-34W-WSL INSTEAD OF 48-40W-F.	648	0	32	132	2	7	139	4.12
	7709	4.23	LIGHT	ROOM 120-POWER SHOP:USE 92-34W-WSL INSTEAD OF 92-40W-F.	1442	0	62	92	2	5	97	1.48
	7710	4.24	LIGHT	ROOM 121-RECEIVING:USE 6-22W-F-LAMPS IN PLACE OF 6-200W-I.	850	0	43	90	4	23	113	2.09
	7712	4.26	LIGHT	ROOM 123-JANITOR:USE 4-22W-F LAMPS IN PLACE OF 4-200W-I.	1068	0	53	60	2	3	63	1.13
	7713	4.27	LIGHT	ROOM 125-HALL:USE 60-34W-WSL INSTEAD OF 60-40W-F AND 30-33% P.R.	2324	0	116	270	2	16	286	2.32
	7714	4.28	LIGHT	ROOM 127-TRANSFORMER:NO MODIFICATIONS.	0	0	0	0	1	0	0	0
	7715	4.29	LIGHT	ROOM 2-ALCOVES:USE 8-2L-F-FLUSH FIX. W/20W-F LAMPS INSTEAD OF 8-200W-I.	2880	0	144	480	2	28	508	3.33
	7716	4.30	LIGHT	ROOM 200-ELEC.LAB.:USE 12-33% P.R. AND 72-34W-WSL IN PLACE OF 72-40W-F.	1674	0	84	192	2	11	203	2.28
	7717	4.31	LIGHT	ROOM 201-CLASS:REPLACE 40-40W-F LAMPS W/40-34W-WSL. DISCONNECT	540	0	27	120	4	31	151	4.44

12-200W-I-FIX AND CONNECT
DIMMER TO F-FIX.

7718	4.32	LIGHT	ROOM 202-CLASS:REPLACE 40-40W-F W/40-34W-WSL.	540	0	27	40	2	2	42	1.48
7719	4.33	LIGHT	ROOM 203-DRAWING:REPLACE 80-40W-F W/80-34W-WSL.	1080	0	54	80	2	4	84	1.48
7720	4.34	LIGHT	ROOM 204-ART:REPLACE 64-40W-F W/64-34W-WSL.	864	0	43	64	2	3	67	1.48
7721	4.35	LIGHT	ROOM 205-DRAFTING:REPLACE 96-40W-F W/96-34W-WSL.	1296	0	65	96	2	5	101	1.47
7722	4.36	LIGHT	ROOM 206-GALLERY:NO MODIFICATION.	0	0	0	0	1	0	0	0
7723	4.371	LIGHT	ROOM 207-STORAGE:USE 8-34W-WSL AND 4-33% P.R.	414	0	21	48	2	2	50	2.28
7724	4.38	LIGHT	ROOM 208-HALL:REPLACE 7-200W-I-FIX W/7-2L-F-FIX. W/2-20W-F LAMPS.	2520	0	126	420	4	109	529	3.33
7725	4.39	LIGHT	ROOM 124-STAIRS UPPER:REPLACE 14-40W-F LAMPS W/14-34W-WSL.	189	0	10	14	2	0	14	1.4
7726	4.40	LIGHT	ROOM 209-STUDIO:REPLACE 24-40W-F LAMPS W/24-34W-WSL.	324	0	16	24	2	1	25	1.5
7727	4.41	LIGHT	ROOM 210-TOILET:DISCONNECT 1-IL-F-FIX AND USE 4-34W-WSL.	144	0	7	14	4	3	17	2
7728	4.42	LIGHT	ROOM 211-ENTRY:DISCONNECT TYPE "D"-I-FIX. AND INSTALL 1-16" DIAMETER SURFACE MTD.-F-FIX W/1-22W CIRCLINE F-LAMP.	400	0	20	58	4	15	73	2.9
7729	4.43	LIGHT	ROOM 212-TOILET:USE 1-34W-F LAMP IN PLACE OF 40W AND DISCONNECT TYPE D-I FIX. AND INSTALL 1-16" DIAMETER 1-22W CIRCLINE-F FIXTURE.	414	0	21	59	4	15	74	2.8
7730	4.44	LIGHT	ROOM 213-TOILET:DISCONNECT 2-IL-F-FIX AND USE 5-34W-WSL.	248	0	12	40	4	10	50	3.33
7731	4.45	LIGHT	DISCONNECT TYPE "D" -I-FIX AND INSTALL 1-16" DIAMETER SURFACE MTD.-F FIXTURE W/1-22W CIRCLINE F-LAMP.	400	0	20	58	4	15	73	2.9
7732	4.46	LIGHT	ROOM 215-MECH:DISCONNECT 4-I FIXTURES AND INSTALL 4-IL-F FIXTURES W/34W-WSL.	996	0	50	160	4	41	201	3.2
7733	4.47	LIGHT	ROOM 216-HALL:DISCONNECT 25-I-FIX AND INSTALL 25-2L-F FIXTURES W/20W LAMPS.	9000	0	450	1500	4	392	1892	3.33
7734	4.48	LIGHT	ROOM 217&218 CLASS AND SEMINAR:USE 24-34W-WSL.	324	0	16	24	2	1	25	1.5
7735	4.49	LIGHT	ROOM 219&220 OFFICE&RECEPTION:USE 16-34W-WSL.	216	0	11	16	2	0	16	1.45
7736	4.50	LIGHT	ROOM 221-HALL:DISCONNECT 10-I-FIXTURES AND INSTALL 10 SURFACE MOUNTED F-FIXTURES W/2-20W-F LAMPS.	3600	0	180	600	4	156	756	3.33
7737	4.51	LIGHT	ROOM 222-OFFICE:USE 8-34W-WSL IN PLACE OF 40W-F LAMPS.	108	0	5	8	2	0	8	1.6
7738	4.52	LIGHT	ROOM 223-OFFICE:USE 8-34W-WSL IN PLACE OF 40W-F LAMPS.	108	0	5	8	2	0	8	1.6
7739	4.53	LIGHT	ROOM 224-OFFICE:USE 8-34W-WSL IN PLACE OF 40W-F LAMPS.	108	0	5	8	2	0	8	1.6
7740	4.54	LIGHT	ROOM 225-OFFICE:USE 8-34W-WSL IN PLACE OF 40W-F LAMPS.	108	0	5	8	2	0	8	1.6

7741	4.55	LIGHT	ROOM 226-OFFICE:USE 8-34W-WSL IN PLACE OF 40W-F LAMPS.	108	0	5	8	2	0	8	1.6
7742	4.56	LIGHT	ROOM 227-OFFICE:USE 8-34W-WSL IN PLACE OF 40W-F LAMPS.	108	0	5	8	2	0	8	1.6
7743	4.57	LIGHT	ROOM 228-OFFICE:USE 8-34W-WSL IN PLACE OF 40W-F LAMPS.	108	0	5	8	2	0	8	1.6
7744	4.58	LIGHT	ROOM 229-OFFICE:USE 8-34W-WSL IN PLACE OF 40W-F LAMPS.	108	0	5	8	2	0	8	1.6
7745	4.59	LIGHT	ROOM 230-OFFICE:USE 8-34W-WSL IN PLACE OF 40W-F LAMPS.	108	0	5	8	2	0	8	1.6
7746	4.60	LIGHT	ROOM 431-OFFICE:USE 8-34W-WSL IN PLACE OF 40W-F LAMPS.	108	0	5	8	2	0	8	1.6
7747	4.61	LIGHT	ROOM 232-OFFICE:USE 8-34W-WSL IN PLACE OF 40W-F LAMPS.	108	0	5	8	2	0	8	1.6
7748	4.62	LIGHT	ROOM 233-OFFICE:USE 8-34W-WSL IN PLACE OF 40W-F LAMPS.	108	0	5	8	2	0	8	1.6
7749	4.63	LIGHT	ROOM 234-OFFICE:USE 2-33% P.R. AND 12-34W-WSL IN PLACE OF 40W.	315	0	16	32	2	1	33	2
7750	4.64	LIGHT	ROOM 235-HALL:DISCONNECT 12-1-FIXTURES AND INSTALL 12-F SURFACE MOUNTED FIXTURES W/2-20W-F LAMPS.	3530	0	177	696	4	181	877	3.93
7751	4.65	LIGHT	ROOM 236-STORAGE:USE 4-34W-WSL.	36	0	2	4	2	0	4	2
7752	4.66	LIGHT	ROOM 237-HAM SHACK:USE 8-34W-WSL.	108	0	5	8	2	0	8	1.6
7753	4.67	LIGHT	ROOM 238&239 STAIRS:USE 12-34W-WSL.	162	0	8	12	2	0	12	1.5
7754	4.68	LIGHT	ROOM 240-JANITOR:DISCONNECT 1-I FIXTURE AND INSTALL 1-22W-F CIRCLINE FIXTURE.	400	0	20	58	4	15	73	2.9
7755	4.69	LIGHT	ROOM 300-PENTHOUSE:DISCONNECT 6-1-FIXTURES AND INSTALL 6-1L-F FIXTURES W/34W-WSL.	996	0	50	240	4	62	302	4.8
BUILDING TOTALS (INDUSTRIAL EDUCATION BLDG.#11)				78403	1934.5	15553	53879	12773	66652		

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION
 SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1983 LEGISLATURE

= COMPLEX : BEMIDJI STATE UNIVERSITY =

= BUILDING : LIMNOLOGY #4 =

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT:TYPE: REF.: NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (NOTE) (#1)	EXTRA COST (FT NOTE) (#2)	TOTAL ADJUSTED COST	PAYBACK: YEARS
7639 1.1 ENVEL	INSULATE THE NORTH AND SOUTH WALLS.	0	66	376	1050	4	274	1324	2.79
7640 1.2 ENVEL	REPLACE THE EXISTING HOLLOW METAL DOORS WITH INSULATED AND WEATHER STRIPPED UNITS.	0	73	413	1200	4	313	1513	2.9
7641 1.3 ENVEL	INSULATE THE EAST WALL.	0	61	348	1246	4	325	1571	3.58
7644 2.1 HVAC	KEEP STEAM TRAPS REPLACED AND REPAIRED.	0	228	1300	3250	2	195	3445	2.5
7645 2.2 HVAC	INSTALL A SNOW MELTING DETECTION SYSTEM.	22896	0	1145	3000	4	784	3784	2.62
7646 2.3 HVAC	MODIFY CONTROLS ON HV SYSTEM AND BALANCE.	0	300	1710	8000	4	2091	10091	4.67
7647 0 HVAC	CONNECT THIS BUILDING TO CENTRAL E.M.SYSTEM.	0	0	0	0	1	0	0	0
7648 2.4 HVAC	INSTALL A SELF CONTAINED CHARCOAL ODOR FILTER.	3355	119	846	4000	4	1045	5045	4.72
7649 3.1 HVAC	CUT HOT WATER HEATER TEMPERATURE FROM 140 DEG. F TO 110 DEG. F.	0	5	29	0	1	0	0	0
7650 3.2 HVAC	INSTALL AN ELECTRIC WATER HEATER.	0	19	108	500	4	130	630	4.62
7651 4.1 LIGHT	ROOM 101-SHOP:USE 3-20W-F IN PLACE OF 3-200W-I, USE 3-33% P.R.#16-34W-WSL-F IN PLACE OF 16-40W-F LAMPS.	1147	0	57	97	2	5	102	1.7
7652 4.2 LIGHT	ROOM 102-HALL:USE 1-33% P.R. AND 4-34W-WSL IN PLACE OF 4-40W-F.	78	0	4	11	2	0	11	2.75
7653 4.3 LIGHT	ROOM 103-AQUARIUM:USE 4-33% P.R. AND 18-34W-WSL IN PLACE OF 18-40W-F.	331	0	17	46	2	2	48	2.7
7654 4.4 LIGHT	ROOM 104-ELEC.REPAIR:USE 2-33% P.R. AND 8-34W-WSL IN PLACE OF 8-40W-F.	350	0	18	22	2	1	23	1.22
7655 4.5 LIGHT	ROOM 105-MEN:USE 1-20W-F IN PLACE OF 1-100W-I.	292	0	15	15	4	3	18	1
7656 4.6 LIGHT	ROOM 106-WOMEN:USE 1-20W-F IN PLACE OF 1-100W-I.	292	0	15	15	4	3	18	1
7657 4.7 LIGHT	ROOM 107-JANITOR:USE 1-20W-F IN PLACE OF 1-100W-I.	292	0	15	15	4	3	18	1
7658 4.8 LIGHT	ROOM 108-MECH:USE 2-IL-F-FIX W/34W-WSL IN PLACE OF 2-200W-I.	538	0	27	60	4	15	75	2.22
7659 4.9 LIGHT	ROOM 109-STORAGE:USE 2-IL-F-FIX W/34W-WSL IN PLACE OF 2-200W-I.	538	0	27	60	4	15	75	2.22

			ROOM	COLD	M:NU	LIGHTS								
7660	4.10	LIGHT	ROOM 111-COLD	10-40W-F	10-34W-WSL.		97	0	5	10	2	0	10	0
7661	4.11	LIGHT	ROOM 111-CHEMICAL LAB.: REPLACE 10-40W-F W/34W-WSL.				97	0	5	10	2	0	10	2
7662	4.12	LIGHT	ROOM 112-ORGANIC LAB.: USE 2-33% P.R. AND 10-34W-WSL IN PLACE OF 10-40W-F LAMPS.				174	0	9	24	2	1	25	2.66
7663	4.13	LIGHT	ROOM 113-HALL: USE 3-33% P.R. AND 10-34W-WSL IN PLACE OF 10-40W-F-LAMPS.				214	0	11	31	2	1	32	2.81
7664	4.14	LIGHT	ROOM 114-PROJ.LAB.: USE 5-33% P.R. AND 26-34W-WSL IN PLACE OF 40W-F.				447	0	22	61	2	3	64	2.77
7665	4.15	LIGHT	ROOM 115-HALL: USE 1-33% P.R. AND 40-34W-WSL IN PLACE OF 40W-F.				78	0	4	11	2	0	11	2.75
7666	4.16	LIGHT	ROOM 116-CLASS: USE 5-33% P.R. AND 40-34W-WSL IN PLACE OF 40-40W-F.				583	0	29	75	2	4	79	2.58
7667	4.17	LIGHT	EXIT LIGHTING: USE 4-6W-F LAMPS W/T. CONV. KIT IN PLACE OF 4-25W-I.				664	0	31	80	4	20	100	2.58
7668	4.18	LIGHT	OUTSIDE LIGHTING: USE 5-20W-F-LAMPS IN PLACE OF 5-100W-I.				2044	0	102	125	4	32	157	1.22
BUILDING TOTALS (LIMNOLOGY #4)							34410	871	6683	23004		5265	28269	
COMPLEX TOTALS (BEMIDJI STATE UNIVERSITY)							690152	20252.6	144600	445225		112789	558014	
REPORT TOTALS							2204687	50598.9	385862.87	1024067		261117	1285184	

===== DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION =====
 ===== SUMMARY OF 1982 ENERGY SCHEMES WITH A PAYBACK OF ALL YEARS TO BE FUNDED BY 1983 LEGISLATURE =====

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT:TYPE: REF.: NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MMBTU SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST	KIND (FOOT) (#1)	EXTRA (FT NOTE) (#1)	TOTAL COST	PAYBACK ADJUSTED: YEARS COST
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COMPLEX TOTALS (MINNEAPOLIS COMMUNITY COLLEGE)	453551	5755	61295	338740		88251		426991	
COMPLEX TOTALS (DULUTH NATIONAL GUARD ARMORY)	32019	4236.9	12309.15	78236		20310		98546	
COMPLEX TOTALS (MANKATO ARMORY)	487	1211	6721	138630		35327		173957	
COMPLEX TOTALS (ROCHESTER ARMORY)	30441	1384	15391	153676		40121		193797	
COMPLEX TOTALS (ST CLOUD ARMORY)	15840	2423	12365	61803		15247		77050	
COMPLEX TOTALS (ST.PAUL ARMORY)	233035	8017	65745	367855		96085		463940	
COMPLEX TOTALS (WINDOM ARMORY)	1242	616.6	4988	133634		34884		168518	
COMPLEX TOTALS (WORTHINGTON ARMORY)	8168	1391.5	6793	162175		41939		204114	
COMPLEX TOTALS (BEMIDJI-DNR REGION #1 HDQS.)	116638	175	11822.5	53166		13885		67051	
COMPLEX TOTALS (DNR-REGN.2.HDQS.GRAND RAPIDS)	0	109.35	777	2290		596		2886	
COMPLEX TOTALS (GRAND RAPIDS-DNR,REGION#2 HDQS.)	16980	45	1409	10573		2616		13189	
COMPLEX TOTALS (NORTHERN SERVICE CENTER)	6247	751.5	2647	18946		4929		23875	
COMPLEX TOTALS (ROCHESTER HDQS.-DNR)	32595	335	5629	31592		8172		39764	
COMPLEX TOTALS (STILLWATER ARMORY)	2827	577	3172	19338		5015		24353	
COMPLEX TOTALS (DNR-DULUTH)	11086	674.1	6217.51	32322		8446		40768	
COMPLEX TOTALS (DETROIT LAKES-DOT)	16280	2999	17509	70435		17837		88272	
COMPLEX TOTALS (ROCHESTER HDQS.-DOT)	26074	1726	11055	60172		15724		75896	
COMPLEX TOTALS (ST CLOUD-DOT)	6680	3053	12359	103498		26897		130395	
COMPLEX TOTALS (VIRGINIA DOT)	0	202	808	3600		941		4541	
COMPLEX TOTALS (WINDOM-DOT)	5087	6031	18702	242171		63295		305466	
COMPLEX TOTALS (INTERPRETATIVE CNTR.)	81884	798.2	20635	69628		18196		87824	
COMPLEX TOTALS (RESEARCH-CHISHOLM)	11932	113	1635	11417		2934		14351	
COMPLEX TOTALS (MINNESOTA STATE FAIRGROUNDS)	602576	10747.8	79837	434002		112861		546863	
COMPLEX TOTALS (BEMIDJI STATE UNIVERSITY)	690650	21699.6	152814.5	554528		141356		695884	
REPORT TOTALS	2402319	75071.55	532635.66	3152427		815864		3968291	

APPENDIX D

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION

SUMMARY OF 1981 ENERGY SCHEMES WITH A PAYBACK OF 5.0 YEARS FUNDED BY 1982 LEGISLATURE

SYSTEM:CONSUL:SCHEME: NUMBER:REPORT: TYPE : REF. : : NUMBER: :	DESCRIPTION	KWH : SAVED : PER : YEAR	MMBTU : SAVED : PER : YEAR	DOLLAR : SAVED : PER : YEAR	FIRST :(FOOT) :(NOTE): :(#1):(#2)	KIND :(#1) :(#2)	EXTRA :(FT NOTE) :(#1):(#2)	TOTAL : COST : ADJUSTED : COST	PAYBACK : COST : :
COMPLEX TOTALS*(SAUK CENTER CORRECTIONS	)	37057	2237	10136	34025		11143	45168	
COMPLEX TOTALS*(THISTLEDEW CAMP	)	16774	2357	36154	83575		27574	111149	
COMPLEX TOTALS*(MINNESOTA DEAF SCHOOL	)	276713	9481	108450	120895		40188	161083	
COMPLEX TOTALS*(MINNESOTA BRAILLE SCHOOL	)	22519	1163	5433	6674		2085	8759	
COMPLEX TOTALS*(WILLOW RIVER CORRECTION CAMP	)	6805	1054	7364	25410		8228	33638	
COMPLEX TOTALS*(ST.PAUL FISH HATCHERY	)	34194	735	8135	13942		4567	18509	
COMPLEX TOTALS*(DNR GENERAL ANDREWS NURSERY	)	1171	363	2712	3061		982	4043	
COMPLEX TOTALS*(REDWING CORRECTIONAL	)	30947	15100	104104	353317		117271	470588	
COMPLEX TOTALS*(CAMP RIPLEY	)	881477	3134	58785	230115		69415	299530	
COMPLEX TOTALS*(ST. CLOUD STATE UNIVERSITY	)	755431	28064	99700	276000		91852	367852	
COMPLEX TOTALS*(MANKATO STATE UNIVERSITY	)	0	7130	21000	26000		8652	34652	
COMPLEX TOTALS*(WILLOW RIVER C.C./GEN.ANREWS	)	0	0	14194	45152		21682	86834	
*****SUMMARY FOR ALL COMPLEXES*****									
****GRAND TOTAL FOR ALL ENERGY REPORTS**		2063088	70818	476167	1238166		403639	1641805	

DEPARTMENT OF ADMINISTRATION : ENERGY CONSERVATION
 SUMMARY OF ALL ENERGY SCHEMES SURVEYED IN 1901 SUBMITTED TO 1902 LEGISLATURE FOR FUNDING

SYSTEM/CONSTRN/SCHME/ NUMBER:REPORT: TYPE REF. # NUMBER:	DESCRIPTION	KWH SAVED PER YEAR	MINUT SAVED PER YEAR	DOLLAR SAVED PER YEAR	FIRST COST PER YEAR	(FOOT) (NOTE): (11): (42)	EXTRA COST (FT NOTE): (41): (42)	TOTAL COST ADJUSTED	PAYOUT YEARS
COMPLEX TOTALS*(SAUK CENTER CORRECTIONS	)	45127	3762	16370	107065		36363	146220	
COMPLEX TOTALS*(THISTLENEW CAMP	)	16774	2064	49467	226200		75057	301345	
COMPLEX TOTALS*(MINNESOTA DEAF SCHOOL	)	274012	16740	131258	924115		311329	1205444	
COMPLEX TOTALS*(MINNESOTA BRAILLE SCHOOL	)	41287	3160	14261	225914		74960	300002	
COMPLEX TOTALS*(WILLOW RIVER CORRECTION CAMP	)	10397	1894	13467	91842		30320	122170	
COMPLEX TOTALS*(ST. PAUL FISH HATCHERY	)	52014	1034	16952	86479		20702	115181	
COMPLEX TOTALS*(DNR GENERAL ANDREWS NURSERY	)	2065	642	4004	27496		9112	36608	
COMPLEX TOTALS*(REDWING CORRECTIONAL	)	196601	30043	202650	2036530		677390	2713920	
COMPLEX TOTALS*(CAMP RIPLEY	)	943073	6000	83577	403753		125032	520785	
COMPLEX TOTALS*(ST. CLOUD STATE UNIVERSITY	)	755431	20064	99200	276000		91852	367852	
COMPLEX TOTALS*(MANKATO STATE UNIVERSITY	)	0	7130	21000	26000		8652	34652	
COMPLEX TOTALS*(WILLOW RIVER C.C./GEN. ANDREWS	)	0	0	57105	1266347		421430	1687785	

*****SUMMARY FOR ALL COMPLEXES*****
 *****GRAND TOTAL FOR ALL ENERGY REPORTS** 2356700 102700 716201 5750629 1890231 7640860