City of Cambridge

In City Council February 28, 1983

The Committee on Environment conducted a public hearing on Tuesday, November 9, 1982 at 5:30 PM in the Ackermann Room at City Hall.

Councillor Duehay opened the meeting by stating the discussion would focus around energy and weatherization conservation programs currently ongoing in the city. He further stated that he believed a centralized listing of all programs should be prepared and distrubuted throughout Cambridge in order that people can be made aware of what is available.

Mr. Oliver Brown, Assistant Superintendent of Schools, submitted a progress report on up-to-date improvements made throughout the various school department buildings as well as proposed improvements with respect to "Energy Management Projects" in the School Department. (See attached report #1)

Councillor Duehay praised the report but raised the question of constraints placed on the community when a school building formally utilized for weekend activities when these buildings are closed due to energy conservation. Mr. Brown responded by stating these constraints, and it was indeed unfortunate, and the school department officials will continue to work with the City Manager for some alternatives. Councillor David Sullivan questioned if the school department realized an extraordinary saving from their energy conservation program. Mr. Brown responded by stating he believed the greatest savings occurred at the Tobin Elementary School.

At this time Mr. Alfred Cohn, member of the Rent Control Board, submitted a report relative to what the Board had done in terms of encouraging landlords to enter into either an energy audit or conservation program. He further stated that the Board has calculated that one gallon of fuel oil per square foot is the allowable limit for their computation purposes. He further stated the Board had granted a general rent adjustment in 1981 which went into effect for 1982. Taken into consideration in this adjustment, he continued, was the rising cost of fuel. He further stated that an organization called Massachusetts Save is doing family audits and they do a comprehensive one. He further stated the Board was considering ordering something on the line for rent controlled properties.

At this time Mr. Frederick Putnam of the Cambridge Housing Authority, submitted a report on what the Authority had done in terms of conservation. He stated that in 1975 the Cambridge Housing Authority was faced with two major problems, poorly maintained buildings and a way to best implement the necessary repairs and conservation programs. He further stated the Cambridge Housing Authority was at a point where they could begin to look at centralized control of energy in their buildings. (See attached report #2)

At this time Mr. Paul Feloney of the Public Works Department, stated that the Department of Public Works has been working throughout the city and its buildings to put into place as many energy conservation programs as possible. He stated that in city hall alone the Department of Public Works expended $1,500 and realized an energy consumption saving of $1,800. Mr. Feloney further stated that complete energy audits will be conducted soon in city hall, the annex, and the telephone building. He further stated that with the Department of Public Work's assistance, the hospital realized $2,500 energy savings in the current fiscal year. Mr. Feloney also submitted a report as prepared by Mr. Seth Goldfine. (See attached report #2A)

Mr. Dave Dayton representing Technical Development Corporation stated his firm was placed under contract with the city to do some energy conservation work, specifically to devise programs for small non-profit organizations. He further stated his firm has worked with many non-profit corporations in Cambridge, twenty of which were currently involved in some kind of energy conservation efforts.

Councillor Duehay requested a list of both companies which are involved and those which are not and further stated he would be willing to send each a letter asking them to participate.

At this time Mr. Donald Falk of the Community Development Department, stated that although it was difficult to conceive of a unified approach to solving the energy conservation problem, there is within the Community Development Department a central energy office dealing with residential conservation issues. He further stated that most of the department's money was from either state or federal grants and he further stated that the stabilization committees in East and North Cambridge have both appropriated money for energy conservation efforts. Furthermore, he stated "Mass Save" has done approximately 2,200 audits out of a potential 14,000 units in Cambridge.

The hearing was adjourned at 7:40 PM.

The Committee on Environment conducted a second public hearing relative to energy conservation on Tuesday, November 23, 1982 beginning at 5:30 PM in the Ackermann Room at City Hall.

Mr. Richard Fahlander of the Community Development Department stated that in 1981 the city received a $338,000 Urban Development Action Grant to assist non-profit organizations implement energy conservation improvements. The program offers free energy audits and zero-interest loans to eligible organizations. Technical Development Corportation is the city's consultant responsible for operating the project. Program services will be available until December 31, 1983. (See attached memo A)

Mr. Donald Falk of the Community Development Department expanded upon his previous outline to the committee relative to the "Weatherization and Conservation Program" specifically speaking about Cambridge Action to Save Heat (CASH) recommending housing improvements through the city and overall weatherization assistance provided by the city. He further stated the main focus has been on providing assistance to low and moderate income households. (See attached report #3)

Ms. Patricia McCarthy of Mass Save stated they are presently involved in a joint audit program with the city and the current breakdown is 2,600 through the joint effort and 1,400 through CASH. Councillor Duehay stated that detailed records on implementation of audit recommendations should be available. Ms. McCarthy responded by stating that possibly a survey sample could be done of the people who were audited in an effort to determine what action had been taken upon completion of the audit. Councillor Duehay further stated there should be some outreach to people throughout the city who are not "income eligible". He further stated more press releases should be issued on the efforts made by the city on this weatherization project.

Mr. James McLaughlin of the Commonwealth Gas Company stated that his company last September had prepared and sent to the State Department of Public Utilities a conservation plan proposal and it was currently being evaluated and approval is expected very soon.

Councillor Duehay stated that the information about the energy status of buildings should be integrated into the comprehensive data base now being formulated by the city.

Ms. Decia Goodwin of the Community Development Department described a variety of residential energy programs stating the "Residential Energy Programs" serving the Cambridge community are grouped into three areas of activity:

1. low-cost and no-cost conservation training and assistance, organized under the CA$H program (Cambridge Action to Save Heat);

2. full-scale professional weatherization;

3. neighborhood programs

She further stated that the CA$H program offers a wide range of energy-conservation services and materials, primarily to lower-income Cambridge residents. Among the elements of this program are:

- basic energy-conservation materials for apartments and domestic hot water systems;

- house installation assistance for elderly and disabled persons;

- heating system tuneups and evaluations;

- training and education for tenants and houseowners

Ms. Goodwin further stated that CA$H services are available for any Cambridge resident, regardless of income, include:

- priority scheduling of home energy audits, performed by Mass. Save, Inc.;

- discounts at local hardware stores on energy items;

- consultation on home energy conservation questions

Ms. Goodwin further stated that since its inception in 1980 the CA$H program has served over 2,000 low-income Cambridge households with weatherization materials, installation assistance and training. She further stated 1,300 households have received Mass Save audits, making the Cambridge program the largest and most effective low-income auditing program in Massachusetts, and among the best in the country. This program she said has also provided bilingual workshops and audits in Portuguese, Spanish and French creole. Ms. Goodwin further stated that funding for the CA$H program is provided primarily by the Massachusetts Executive Office of Communities and Development.

Relative to weatherization programs operated by the department, Ms. Goodwin stated they offer a comprehensive set of measures including insulation, storm windows, major heating system improvements and building envelope tightening. She further stated that full weatherization is also incorporated into the city's Housing Improvement Program (HIP) which performs basic rehab on residential structures. (See attached #4)

Relative to Neighborhood Energy Projects, Ms. Goodwin stated that projects have been initiated in both East and North Cambridge in order to test the efficiency of providing energy outreach and services on a neighborhood basis. She further stated the East Cambridge program actually was among the city's first energy programs, beginning in 1980. Since that time residents of the area have revised energy audits, (in both English and Portuguese) home installation assistance, training and educational workshops and referrals to other weatherization programs. The North Cambridge project began in 1981 and has been offered similar assistance. Mr. Goodwin further stated that in January 1982 the Stabilization Committee appropriated an additional pool of money to initiate a Tenant-Weatherization Project for the area. Through this project, a trained Just-A-Start weatherization crew can perform basic weatherization for tenants in the North Cambridge neighborhood.

For the Committee,

Councillor Francis H. Duehay
Chairman
Environment Committee

FHD/smc

Attachments (6)

Also attached is Conclusions and Recommendations

CAMBRIDGE CITY COUNCIL

CITY HALL, CAMBRIDGE, MASSACHUSETTS 02139

(617) 498-9094

As a result of hearings before the Committee on Environment of the Cambridge City Council, the Committee submits the following conclusions and recommendations for the consideration of the City Council and recommends their adoption.

Councillor Francis H. Duehay, Chairman
Councillor David E. Sullivan
Councillor David A. Wylie

CONCLUSIONS AND RECOMMENDATIONS

1. The Committee commends the Cambridge School Department, the Cambridge Housing Authority, and the Cambridge Rent Control Department for their detailed programs of energy conservation. The Committee encourages these departments to continue their efforts, to project their planning in greater detail in conjunction with the annual submission of their budgets, and to file annual reports with the City Manager and the City Council.

2. The Committee feels that the city itself should strive to be a highly progressive example of energy management to its own citizens, to the private sector, and to other municipalities. Regretabbly, this is not now the case. The Committee is not pleased at the progress made in the weatherization and insulation of public buildings and in the renovation of older heating plants. While energy audits of these buildings are nearly complete and savings have resulted from controlling temperatures more closely, no overall energy conservation plan exists. Despite repeated requests, no budgetary estimates have been presented to the City Council, nor have projected budgetary savings been calculated. No energy conservation annual targets appear to exist. Needless to say, no annual report has been made to the Council and Manager in this area.

3. That the City itself lacks integrated energy conservation planning is especially shocking given the ongoing necessity to stretch every municipal penny due to budget limitations under Proposition 2½. In part, this situation seems to result from the failure to fix operational manangement of the energy program in any one individual. The Community Development Department coordinates planning and funding requests as well as operating programs of low income energy audits, weatherization, and insulation residential programs. The Public Works Department seems to be responsible for energy conservation in public buildings; and other departments (rent control, school, housing authority, see above) are responsible for their jurisdiction.

4. The Energy Commission is not now active. The City Manager should ascertain the reasons for this and take steps to correct it. Citizens' commissions in Cambridge have resulted in improved departmental responsiveness and operations.

5. The responsibility for the development and operations of all energy conservation programs of the city and for coordinating these programs with those others in both the public and the private sector should be clearly fixed in one department head.

6. The Committee recommends that the City immediately develop an energy conservation plan, with energy reduction goals, projected energy savings related to budgetary outlays, and an integrated energy accounting system which relates the savings achieved to the conservation measures adopted.

7. This plan should have goals for the residential, industrial, and commercial sectors as well as for public buildings.

8. The Committee commends the Energy office of the Community Development Department, but finds that it has focussed largely on conducting energy audits through MASS SAVE in income eligible areas of the city and in providing weatherization assistance as a result of these audits. This is due to the fact that this office is funded through federal grants available only for this purpose.

9. However, large areas of the city which are not income eligible for weatherization assistance are not aware that this audit program is available to an individual homeowner for $10. There is no coordinated way of expanding or recording the results of this audit program.

10. Records of what homeowners actually do to install energy conservation improvements as a result of audits are apparently not kept by MASS SAVE. Thus it is difficult to say how effective the program is.

11. MASS SAVE and the Cambridge Energy Office should issue an annual report documenting on energy savings in the residential sector. MASS SAVE and the Cambridge Energy Office (within the CDD) must develop and install a permanent record keeping system which will be integrated with the housing data kept in a combined system by all departments concerned with housing (assessors, building, health, fire, rent control, housing/CDD, Housing Authority, etc).

12. Commonwealth Energy (Cambridge Gas and Cambridge Electric) must coordinate their conservation objectives and programs with those of the city.

13. The Committee notes with pleasure programs to assist smaller non-profit organizations and apartment buildings with energy conservation. As is mentioned earlier, no such programs appear to exist in the commercial and industrial sectors and should be instituted.

14. Technical assistance from the city should be available to all new developers. The extent to which maximum energy saving measures have been incorporated in all new and renovated structures should be a matter of municipal concern and public record. Either these records do not now exist, or they cannot easily be compiled.

15. All city departments should be instructed to request energy management training programs from the Cambridge energy coordinator.

ATTACHMENT #1

CAMBRIDGE SCHOOL DEPARTMENT

159 THORNDIKE STREET
CAMBRIDGE, MASSACHUSETTS 02141

November 29, 1982

To: Francis H. Duehay, Chairperson Improvement Committee of the City Council

From: Oliver S. Brown, Assistant Superintendent for Planning and Management Services

Report: Energy Management, Projects-Cambridge School Department

Purpose: The purpose of this report is to outline progress to date and proposed improvements with respect to Energy Management Projects in the Cambridge School Department.

Scope: This is a general report. Specifications and cost estimates for proposed improvements are provided; but, in some cases, further, more detailed analysis may be required.

Organization: This report is organized as follows:

1. Summary of Progress:
   (A) Savings
   (B) Improvements, Past and Underway in FY83
2. Proposed Improvements:
3. Funding Alternatives:

Attachments:
.Energy Awards (A)
.Summary Report (B) FY1981 and FY1982

1. Summary of Progress:

Between 1974 and 1983, the School Department's facilities have changed greatly. However, the overall square footage has not changed appreciably because the loss of the Latin building has been offset by other facilities added to C.R.L.S.

A. Savings: ----------gallons--------

(1) Fuel Consumption:

In FY1975 the Cambridge School Department used		1,100,000 of fuel (est)
In FY1982 we used		(788,713)
	reduction (28%)	311,287
In FY1981		901,041
In FY1982		(788,713)
	reduction (12%)	112,328

The present price for a gallon of fuel (#4 is $.85 and the #2 oil is $1.04).

(2) Electrical Consumption:

	--------KW--------
In FY1981	10,831,384
In FY1982	10,780,676
Total	54,197
Adj. Field House	200,000
Reduction (2.3%)	254,197

The present average cost of electricity was .07 per KW

(3) Tobin School	--------KW--------		--------KW--------
In FY1978	2,653,000	FY1981	1,934,943
In FY1982	1,880,943	FY1982	1,880,943
Reduction Total (29%)	772,100	(3%)	54,000

B. Improvements, Past and Underway in FY83

1. Controls: All major buildings are on central computer controls except the Fletcher. These buildings are

(1) Fitzgerald	(4) Peabody	(7) King
(2) C.R.L.S.	(5) Tobin	(8) Kennedy
(3) Morse	(6) Harrington	

We expect the Fletcher to be on central controls within 30 days. All other schools will be controlled beginning in FY84.

2. Motivation: The School Department rewarded schools that saved fuel and electricity. Checks were awarded ($250/500) this fall for FY1982. A copy of the awards is attached (A).

3. Reporting: A reporting system was implemented in FY1978. A summary report is attached (B).

4. New Boiler and Burners: Boilers and burners have been replaced over the past four years in the following schools:

.Roberts
.Fitzgerald
.Harrington
.C.R.L.S.

by September 1983

.Graham and Parks
.Longfellow
.Agassiz
.Haggerty

will be completed.

5. New Water Heaters: New, efficient gas heaters for domestic hot water have been ordered for the Harrington, Morse, Fitzgerald, Tobin, King, Graham and Parks, Longfellow, Roberts and Peabody. This will mean that main boilers can now be shut down fully in moderate spring, summer and fall weather.

The School Department has standardized on H.B. Smith cast iron sectional boiler. While there is a small difference in initial efficiency in comparison to a new tubular boiler, cast iron sectional boilers are (1) more reliable, (2) require less maintanance (3) last much longer (4) can be operational with a section shut down, and (5) tend to be more effeicient over the life of the equipment.

6. *Building Envelope: (Roofs, windows, doors, building sides). The School Department has standardized on a R-30 (insulation value) membrane roof (Carlisle or equal). By September of 1983, the following schools will have such roofs:*

- *Agassiz*
- *Haggerty*
- *Graham and Parks*
- *Roberts*
- *Longfellow*
- *Tobin (one section)*
- *Peabody (two sections)*

New doors (air tight) have or will replace old doors at

- *Haggerty*
- *Longfellow*
- *Graham and Parks*
- *Roberts*
- *C.R.L.S.*

New energy efficient windows have been or will be placed in the following by April 1983.

- *Agassiz December 1982*
- *Haggerty December 1982*
- *C.R.L.S. completed*
- *Longfellow winter 1983*
- *Graham and Parks winter 1983*
- *Roberts winter of 1983*

We are studying the possibility of insulated inserts in windows.

7. *Energy Audits: General energy audits and lighting audits have been completed in all buildings except C.R.L.S. Technical audits have been completed in (1) Tobin and (2) King Schools.*

Applications are out for the Morse and Fitzgerald Schools.

8. *Solar Energy Project: A contract for a solar heating facility for the War Memorial has been awarded by the School Committee. Credit for developing the project belongs to the City's Energy Co-ordinator and the School Department's energy manager provided by MASBO.*

9. *Preventive Maintenance: Preventive maintenance manuals for HVAC systems are in place as follows: Tobin, Kennedy, King, Harrington, Fletcher, Fitzgerald, Peabody and C.R.L.S.*

2. *Proposed Improvements:*
We believe that eventually there will be a sharp jump in energy prices. For this reason we proposed that capital projects be planned and budgeted in the following school buildings:

	-------Proposed Projects-------
(1) Morse	*(1) R-30 Roof* *(2) Insulated sides, some window reduction (R-10-20)* *(3) Insulated replacement heating pipes* *(4) Weather tight replacement doors (some)* *(5) Energy efficient gym lighting*
(2) Harrington	*(1) R-30 Roof* *(2) Insulated sides, some window reduction (R-10-20)* *(3) Weather tight replacement doors (some)* *(4) Energy efficient gym lighting*
(3) Fitzgerald	*(1) R-30 Roof* *(2) Insulated sides, some window reduction (R-10-20)* *(3) Weather tight replacement doors (some)* *(4) Energy efficient gym lighting*
(4) Peabody	*(1) Complete R-30 roof sections* *(2) Insulated doors and door sections* *(3) Study possible side insulation and possible window reduction (R10-20)* *(4) Energy efficient gym lighting*
(5) Tobin	*(1) Complete R-30 roof replacement* *(2) Modify or replace windows to make them operable* *(3) Modify or replace window area in cafeteria to make it more energy efficient*
(6) King	*(1) Modify or replace windows to make them insulated and operable* *(2) Modify and insulate overhead natural light areas in upper classrooms (R 10-20)* *(3) Consider adding insulation to roof, R-30*
(7) Kennedy	*(1) Modify or replace windows to make them insulated and operable* *(2) Modify or replace windows in entry area* *(3) Consider replacing in part or whole roof with insulated R-30 roof*

3. *Funding Alternatives:*
The City Manager and City Council may consider a number of alternatives with respect the the funding of these improvements.

(1) General Fund:
Improvements might be implemented and funded over 5-10 year period (pay as you go).

(2) Bonds:
The funding could be provided by bonds over a period of time equal to the average payback related to insulation expenditures to reduce fuel and electrical use.

(3) Lease Purchase:
Funding could be arranged through a 3rd party lease-purchase agreement with payments based upon the average payback period for enery saving aspects of the projects.

ATTACHMENT A

CAMBRIDGE SCHOOL DEPARTMENT

159 THORNDIKE STREET
CAMBRIDGE, MASSACHUSETTS 0214

August 10, 1982

TO THE HONORABLE MEMBERS OF THE SCHOOL COMMITTEE:

Energy Conservation Awards

Recommended: That the School Committee approve energy conservation awards for FY1982 in the amounts shown.

Energy Conservation Award Winners are as follows:

	Electricity Saved KWH	Oil Saved Gallons	Cash Award
Agassiz	-6,933	--	$250
Fletcher	--	-4,934	250
Haggerty	-3,004	-6,491	500
Harrington	-70,196	-15,045	500
Kennedy	-54,981	-13,704	500
King	-198,420	-23,985	500
Lincoln	--	-1,707	500
Longfellow	-9,960	--	250
Peabody	--	-17,661	250
Webster	--	-13,172	250
CRLS	--	-12,226	250
Ecology	-1,940	**	500
Total	345,434 KWH	108,925 gals	$4,500
$/unit	7¢/KWH	94¢/gal	
Value of Energy Saved	$24,180	$102,390	

Description: The FY82 record while reflecting progress is still not satisfactory. Further, some schools achieved significant progress several years ago and this years progress is flat. Tobin is an example.
The range of MBTU's per square foot is 95 at Webster to 240 at the Ecology Center. In the next few months, we plan to establish a reasonable target for each school along with the measures required to reach the target.

Supporting Data: Letter of Transmittal from David Keniston, Masbo Cooperative Corporation.

Respectfully submitted,

OSB William C. Lannon

William C. Lannon
Superintendent of Schools

Prepared by: Oliver S. Brown
Assistant Superintendent
Planning and Management Services

OSB:np

ATTACHMENT B

CAMBRIDGE SCHOOLS

ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

08/06/82 PAGE 4

KEEPING SCOPE MASBO COOPERATIVE CORP

CURRENT MONTH							YEAR TO DATE							
ELECTRICITY KWH	$	GAS CCF	$	OIL GAL	$		ELECTRICITY KWH	$	GAS CCF	$	OIL GAL	$		
681636	41409	802	539	4482	4023	JUL 81	681636	41409	802	539	4482	4023		
194544	13211	703	410	0	0	JUL 80	194544	13211	703	410	0	0		
487092	28198	99	129	4482	4023		487092	28198	99	129	4482	4023		
642362	42115	2006	1215	0	0	AUG 81	1323998	83524	2808	1754	4482	4023		
1092944	67002	1142	726	0	0	AUG 80	1285748	80000	1762	1082	0	0		
450582-	24887-	864	489	0	0		38250	3524	1046	672	4482	4023		
603021	41030	970	692	4464	4060	SEP 81	1913826	123287	3588	2305	8946	8083		
553802	42042	1862	823	9177	7551	SEP 80	1851290	122255	3707	1959	9177	7551		
39219	1012-	892-	131-	4713-	3491-		62536	1032	119-	346	231-	532		
1190617	82563	1804	1158	29347	27472	OCT 81	3117636	207117	5582	3604	38293	35555		
950470	67410	2350	1056	35852	27268	OCT 80	2801760	189665	6057	3015	45029	34819		
240147	15153	546-	102	6505-	204		315876	17452	475-	589	6736-	736		
585381	41475	2475	1624	65964	61468	NOV 81	3703017	248592	8057	5228	104257	97023		
1116886	75701	3514	1910	107621	84538	NOV 80	3918646	265366	9571	4925	152650	119357		
531505-	34226-	1039-	286-	41657-	23070-		215629-	16774-	1514-	303	48393-	22334-		
1223307	81853	4256	2520	133482	126943	DEC 81	4926324	330445	12313	7748	237739	223966		
1161733	83201	5417	2791	179718	156912	DEC 80	5080379	348567	14988	7716	331368	276269		
61574	1348-	1161-	271-	45236-	29969-		154055-	18122-	2675-	32	93629-	52303-		
1246609	84866	7598	2302	198352	188011	JAN 82	6172933	415311	19911	10050	436091	411977		
1130305	87918	5937	3140	200938	185276	JAN 81	6210684	436485	20925	10856	532306	461545		
116304	3052-	1661	838-	2586-	2735		37751-	21174-	1014-	806-	96215-	49568-		
1122894	76492	3586	2161	132335	125631	FEB 82	7295827	491803	23497	12211	568426	537608		
1098423	85818	4975	2635	143141	144211	FEB 81	7309107	522303	25900	13491	675447	605756		
24471	9326-	1389-	474-	10806-	18580-		13280-	30500-	2403-	1280-	107021-	68148-		
1063400	75157	4821	3011	109706	102812	MAR 82	8359227	566960	28318	15222	678132	640420		
1034483	83301	4803	2537	128287	130348	MAR 81	8343590	605604	30703	16028	803734	736104		
28917	8144-	18	474	18581-	27536-		15637	38644-	2385-	806-	125602-	95684-		
880935	65542	3282	2100	59351	53141	APR 82	9240162	632502	31600	17322	737483	693561		
902097	75269	2177	1227	36655	36224	APR 81	9245687	680873	32880	17255	840389	772328		
21162-	9727-	1105	873	22696	16917		5525-	48371-	1280-	67	102906-	78767-		
820051	62575	1993	1347	39029	34807	MAY 82	10060213	695077	33593	18669	776512	728368		
804643	68281	1712	1055	16715	16423	MAY 81	10050330	749154	34592	18310	857104	788751		
15408	5706-	281	292	22314	18384		9883	54077-	999-	359	80592-	60383-		
720463	57192	1192	785	12201	10640	JUN 82	10780676	752269	34785	19454	788713	739008		
781054	60312	869	550	43937	46100	JUN 81	10831384	809464	35461	18860	901041	834851		
60591-	3120-	323	235	31736-	35460-		50708-	57197-	676-	594	112328-	95843-		

Adjustment (Field Hse) 257197 *

0210501-1057-011-2180-7820

*Field House

CAMBRIDGE SCHOOLS
AGASSIZ

ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

06/30/82 PAGE 1

KEEPING SCORE MASBO COOPERATIVE CORP

CURRENT MONTH								YEAR TO DATE							
ELECTRICITY KWH	$	GAS CCF	%	OIL GAL	%			ELECTRICITY KWH	$	GAS CCF	%	OIL GAL	%		
0	0	0	0	0	0	AUG	81	0	0	0	0	0	0		
5122	583	32	32	0	0	AUG	80	5122	583	32	32	0	0		
5122-	583-	32-	32-	0	0			5122-	583-	32-	32-	0	0		
5889	654	31	35	0	0	SEP	81	5889	654	31	35	0	0		
6634	605	22	19	0	0	SEP	80	11756	1188	54	51	0	0		
745-	49	9	16	0	0			5867-	534-	23-	16-	0	0		
4893	80	14	14	0	0	OCT	81	10782	734	45	49	0	0		
5816	499	20	16	0	0	OCT	80	17572	1687	74	67	0	0		
923-	419-	6-	2-	0	0			6790-	953-	29-	18-	0	0		
5856	492	112	77	3063	2859	NOV	81	16638	1226	157	126	3063	2859		
7192	717	0	0	3076	2515	NOV	80	24764	2404	74	67	3076	2515		
1336-	225-	112	77	13-	344			8126-	1178-	83	59	13-	344		
4950	434	0	0	3088	2919	DEC	81	21588	1660	157	126	6151	5776		
0	0	0	0	3076	2698	DEC	80	24764	2404	74	67	6152	5213		
4950	434	0	0	12	221			3176-	744-	83	59	1-	565		
4159	384	0	0	3088	2919	JAN	82	25747	2044	157	126	9239	8697		
2231	225	50	38	6102	5536	JAN	81	26995	2629	124	105	12254	10749		
1928	159	50-	38-	3014-	2617-			1248-	585-	33	21	3015-	2052-		
4811	387	32	7	6127	5791	FEB	82	30558	2431	189	133	15366	14488		
5676	544	32	23	3076	3121	FEB	81	32671	3173	156	128	15330	13870		
865-	157-	0	16-	3051	2670			2113-	742-	33	5	36	618		
0	0	21	19	3076	2815	MAR	82	30558	2431	210	152	18442	17303		
5608	536	31	22	3088	3130	MAR	81	38279	3709	187	150	18418	17000		
5608-	536-	10-	3-	12-	315-			7721-	1278-	23	2	24	303		
6544	626	0	0	0	0	APR	82	37102	3057	210	152	18442	17303		
4897	456	18	16	0	0	APR	81	43176	4165	205	166	18418	17000		
1647	170	18-	16-	0	0			6074-	1108-	5	14-	24	303		
2734	250	39	36	3350	2987	MAY	82	39836	3307	249	188	21792	20290		
5079	521	17	15	0	0	MAY	81	48255	4686	222	181	18418	17000		
2345-	271-	22	21	3350	2987			8419-	1379-	27	7	3374	3290		
5668	513	116	81	1	1	JUN	82	45504	3820	365	269	21793	20291		
4182	442	12	13	3000	2943	JUN	81	52437	5128	234	194	21418	19943		
1486	71	104	68	2999-	2942-			6933-	1308-	131	75	375	348		

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CAMBRIDGE SCHOOLS
FITZGERALD

ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

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KEEPING SCORE MASBO COOPERATIVE CORP

CURRENT MONTH							YEAR TO DATE					
ELECTRICITY KWH		GAS CCF		OIL GAL			ELECTRICITY KWH		GAS CCF		OIL GAL	
0	0	0	0	0	0	JUL 81	0	0	0	0	0	0
22860	2066	0	0	0	0	JUL 80	22860	2066	0	0	0	0
22860-	2066-	0	0-	0	0		22860-	2066-	0	0-	0	0
48420	4000	48	45	0	0	AUG 81	48420	4000	48	45	0	0
14220	1026	0	0	0	0	AUG 80	37080	3092	0	6	0	0
34200	2974	48	45	0	0		11340	908	48	39	0	0
16380	1226	30	24	0	0	SEP 81	64800	5226	78	69	0	0
18180	1386	23	175-	4464	4007	SEP 80	55260	4478	23	169-	4464	4007
1800-	160-	7	199	4464-	4007-		9540	748	55	238	4464-	4007-
24660	1908	35	26	4464	4167	OCT 81	89460	7134	113	95	4464	4167
29340	2243	0	0	0	0	OCT 80	84600	6721	23	169-	4464	4007
4680-	335-	35	26	4464	4167		4860	413	90	264	0	160
41580	3145	0	0	4446	4150	NOV 81	131040	10279	113	95	8910	8317
36360	2684	0	0	7472	6109	NOV 80	120960	9405	23	169-	11936	10116
5220	461	0	0	3026-	1959-		10080	874	90	264	3026-	1799-
22680	2145	89	68	8946	8456	DEC 81	153720	12424	202	163	17856	16773
28980	2207	0	0	13428	11778	DEC 80	149940	11612	23	169-	25364	21894
6300-	62-	89	68	4482-	3322-		3780	812	179	332	7508-	5121-
33480	2552	48	36	13445	12709	JAN 82	187200	14974	250	199	31301	29482
32940	2796	0	0	13578	12690	JAN 81	182880	14408	23	169-	38942	34584
540	244-	48	36	133-	19		4320	566	227	368	7641-	5102-
32940	2528	40	31	8946	8456	FEB 82	220140	17504	290	230	40247	37938
30960	2638	200	119	8946	8969	FEB 81	213840	17046	223	50-	47888	43553
1980	110-	160-	88-	0	513-		6300	458	67	280	7641-	5615-
28980	2241	31	25	4482	4236	MAR 82	249120	19745	321	255	44729	42174
27540	2661	74	49	9657	9788	MAR 81	241380	19707	297	5-	57545	53341
1440	420-	43-	20-	5175-	5552-		7740	38	24	260	12816-	11167-
20700	1791	0	0	4464	3980	APR 82	269820	21536	321	255	49193	46154
23720	2487	0	0	4482	4396	APR 81	269100	22194	297	5-	62027	57737
3020-	696-	0	0	18-	416-		720	658-	24	260	12834-	11583-
16920	1498	51	44	9019	4474	MAY 82	286740	23034	372	299	54212	50626
22320	2070	71	52	0	0	MAY 81	291420	24264	368	47	62027	57737
5400-	572-	20-	8-	9019	4474		4680-	1230-	4	252	7815-	7109-
15480	1361	16	16	1	1	JUN 82	302220	24399	388	315	54213	50629
1	1	1	1	1	1	JUN 81	291421	24269	369	48	62028	57738
15479	1360	15	15	0	0		10799	130	19	267	7815-	7109-

CAMBRIDGE SCHOOLS
FLETCHER

ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

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KEEPING SCORE MASBO COOPERATIVE CORP

CURRENT MONTH								YEAR TO DATE							
ELECTRICITY		GAS		OIL				ELECTRICITY		GAS		OIL			
KWH	$	CCF	$	GAL	$			KWH	$	CCF	$	GAL	$		
0	0	116	72	0	0	JUL	81	0	0	116	72	0	0		
120	16	162	91	0	0	JUL	80	120	16	162	91	0	0		
120-	16-	46-	19-	0	0			120-	16-	46-	19-	0	0		
15120	1483	99	64	0	0	AUG	81	15120	1483	215	136	0	0		
6300	606	4	9	0	0	AUG	80	6420	622	166	100	0	0		
8820	877	95	55	0	0			8700	861	49	36	0	0		
6480	665	0	0	0	0	SEP	81	21600	2148	215	136	0	0		
18540	1604	201	104	0	0	SEP	80	24960	2226	367	204	0	0		
12060-	939-	201-	104-	0	0			3360-	78-	152-	68-	0	0		
18540	1544	0	0	0	0	OCT	81	40140	3692	215	136	0	0		
21240	1786	133	206	4482	3335	OCT	80	46200	4012	500	2	4482	3335		
2700-	242-	133-	206	4482-	3335-			6060-	320-	285-	138	4482-	3335-		
27180	2086	0	0	4464	4220	NOV	81	67320	5778	215	136	4464	4220		
27000	2148	143	71	0	0	NOV	80	73200	6160	443	69	4482	3335		
180	62-	143-	71-	4464	4220			5880-	382-	428-	67	18-	885		
33300	2426	153	103	228	292	DEC	81	100620	8204	368	239	4692	4512		
22320	2046	175	99	7464	6547	DEC	80	95520	8206	818	168	11946	9882		
10980	380	22-	4	7236-	6255-			5100	2	450-	71	7254-	5370-		
26100	2121	158	105	6164	5826	JAN	82	126720	10325	526	344	10856	10338		
26100	2330	147	85	5765	5406	JAN	81	121620	10536	965	253	17711	15288		
0	209-	11	20	399	420			5100	211-	439-	91	6855-	4950-		
35820	2754	191	125	6164	5826	FEB	82	162540	13079	717	469	17020	16164		
32760	2883	0	0	4482	4547	FEB	81	154380	13419	965	253	22193	19835		
3060	129-	191	125	1682	1279			8160	340-	248-	216	5173-	3671-		
32220	2514	131	88	3088	2919	MAR	82	194760	15593	848	557	20108	19083		
28440	2701	112	64	4482	4543	MAR	81	182820	16120	1077	317	26675	24378		
3780	187-	19	24	1394-	1624-			11940	527-	229-	240	6567-	5295-		
32940	2670	135	90	3088	2753	APR	82	227700	18263	983	647	23196	21836		
22860	2252	37	27	0	0	APR	81	205680	18372	1114	344	26675	24378		
10080	418	98	63	3088	2753			22020	109-	131-	303	3479-	2542-		
26460	2190	110	75	2515	2242	MAY	82	254160	20453	1093	722	25711	24078		
24480	2323	104	65	0	0	MAY	81	230160	20695	1218	409	26675	24378		
1980	133-	6	10	2515	2242			24000	242-	125-	313	964-	300-		
30240	2464	1	1	1	1	JUN	82	284400	22917	1094	723	25712	24079		
1	1	1	1	3970	3895	JUN	81	230161	20696	1219	410	30645	28273		
30239	2463	0	0	3969-	3894-			54239	2221	125-	313	4933-	4194-		

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CAMBRIDGE SCHOOLS
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ENERGY USAGE SUMMARY BY FUEL TYPE
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KEEPING SCORE MASBO COOPERATIVE CORP

CURRENT MONTH								YEAR TO DATE					
ELECTRICITY		GAS		OIL			ELECTRICITY		GAS		OIL		
KWH	$	CCF	$	GAL	$		KWH	$	CCF	$	GAL	$
5892	570	78	14	0	0	AUG 81	5892	570	78	14	0	0
7343	734	0	17	0	0	AUG 80	7343	734	0	17	0	0
1451-	164-	78	3-	0	0		1451-	164-	78	3-	0	0
3258	342	0	9	0	0	SEP 81	9150	912	78	23	0	0
2820	263	0	6	0	0	SEP 80	10163	997	0	23	0	0
438	79	0	3	0	0		1013-	85-	78	0	0	0
3784	66	0	6	0	0	OCT 81	12934	978	78	29	0	0
1934	177	10	14	0	0	OCT 80	12097	1174	10	37	0	0
1850	111-	10-	8-	0	0		837	196-	68	8-	0	0
0	0	134	88	3063	2859	NOV 81	12934	978	212	117	3063	2859
4566	403	0	0	6114	3181	NOV 80	16663	1577	10	37	6114	3181
4566-	403-	134	88	3051-	322-		3729-	599-	202	80	3051-	322-
0	0	6	28	3076	2908	DEC 81	12934	978	218	145	6139	5767
0	0	0	0	3038	2665	DEC 80	16663	1577	10	37	9152	5846
0	0	6	28	38	243		3729-	599-	208	108	3013-	79-
12138	905	0	0	9152	8651	JAN 82	25072	1883	218	145	15291	14418
12698	1266	5	27	8839	8101	JAN 81	29361	2843	15	64	17991	13947
560-	361-	5-	27-	313	550		4289-	960-	203	81	2700-	471
4043	371	87	10	3076	2908	FEB 82	29115	2254	305	155	18367	17326
4186	418	4	10	3026	3070	FEB 81	33547	3261	19	74	21017	17017
143-	47-	83	0	50	162-		4432-	1007-	286	81	2650-	309
4230	397	2	9	3088	2919	MAR 82	33345	2651	307	164	21455	20245
4464	460	3	9	6076	6162	MAR 81	38011	3721	22	83	27093	23179
234-	63-	1-	0	2988-	3243-		4666-	1070-	285	81	5638-	2934-
3588	356	12	30	0	0	APR 82	36933	3007	319	194	21455	20245
3792	403	1	9	0	0	APR 81	41803	4124	23	92	27093	23179
204-	47-	11	21	0	0		4870-	1117-	296	102	5638-	2934-
0	0	0	0	2100	1872	MAY 82	36933	3007	319	194	23555	22117
4060	425	0	6	0	0	MAY 81	45863	4549	23	98	27093	23179
4060-	425-	0	6-	2100	1872		8930-	1542-	296	96	3538-	1062-
5926	618	1	13	1	1	JUN 82	42859	3625	320	207	23556	22118
1	1	1	1	2953	5897	JUN 81	45864	4550	24	99	30046	29076
5925	617	0	12	2952-	5896-		3005-	925-	296	108	6490-	6958-

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CAMBRIDGE SCHOOLS
HARRINGTON

ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

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KEEPING SCORE MASS COOPERATIVE CORP

CURRENT MONTH								YEAR TO DATE							
ELECTRICITY		GAS		OIL				ELECTRICITY		GAS		OIL			
KWH	$	CCF	$	GAL	$			KWH	$	CCF	$	GAL	$		
18064	1413	37	36	0	0	JUL	81	18064	1413	37	36	0	0		
1144	108	0	0	0	0	JUL	80	1144	108	0	0	0	0		
16920	1305	37	36	0	0			16920	1305	37	36	0	0		
10264	750	38	37	0	0	AUG	81	28328	2163	75	73	0	0		
25144	2228	84	65	0	0	AUG	80	26288	2236	84	65	0	0		
14080-	1478-	46-	28-	0	0			2040	173-	9-	8	0	0		
9704	643	83	61	0	0	SEP	81	37032	2806	158	134	0	0		
54424	4304	70	47	0	0	SEP	80	80712	6640	154	112	0	0		
49720-	3661-	13	14	0	0			43680-	3834-	4	22	0	0		
23168	1925	357	238	0	0	OCT	81	60200	4731	515	365	0	0		
30668	2393	117	76	0	0	OCT	80	111376	9033	271	188	0	0		
7196-	468-	240	155	0	0			51176-	4302-	244	177	0	0		
30304	2359	117	87	6254	5604	NOV	81	90504	7090	632	452	6254	5604		
29944	2367	160	99	0	0	NOV	80	141320	11400	431	287	0	0		
360	8-	43	12	6254	5604			50816-	4310-	201	165	6254	5604		
30184	2086	334	234	11929	11276	DEC	81	126658	9976	966	686	18183	16880		
32464	2799	246	135	22942	20123	DEC	80	177984	14199	677	422	22942	20123		
2280-	713-	88	99	11013-	8847-			51296-	4223-	289	264	4759-	3243-		
32824	2671	174	122	17834	16858	JAN	82	159512	12647	1140	808	36017	33738		
38944	3367	238	146	12000	10883	JAN	81	216928	17568	915	568	34942	33005		
6120-	696-	64-	24-	5834	5975			57416-	4919-	225	240	1075	2732		
27544	2356	0	0	11929	11276	FEB	82	187056	15003	1140	808	47946	45014		
37864	3288	226	133	24900	24982	FEB	81	256792	20854	1141	701	59842	55992		
10320-	932-	226-	133-	12971-	13710-			69736-	5851-	1	107	11896-	10978-		
42904	3440	157	111	7000	6617	MAR	82	229960	18443	1297	919	54946	53631		
41944	3578	180	108	11906	12068	MAR	81	296736	24432	1321	809	71748	68060		
960	138-	23-	3	4906-	5451-			66776-	5989-	24	210	16802-	14429-		
34384	2952	82	57	6449	5749	APR	82	264344	23395	1379	976	61395	57380		
36784	3326	88	60	0	0	APR	81	333520	27758	1409	869	71748	68060		
2400-	374-	6-	3	6449	5749			69176-	6363-	30-	107	10353-	10680-		
22864	1965	111	78	3255	2902	MAY	82	287208	23360	1490	1054	64650	60282		
25984	2486	88	63	0	0	MAY	81	359504	30244	1497	932	71748	68060		
3120-	521-	23	15	3255	2902			72296-	6884-	7-	122	7098-	7778-		
27124	2488	1	1	3076	2669	JUN	82	314332	25848	1491	1055	67726	62951		
25024	2412	56	44	11023	10813	JUN	81	384528	32656	1553	976	82771	78873		
2100	76	55-	43-	7947-	8144-			70196-	6808-	62-	79	15045-	15922-		

CAMBRIDGE SCHOOLS
KENNEDY

ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

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KEEPING SCOPE MASBO COOPERATIVE CORP

CURRENT MONTH								YEAR TO DATE					
ELECTRICITY		GAS		OIL				ELECTRICITY		GAS		OIL	
KWH	$	CCF	$	GAL	$			KWH	$	CCF	$	GAL	$
41905	3378	12	21	0	0	JUL 81		41905	3378	12	21	0	0
61702	4427	116	63	0	0	JUL 80		61702	4427	116	63	0	0
19797-	1049-	104-	42-	0	0			19797-	1049-	104-	42-	0	0
68937	4954	254	153	0	0	AUG 81		110842	8332	266	174	0	0
50034	3920	226	116	0	0	AUG 80		111736	8347	342	179	0	0
18903	1034	28	37	0	0			894-	15-	76-	5-	0	0
55466	4580	254	153	0	0	SEP 81		166308	12912	520	327	0	0
66262	5489	253	129	0	0	SEP 80		177998	13836	595	308	0	0
10796-	909-	1	24	0	0			11690-	924-	75-	19	0	0
82518	5523	0	0	0	0	OCT 81		248826	18435	520	327	0	0
76744	5758	461	247	0	0	OCT 80		254742	19594	1056	555	0	0
5774	235-	461-	247-	0	0			5916-	1159-	536-	228-	0	0
71741	5217	254	166	4482	4183	NOV 81		320567	23652	774	493	4482	4183
84314	5269	386	209	13410	10964	NOV 80		339056	24863	1442	764	13410	10964
12573-	52-	132-	43-	8928-	6781-			18489-	1211-	668-	271-	8928-	6781-
68173	4240	401	253	8946	8456	DEC 81		388740	27892	1175	746	13428	12639
82537	6506	334	179	12638	11085	DEC 80		421593	31369	1776	943	26046	22049
14364-	2266-	67	74	3692-	2629-			32853-	3477-	601-	197-	12620-	9410-
76263	5399	340	217	13410	12675	JAN 82		465003	33291	1515	963	26838	25314
75369	6021	380	202	12948	11860	JAN 81		496962	37390	2156	1145	38996	33909
894	622-	40-	15	462	815			31959-	4099-	641-	182-	12158-	8595-
61800	4532	0	0	4464	4220	FEB 82		526803	37823	1515	963	31302	29534
67915	5560	323	174	8450	8466	FEB 81		564877	42950	2479	1319	47446	42375
6115-	1028-	323-	174-	3986-	4246-			38074-	5127-	964-	356-	16144-	12841-
71692	5354	742	471	8946	8322	MAR 82		598495	43177	2257	1434	40248	37856
70796	5864	301	163	8964	9090	MAR 81		635673	48814	2780	1482	56410	51465
896	510-	441	308	18-	768-			37178-	5637-	523-	48-	16162-	13609-
47341	3894	273	178	4464	3980	APR 82		645836	47071	2530	1612	44712	41836
59088	5232	0	0	4464	4379	APR 81		694761	54046	2780	1482	60874	55844
11747-	1338-	273	178	0	399-			48925-	6975-	250-	130	16162-	14008-
71615	5989	513	328	2458	2191	MAY 82		717451	53060	3043	1940	47170	44027
59915	5564	348	200	0	0	MAY 81		754676	59610	3128	1682	60874	55844
11700	425	165	128	2458	2191			37225-	6550-	85-	258	13704-	11817-
53588	4839	1	1	1	1	JUN 82		771039	57899	3044	1941	47171	44028
71344	5315	1	1	1	1	JUN 81		826020	64925	3129	1683	60875	55845
17756-	476-	0	0	0	0			54981-	7026-	85-	258	13704-	11817-

KEEPING SCORE MASBO COOPERATIVE CORP

CURRENT MONTH									YEAR TO DATE								
ELECTRICITY		GAS		OIL					ELECTRICITY		GAS		OIL				
KWH	$	CCF	$	GAL	$				KWH	$	CCF	$	GAL	$			
142200	6892	11	13	0	0	JUL	81		142200	6892	11	13	0	0			
90000	4988	12	0	0	0	JUL	80		90000	4988	12	0	0	0			
52200	1904	1-	13	0	0				52200	1904	1-	13	0	0			
57000	3397	9	13	0	0	AUG	81		199200	10289	20	26	0	0			
62400	3705	50	24	0	0	AUG	80		152400	8693	62	24	0	0			
5400-	308-	41-	11-	0	0				46800	1596	42-	2	0	0			
0	0	50	37	0	0	SEP	81		199200	10289	70	63	0	0			
86400	5788	161	85	0	0	SEP	80		238800	14481	223	109	0	0			
86400-	5788-	111-	48-	0	0				39600-	4192-	153-	46-	0	0			
70200	4307	130	79	0	0	OCT	81		269400	14596	200	142	0	0			
88800	5455	172	99	0	0	OCT	80		327600	19936	395	208	0	0			
18600-	1148-	42-	20-	0	0				58200-	5340-	195-	66-	0	0			
77400	4635	134	91	0	0	NOV	81		346800	19231	334	233	0	0			
78600	4955	155	90	9072	7438	NOV	80		406200	24891	550	298	9072	7438			
1200-	320-	21-	1	9072-	7438-				59400-	5660-	216-	65-	9072-	7438-			
85200	5207	119	81	13464	12726	DEC	81		432000	24438	453	314	13464	12726			
100020	6894	81	44	16964	14880	DEC	80		506220	31785	631	342	26036	22318			
14820-	1687-	38	37	3500-	2154-				74220-	7347-	178-	28-	12572-	9592-			
91200	5496	84	58	16486	15583	JAN	82		523200	29934	537	372	29950	28309			
94200	6645	126	73	22392	21188	JAN	81		600420	38430	757	415	48428	43506			
3000-	1149-	42-	15-	5906-	5605-				77220-	8496-	220-	43-	18478-	15197-			
72000	4623	138	92	8946	8456	FEB	82		595200	34557	675	464	38896	36765			
79200	5830	142	82	8946	9076	FEB	81		679620	44260	899	497	57374	52582			
7200-	1207-	4-	10	0	620-				84420-	9703-	224-	33-	18478-	15817-			
75000	5049	124	83	8964	8473	MAR	82		670200	39606	799	547	47860	45238			
85200	6412	143	82	9114	9242	MAR	81		764820	50672	1042	579	66488	61824			
10200-	1363-	19-	1	150-	769-				94620-	11066-	243-	32-	18628-	16586-			
58800	4156	163	108	4482	3995	APR	82		729000	43762	962	655	52342	49233			
73200	5672	120	74	4464	4379	APR	81		838020	56344	1162	653	70952	66203			
14400-	1516-	43	34	18	384-				109020-	12582-	200-	2	18610-	16970-			
52200	3873	76	53	0	0	MAY	82		781200	47635	1038	708	52342	49233			
89400	6999	132	80	0	0	MAY	81		927420	63343	1294	733	70952	66203			
37200-	3126-	56-	27-	0	0				146220-	15708-	256-	25-	18610-	16970-			
49800	3822	29	24	4429	3943	JUN	82		831000	51457	1066	732	56771	53076			
102000	5574	132	80	9804	9617	JUN	81		1029420	68517	1426	813	80756	75820			
52200-	1752-	104-	56-	5375-	5774-				198420-	17460-	360-	81-	23985-	22744-			

CAMBRIDGE SCHOOLS
LINCOLN

ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

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KEEPING SCORE MASAC COOPERATIVE CORP

CURRENT MONTH								YEAR TO DATE							
ELECTRICITY		GAS		OIL				ELECTRICITY		GAS		OIL			
KWH	$	CCF	$	GAL	$			KWH	$	CCF	$	GAL	$		
1380	161	55	37	0	0	JUL	81	1380	161	55	37	0	0		
1740	213	41	28	0	0	JUL	80	1740	213	41	28	0	0		
360-	52-	14	9	0	0			360-	52-	14	9	0	0		
0	0	106	71	0	0	AUG	81	1380	161	161	108	0	0		
0	0	0	0	0	0	AUG	80	0	0	0	0	0	0		
0	0	106	71	0	0			1380	161	161	108	0	0		
0	0	0	0	0	0	SEP	81	0	0	0	0	0	0		
5100	516	86	54	0	0	SEP	80	6840	729	127	82	0	0		
5100-	516-	86-	54-	0	0			6840-	729-	127-	82-	0	0		
0	7	0	0	0	0	OCT	81	1380	168	161	108	0	0		
5400	470	71	40	0	0	OCT	80	12240	1199	198	122	0	0		
5400-	463-	71-	40-	0	0			10860-	1031-	37-	14-	0	0		
8640	1061	141	107	0	0	NOV	81	10020	1229	302	215	0	0		
5940	507	106	63	3026	2474	NOV	80	18180	1706	304	185	3026	2474		
2700	554	35	44	3026-	2474-			8160-	477-	2-	30	3026-	2474-		
3840	360	149	103	6093	5759	DEC	81	13860	1589	451	318	6093	5759		
0	0	0	0	2976	2610	DEC	80	18180	1706	304	185	6002	5084		
3840	360	149	103	3117	3149			4320-	117-	147	133	91	675		
5700	531	193	133	6085	5752	JAN	82	19560	2120	644	451	12178	11511		
5700	649	290	166	8741	8009	JAN	81	23880	2355	594	351	14743	13093		
0	118-	97-	33-	2656-	2257-			4320-	235-	50	100	2565-	1582-		
1020	109	37	27	2976	2813	FEB	82	20580	2229	681	478	15154	14324		
8400	746	123	72	3089	3133	FEB	81	32280	3101	717	423	17832	16226		
7380-	637-	86-	45-	113-	320-			11700-	872-	36-	55	2678-	1902-		
0	0	0	0	2988	2824	MAR	82	20580	2229	681	478	18142	17148		
5520	533	106	63	4446	4506	MAR	81	37800	3634	823	486	22278	20732		
5520-	533-	106-	63-	1458-	1882-			17220-	1405-	142-	8-	4136-	3584-		
0	0	134	98	0	0	APR	82	20580	2229	815	576	18142	17148		
4620	486	69	43	0	0	APR	81	42420	4120	892	529	22278	20732		
4620-	486-	65	55	0	0			21840-	1891-	77-	47	4136-	3584-		
7560	707	0	0	4429	3948	MAY	82	28140	2936	815	576	22571	21096		
4620	489	56	38	0	0	MAY	81	47040	4609	948	567	22278	20732		
2940	218	56-	38-	4429	3948			18900-	1673-	133-	9	293	364		
3240	302	8	11	1	1	JUN	82	31380	3238	823	587	22572	21097		
1	1	1	1	2000	1962	JUN	81	47041	4610	949	568	24278	22694		
3239	301	7	10	1999-	1961-			15661-	1372-	126-	19	1706-	1597-		

CAMBRIDGE SCHOOLS
LONGFELLOW

ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

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KEEPING SCORE MASBO COOPERATIVE CORP

CURRENT MONTH								YEAR TO DATE							
ELECTRICITY		GAS		OIL				ELECTRICITY		GAS		OIL			
KWH	$	CCF	$	GAL	$			KWH	$	CCF	$	GAL	$		
6840	573	53	36	0	0	JUL	81	6840	573	53	36	0	0		
0	0	42	26	0	0	JUL	80	0	0	42	26	0	0		
6840	573	11	10	0	0			6840	573	11	10	0	0		
5220	423	40	29	0	0	AUG	81	12060	996	93	65	0	0		
0	0	0	0	0	0	AUG	80	0	0	0	0	0	0		
5220	423	40	29	0	0			12060	996	93	65	0	0		
7320	658	0	0	0	0	SEP	81	19380	1654	93	65	0	0		
23640	2089	83	52	249	222	SEP	80	23640	2089	125	78	249	222		
16320-	1431-	83-	52-	249-	222-			4260-	435-	32-	13-	249-	222-		
14880	1146	56	37	3179	2998	OCT	81	34260	2800	149	102	3179	2998		
16380	1276	53	32	2706	2112	OCT	80	40020	3365	178	110	2955	2334		
1500-	130-	3	5	473	886			5760-	565-	29-	8-	224	664		
16500	1265	61	45	6315	5920	NOV	81	50760	4065	210	147	9494	8918		
18120	1395	68	43	6379	5243	NOV	80	58140	4760	246	153	9334	7577		
1620-	130-	7-	2	64-	677			7380-	695-	36-	6-	160	1341		
15720	1220	70	50	9161	8679	DEC	81	66480	5285	280	197	18655	17597		
16140	1281	64	40	12466	10946	DEC	80	74280	6041	310	193	21800	18523		
420-	61-	6	10	3305-	2267-			7800-	756-	30-	4	3145-	926-		
26700	1771	0	0	12480	11826	JAN	82	93180	7056	280	197	31135	29423		
23040	2069	103	64	12388	11405	JAN	81	97320	8110	413	257	34188	29928		
3660	298-	103-	64-	92	421			4140-	1054-	133-	60-	3053-	505-		
0	0	123	89	15426	14614	FEB	82	93180	7056	403	286	46561	44037		
7200	650	31	20	9507	9590	FEB	81	104520	8760	444	277	43695	39518		
7200-	650-	92	69	5919	5024			11340-	1704-	41-	9	2866	4519		
23040	1876	104	74	6184	5763	MAR	82	116220	8932	507	360	52745	49800		
14460	1296	63	40	5820	5924	MAR	81	118980	10056	507	317	49515	45442		
8580	580	41	34	364	161-			2760-	1124-	0	43	3230	4358		
7680	640	33	24	6158	5502	APR	82	123900	9572	540	384	58903	55302		
15000	1396	63	40	6759	6753	APR	81	133980	11452	570	357	56274	52195		
7320-	756-	30-	16-	601-	1251-			10080-	1880-	30-	27	2629	3107		
12660	1081	64	46	93	97	MAY	82	136560	10653	604	430	58996	55399		
0	0	0	0	211	234	MAY	81	133980	11452	570	357	56485	52429		
12660	1081	64	46	118-	137-			2580	799-	34	73	2511	2970		
13140	1132	56	42	256	274	JUN	82	149700	11785	660	472	59252	55673		
25680	2453	107	72	1501	1472	JUN	81	159660	13905	677	429	57986	53901		
12540-	1321-	51-	30-	1245-	1198-			9960-	2120-	17-	43	1266	1772		

KEEPING SCORE MASBO COOPERATIVE CORP

CURRENT MONTH									YEAR TO DATE								
ELECTRICITY		GAS		OIL					ELECTRICITY		GAS		OIL				
KWH	$	CCF	$	GAL	$				KWH	$	CCF	$	GAL	$			
7680	570	294	170	0	0	JUL	81		7680	570	294	170	0	0			
8520	744	136	72	0	0	JUL	80		8520	744	136	72	0	0			
840-	174-	158	98	0	0				840-	174-	158	98	0	0			
6360	609	278	164	0	0	AUG	81		14040	1179	572	334	0	0			
6960	502	114	63	0	0	AUG	80		15480	1246	250	135	0	0			
600-	107	164	101	0	0				1440-	67-	322	199	0	0			
13560	1163	337	198	0	0	SEP	81		27600	2342	909	532	0	0			
8160	705	121	66	0	0	SEP	80		23640	1951	371	201	0	0			
5400	458	216	132	0	0				3960	391	538	331	0	0			
13560	1163	386	217	2939	2743	OCT	81		41160	3505	1295	749	2939	2743			
15960	1319	224	116	0	0	OCT	80		39600	3270	595	317	0	0			
2400-	156-	162	101	2939	2743				1560	235	700	432	2939	2743			
22080	1681	470	294	4464	4167	NOV	81		63240	5186	1765	1043	7403	6910			
24000	1874	319	175	4582	3746	NOV	80		63600	5144	914	492	4582	3746			
1920-	193-	151	119	118-	421				360-	42	851	551	2821	3164			
43800	3505	993	609	4500	4253	DEC	81		107040	8691	2758	1652	11903	11163			
24600	1883	350	190	8464	7424	DEC	80		88200	7027	1264	682	13046	11170			
19200	1622	643	419	3964-	3171-				18840	1664	1494	970	1143-	7-			
33960	2474	0	0	13410	12676	JAN	82		141000	11165	2758	1652	25313	23839			
25200	2143	391	207	7576	6828	JAN	81		113400	9170	1655	889	20622	17998			
8760	331	391-	207-	5834	5848				27600	1995	1103	763	4691	5841			
0	0	594	361	4464	4220	FEB	82		141000	11165	3352	2013	29777	28059			
25320	2182	509	266	8927	8952	FEB	81		138720	11352	2164	1155	29549	26950			
25320-	2182-	85	95	4463-	4732-				2280	187-	1188	858	228	1109			
25440	1930	521	319	8946	8322	MAR	82		166440	13095	3873	2332	38723	36381			
36960	3451	772	410	8946	9067	MAR	81		175680	14803	2936	1565	38495	36017			
11520-	1521-	251-	91-	0	745-				9240-	1708-	937	767	228	364			
0	0	488	299	0	0	APR	82		166440	13095	4361	2631	38723	36381			
18240	1874	210	124	0	0	APR	81		193920	16677	3146	1689	38495	36017			
18240-	1874-	278	175	0	0				27480-	3582-	1215	942	228	364			
39600	3507	0	0	4453	3970	MAY	82		206040	16602	4361	2631	43176	40351			
11040	1153	0	0	0	0	MAY	81		204960	17830	3146	1689	38495	36017			
28560	2354	0	0	4453	3970				1080	1228-	1215	942	4681	4334			
16920	1456	398	188	1	1	JUN	82		222960	19058	4759	2819	43177	40352			
6600	591	1	1	2401	2355	JUN	81		211560	19421	3147	1690	40896	38372			
10320	865	397	187	2400-	2354-				11400	363-	1612	1129	2281	1980			

CAMBRIDGE SCHOOLS
PEABODY

ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

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KEEPING SCORE NASBO COOPERATIVE CORP

CURRENT MONTH							YEAR TO DATE					
ELECTRICITY KWH	$	GAS CCF	$	OIL GAL	$		ELECTRICITY KWH	$	GAS CCF	$	OIL GAL	$
0	0	0	0	0	0	AUG 81	0	0	0	0	0	0
0	0	48	62	0	0	AUG 80	0	0	48	62	0	0
0	0	48-	62-	0	0		0	0	48-	62-	0	0
76080	5982	56	85	0	0	SEP 81	76080	5982	56	85	0	0
23040	1730	5	8	0	0	SEP 80	23040	1730	53	70	0	0
53040	4252	51	77	0	0		53040	4252	3	15	0	0
37560	2783	26	27	0	0	OCT 81	113640	8765	82	112	0	0
36840	2774	32	27	5638	4271	OCT 80	59880	4504	85	97	5638	4271
720	9	6-	0	5638-	4271-		53760	4261	3-	15	5638-	4271-
40800	3000	0	0	2926	2731	NOV 81	154440	11765	82	112	2926	2731
38280	2888	51	39	6114	4999	NOV 80	98160	7392	136	136	11752	9270
2520	112	51-	39-	3188-	2268-		56280	4373	54-	24-	8826-	6539-
0	0	0	0	6088	5755	DEC 81	154440	11765	82	112	9014	8486
36000	2665	0	0	9102	7984	DEC 80	134160	10057	136	136	20854	17254
36000-	2665-	0	0	3014-	2229-		20280	1708	54-	24-	11840-	8768-
81000	6242	80	67	12328	11653	JAN 82	235440	18007	162	179	21342	20139
39480	3270	147	101	12165	11202	JAN 81	173640	13327	283	237	33019	28456
41520	2972	67-	34-	163	451		61800	4680	121-	58-	11677-	8317-
41160	3097	0	0	6152	5815	FEB 82	276600	21104	162	179	27494	25954
36600	3153	63	46	6126	6142	FEB 81	210240	16480	346	283	39145	34598
4560	56-	63-	46-	26	327-		66360	4624	184-	104-	11651-	8644-
36840	2808	52	61	6164	5826	MAR 82	313440	23912	214	240	33658	31780
36480	3084	62	45	10128	10268	MAR 81	246720	19564	408	328	49273	44866
360	276-	10-	16	3964-	4442-		66720	4348	194-	88-	15615-	13086-
27960	2352	12	22	3088	2753	APR 82	341400	26264	226	262	36746	34533
30480	2782	37	31	3076	3017	APR 81	277200	22346	445	359	52349	47883
2520-	430-	25-	9-	12	264-		64200	3918	219-	97-	15603-	13350-
35640	2865	5	19	2499	2228	MAY 82	377040	29129	231	281	39245	36761
31800	2900	26	28	3076	3017	MAY 81	309000	25246	471	387	55425	50900
3840	35-	21-	9-	577-	789-		68040	3883	240-	106-	16180-	14139-
32040	2569	1	15	1	1	JUN 82	409080	31698	232	296	39246	36762
1	1	1	1	1481	1453	JUN 81	309001	25247	472	388	56906	52353
32039	2568	0	14	1480-	1452-		100079	6451	240-	92-	17660-	15591-

CAMBRIDGE SCHOOLS
ROBERTS

ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

06/30/82

KEEPING SCOPE MASBO COOPERATIVE CORP

CURRENT MONTH							YEAR TO DATE					
ELECTRICITY		GAS		OIL			ELECTRICITY		GAS		OIL	
KWH	$	CCF	$	GAL	$		KWH	$	CCF	$	GAL	$
16980	1464	841	476	0	0	AUG 81	16980	1464	841	476	0	0
6120	677	331	174	0	0	AUG 80	6120	677	331	174	0	0
10860	787	510	302	0	0		10860	787	510	302	0	0
5340	444	118	70	0	0	SEP 81	22320	1908	959	546	0	0
13740	1120	347	169	0	0	SEP 80	19860	1797	678	343	0	0
8400-	676-	229-	99-	0	0		2460	111	281	203	0	0
12840	1031	347	220	0	0	OCT 81	35160	2939	1306	766	0	0
15600	1243	381	206	0	0	OCT 80	35460	3040	1059	549	0	0
2760-	212-	34-	14	0	0		300-	101-	247	217	0	0
0	0	0	0	4482	4183	NOV 81	35160	2939	1306	766	4482	4183
15720	1254	384	207	7527	6154	NOV 80	51180	4294	1443	756	7527	6154
15720-	1254-	384-	207-	3045-	1971-		16020-	1355-	137-	10	3045-	1971-
26980	2364	484	311	8982	8490	DEC 81	64140	5303	1790	1077	13464	12673
13080	1216	350	187	8464	7424	DEC 80	64260	5510	1793	943	15991	13578
15900	1148	134	124	516	1066		120-	207-	3-	134	2527-	905-
16920	1339	257	164	13428	12692	JAN 82	81060	6642	2047	1241	26892	25365
17280	1530	370	197	12448	11185	JAN 81	81540	7040	2163	1140	28439	24763
360-	191-	113-	33-	980	1507		480-	398-	116-	101	1547-	602
15240	1208	247	159	8928	8439	FEB 82	96300	7850	2294	1400	35820	33804
14880	1349	349	187	8448	8479	FEB 81	96420	8389	2512	1327	36887	33242
360	141-	102-	28-	480	40-		120-	539-	218-	73	1067-	562
13320	1131	230	148	8964	8232	MAR 82	109620	8981	2524	1548	44784	42036
14820	1398	551	287	4338	4525	MAR 81	111240	9787	3063	1614	41225	37767
1500-	267-	321-	139-	4626	3707		1620-	806-	539-	66-	3559	4269
11520	1022	185	121	0	0	APR 82	121140	10003	2709	1669	44784	42036
14040	1317	240	133	0	0	APR 81	125280	11104	3303	1747	41225	37767
2520-	295-	55-	12-	0	0		4140-	1101-	594-	78-	3559	4269
13020	1121	214	144	0	0	MAY 82	134160	11124	2923	1813	44784	42036
12180	1204	347	196	4482	4396	MAY 81	137460	12308	3650	1943	45707	42163
840	83-	133-	52-	4482-	4396-		3300-	1184-	727-	130-	923-	127-
9900	921	1	1	1	1	JUN 82	144060	12045	2924	1814	44785	42037
19020	1921	326	185	1	1	JUN 81	156480	14229	3976	2128	45708	42164
9120-	1000-	325-	184-	0	0		12420-	2184-	1052-	314-	923-	127-

CAMBRIDGE SCHOOLS
TOBIN

ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

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KEEPING SCORE MASBO COOPERATIVE CORP

CURRENT MONTH							YEAR TO DATE						
ELECTRICITY		GAS		OIL			ELECTRICITY		GAS		OIL		
KWH	$	CCF	$	GAL	$		KWH	$	CCF	$	GAL	$
58964	4020	6	10	0	0	JUL 81	58964	4020	6	10	0	0
1589	129	9	10	0	0	JUL 80	1589	129	9	10	0	0
57375	3891	3-	0	0	0		57375	3891	3-	0	0	0
60089	4139	12	13	0	0	AUG 81	119053	8159	18	23	0	0
66839	5349	10	10	0	0	AUG 80	68428	5478	19	20	0	0
6750-	1210-	2	3	0	0		50625	2681	1-	3	0	0
54464	4136	11	20	0	0	SEP 81	173517	12295	29	43	0	0
67964	5297	17	14	0	0	SEP 80	136392	10775	36	34	0	0
13500-	1161-	6-	6	0	0		37125	1520	7-	9	0	0
125339	8808	7	11	0	0	OCT 81	298856	21103	36	54	0	0
116339	8729	7	10	0	0	OCT 80	252731	19504	43	44	0	0
9000	79	0	1	0	0		46125	1599	7-	10	0	0
205214	13369	0	0	0	0	NOV 81	504070	34472	36	54	0	0
232214	15571	8	10	0	0	NOV 80	484945	35075	51	54	0	0
27000-	2202-	8-	10-	0	0		19125	603-	15-	0	0	0
265964	17323	7	10	0	0	DEC 81	770034	51795	43	64	0	0
369464	26724	6	10	0	0	DEC 80	854409	61799	57	64	0	0
103500-	9401-	1	0	0	0		84375-	10004-	14-	0	0	0
319964	20567	9	12	0	0	JAN 82	1089998	72362	52	76	0	0
318839	23792	7	10	0	0	JAN 81	1173248	85591	64	74	0	0
1125	3225-	2	2	0	0		83250-	13229-	12-	2	0	0
267089	17342	7	11	0	0	FEB 82	1357087	89704	59	87	0	0
267089	20344	15	14	0	0	FEB 81	1440337	105935	79	88	0	0
0	3002-	8-	3-	0	0		83250-	16231-	20-	1-	0	0
219839	15735	8	11	0	0	MAR 82	1576926	105439	67	98	0	0
213089	17259	10	11	0	0	MAR 81	1653426	123194	89	99	0	0
6750	1524-	2-	0	0	0		76500-	17755-	22-	1-	0	0
159089	12339	11	13	0	0	APR 82	1736015	117778	78	111	0	0
116339	10434	8	11	0	0	APR 81	1769765	133628	97	110	0	0
42750	1905	3	2	0	0		33750-	15850-	19-	1	0	0
82589	6439	9	12	0	0	MAY 82	1818604	124217	87	123	0	0
81464	7485	9	11	0	0	MAY 81	1851229	141113	106	121	0	0
1125	1046-	0	1	0	0		32625-	16896-	19-	2	0	0
62339	5022	1	1	0	0	JUN 82	1880943	129239	88	124	0	0
83714	5694	6	10	0	0	JUN 81	1934943	146807	112	131	0	0
21375-	672-	5-	9-	0	0		54000-	17568-	24-	7-	0	0

KEEPING SCORE MASBO COOPERATIVE CORP

CURRENT MONTH								YEAR TO DATE							
ELECTRICITY		GAS		OIL				ELECTRICITY		GAS		OIL			
KWH	%	CCF	%	GAL	%			KWH	%	CCF	%	GAL	%		
8480	82R	0	0	0	0	JUL	81	8480	82R	0	0	0	0		
3010	21S	0	0	0	0	JUL	80	3010	21S	0	0	0	0		
5470	61S	0	0	0	0			5470	61S	0	0	0	0		
430	4S	0	0	0	0					0	0	0	0		
0	0	2	18	0	0	AUG	81	8910	87I	0	0	0	0		
430	4S	2-	18-	0	0	AUG	80	3010	21S	2	18	0	0		
								5900	65S	2-	18-	0	0		
0	0	0	0	0	0	SEP	81	0	0	0	0	0	0		
8240	76R	0	0	0	0	SEP	80	11250	98S	2	18	0	0		
8240-	76R-	0	0	0	0			11250-	98S-	2-	18-	0	0		
29700	2022	4	35	0	0	OCT	81	38610	2893	4	35	0	0		
15360	1301	11	20	0	0	OCT	80	26610	2284	13	38	0	0		
14340	721	7-	15	0	0			12000	609	9-	3-	0	0		
13560	1058	8	11	2976	2778	NOV	81	52170	3951	12	46	2976	2778		
4870	306	2	5	8306	5040	NOV	80	31480	2590	15	43	8306	5040		
8690	752	6	6	5330-	2262-			20690	1361	3-	3	5330-	2262-		
34180	2405	5	0	3076	2908	DEC	81	86350	6356	17	46	6052	5686		
9930	749	8	10	6052	5308	DEC	80	41410	3339	23	53	14358	10348		
24250	1656	3-	10-	2976-	2400-			44940	3017	6-	7-	8306-	4662-		
22880	1863	10	12	9155	8654	JAN	82	109230	8219	27	58	15207	14340		
7660	753	21	17	12142	11175	JAN	81	49070	4092	44	70	26500	21523		
15220	1110	11-	5-	2987-	2521-			60160	4127	17-	12-	11293-	7183-		
23580	1911	22	20	6115	5780	FEB	82	132810	10130	49	78	21322	20120		
9670	794	27	20	6164	6180	FEB	81	58740	4886	71	90	32664	27703		
13910	1117	5-	0	49-	400-			74070	5244	22-	12-	11342-	7583-		
12370	1015	20	18	6064	5732	MAR	82	145180	11145	69	96	27386	25852		
9340	884	15	14	8682	8803	MAR	81	68080	5770	86	104	41346	36506		
3030	131	5	4	2618-	3071-			77100	5375	17-	8-	13960-	10654-		
1060	106	18	17	3088	2753	APR	82	146240	11251	87	113	30474	28605		
10030	986	9	11	0	0	APR	81	78110	5756	95	115	41346	36506		
8970-	880-	9	6	3088	2753			68130	4495	8-	2-	10872-	7901-		
12810	1087	10	12	0	0	MAY	82	159050	12338	97	125	30474	28605		
7800	775	5	10	0	0	MAY	81	85910	7531	100	125	41346	36506		
5010	312	5	2	0	0			73140	4807	3-	0	10872-	7901-		
450	49	8	16	1	1	JUN	82	159500	12387	105	141	30475	28606		
440	52	1	1	2300	2256	JUN	81	86350	7593	101	126	43646	38762		
10	3-	7	15	2299-	2255-			73150	4804	4	15	13171-	10156-		

CAMBRIDGE SCHOOLS
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ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

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KEEPING SCORE MASBO COOPERATIVE CORP

CURRENT MONTH							YEAR TO DATE					
ELECTRICITY		GAS		OIL			ELECTRICITY		GAS		OIL	
KWH	$	CCF	$	GAL	$		KWH	$	CCF	$	GAL	$
0	0	25	21	0	0	JUL 81	0	0	25	21	0	0
0	0	21	17	0	0	JUL 80	0	0	21	17	0	0
0	0	4	4	0	0		0	0	4	4	0	0
6930	752	26	22	0	0	AUG 81	6930	752	51	43	0	0
8280	778	40	25	0	0	AUG 80	8280	778	61	42	0	0
1350-	26-	14-	3-	0	0		1350-	26-	10-	1	0	0
2850	308	0	0	0	0	SEP 81	9780	1060	51	43	0	0
6730	606	102	56	0	0	SEP 80	15010	1384	163	98	0	0
3880-	298-	102-	56-	0	0		5230-	324-	112-	55-	0	0
6830	600	102	63	908	1004	OCT 81	16610	1660	153	106	908	1004
0	0	102	61	0	0	OCT 80	15010	1384	265	159	0	0
6830	600	0	2	908	1004		1600	276	112-	53-	908	1004
14960	1299	0	0	0	0	NOV 81	31570	2959	153	106	908	1004
21170	1702	102	61	809	729	NOV 80	36180	3086	367	220	809	729
6210-	403-	102-	61-	809-	729-		4610-	127-	214-	114-	99	275
0	0	0	0	3792	4260	DEC 81	31570	2959	153	106	4700	5264
12710	1114	61	38	2727	2533	DEC 80	48890	4200	428	258	3536	3262
12710-	1114-	61-	38-	1065	1727		17320-	1241-	275-	152-	1164	2002
0	0	0	0	2713	3055	JAN 82	31570	2959	153	106	7413	8319
0	0	83	50	3785	3676	JAN 81	48890	4200	511	308	7321	6938
0	0	83-	50-	1072-	621-		17320-	1241-	358-	202-	92	1381
19590	1580	95	65	2926	3276	FEB 82	51160	4539	248	171	10339	11595
19390	1622	101	55	3217	3460	FEB 81	68280	5822	612	363	10538	10398
200	42-	6-	10	291-	184-		17120-	1283-	364-	192-	199-	1197
13980	1143	92	63	1195	1293	MAR 82	65140	5682	340	234	11534	12888
7280	722	138	80	1302	1460	MAR 81	75560	6544	750	443	11840	11858
6700	421	46-	17-	107-	167-		10420-	862-	410-	209-	306-	1030
4870	415	0	0	1714	1747	APR 82	70010	6097	340	234	13248	14635
5910	625	86	54	0	0	APR 81	81470	7169	836	497	11840	11858
1040-	210-	86-	54-	1714	1747		11460-	1072-	496-	263-	1408	2777
7010	644	83	58	0	0	MAY 82	77020	6741	423	292	13248	14635
7320	763	89	56	0	0	MAY 81	88790	7932	925	553	11840	11858
310-	119-	6-	2	0	0		11770-	1191-	502-	261-	1408	2777
7800	705	101	71	1	1	JUN 82	84820	7446	524	363	13249	14636
1	1	1	1	1	1	JUN 81	88791	7933	926	554	11841	11859
7799	704	100	70	0	0		3971-	487-	402-	191-	1408	2777

KEEPING SCORE MASBO COOPERATIVE CORP

CURRENT MONTH								YEAR TO DATE							
ELECTRICITY		GAS		OIL				ELECTRICITY		GAS		OIL			
KWH	$	CCF	$	GAL	$			KWH	$	CCF	$	GAL	$		
393000	23315	179	107	4482	4023	JUL	81	393000	23315	179	107	4482	4023		
130	0	147	78	0	0	JUL	80	130	0	147	78	0	0		
392870	23315	32	29	4482	4023			392870	23315	32	29	4482	4023		
340500	19507	162	97	0	0	AUG	81	733500	42822	341	204	4482	4023		
831146	46637	184	96	0	0	AUG	80	831276	46637	331	174	0	0		
490646-	27130-	22-	1	0	0			97776-	3815-	10	30	4482	4023		
346500	20102	0	0	4464	4060	SEP	81	1080000	62924	341	204	8946	8083		
150161	9405	357	176	4464	3322	SEP	80	981437	56042	688	350	4464	3322		
196339	10697	357-	176-	0	738			98563	4882	347-	146-	4482	4761		
714187	48966	340	192	17857	16560	OCT	81	1794187	111890	681	396	26903	24643		
468187	31433	395	213	23026	17550	OCT	80	1449624	87475	1083	563	27490	20872		
246000	17533	55-	21-	5169-	990-			344563	24415	402-	167-	687-	3771		
198	19	472	304	19029	17814	NOV	81	1794385	111909	1153	700	45832	42457		
480198	30941	327	178	31734	25946	NOV	80	1929822	118416	1410	741	59224	46818		
480000-	30922-	145	126	12705-	8132-			135437-	6507-	257-	41-	13392-	4361-		
573214	36982	498	129	42113	39806	DEC	81	2367599	148891	1651	829	87945	82263		
397714	26038	1296	644	48917	42907	DEC	80	2327536	144454	2706	1385	108141	89725		
175500	10944	798-	515-	6804-	3101-			40063	4437	1055-	556-	20196-	7462-		
454709	29867	4351	278	49174	46482	JAN	82	2822308	178758	6002	1107	137119	128745		
403709	30428	1296	644	50069	46132	JAN	81	2731245	174882	4002	2029	158210	135857		
51000	561-	3055	366-	895-	350			91063	3876	2000	922-	21091-	7112-		
508500	33064	321	202	35696	33741	FEB	82	3330808	211822	4323	1309	172815	162486		
442678	33012	642	346	35837	36040	FEB	81	3173923	207894	4644	2375	194047	171897		
65822	52	321-	144-	141-	2299-			156885	3928	1679	1066-	21232-	9411-		
456178	29889	377	234	30557	28519	MAR	82	3786986	241711	4700	1543	203372	191005		
424674	31711	0	0	31338	31772	MAR	81	3598597	239605	4644	2375	225385	203669		
31504	1822-	377	234	781-	3253-			188389	2106	2056	832-	22013-	12664-		
457822	31629	483	307	22356	19929	APR	82	4244808	273340	7183	1850	225728	210934		
451648	34784	0	0	13410	13300	APR	81	4050245	274389	4644	2375	238795	216969		
6174	3155-	483	307	8946	6629			194563	1049-	2539	525-	13067-	6035-		
411735	28928	353	220	8858	7896	MAY	82	4656543	302268	7536	2070	234586	218830		
411135	32494	0	0	8946	8776	MAY	81	4461380	306883	4644	2375	247741	225745		
600	3566-	353	220	88-	880-			195163	4615-	2892	305-	13155-	6915-		
382622	28541	303	199	4429	3843	JUN	82	5039165	330809	7839	2269	239015	222673		
438122	35345	179	107	3500	3433	JUN	81	4899502	342228	4823	2482	251241	229178		
55500-	6804-	124	92	929	410			139663	11419-	3016	213-	12226-	6505-		

CAMBRIDGE SCHOOLS
ECOLOGY

ENERGY USAGE SUMMARY BY FUEL TYPE
CURRENT AND YEAR TO DATE BY MONTH

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KEEPING SCOPE MASBO COOPERATIVE CORP

CURRENT MONTH							YEAR TO DATE					
ELECTRICITY		GAS		OIL			ELECTRICITY		GAS		OIL	
KWH	$	CCF	$	GAL	$		KWH	$	CCF	$	GAL	$
220	24	0	0	0	0	JUL 81	220	24	0	0	0	0
0	0	0	0	0	0	JUL 80	0	0	0	0	0	0
220	24	0	0	0	0		220	24	0	0	0	0
220	24	0	0	0	0	AUG 81	440	48	0	0	0	0
0	0	0	0	0	0	AUG 80	0	0	0	0	0	0
220	24	0	0	0	0		440	48	0	0	0	0
730	127	0	0	0	0	SEP 81	1170	175	0	0	0	0
710	109	0	0	0	0	SEP 80	710	109	0	0	0	0
20	18	0	0	0	0		460	66	0	0	0	0
1660	139	0	0	0	0	OCT 81	2830	314	0	0	0	0
1340	174	0	0	0	0	OCT 80	2050	283	0	0	0	0
320	35-	0	0	0	0		780	31	0	0	0	0
1520	201	0	0	0	0	NOV 81	4350	515	0	0	0	0
2680	265	0	0	0	0	NOV 80	4730	548	0	0	0	0
1160-	64-	0	0	0	0		380-	33-	0	0	0	0
2570	9	0	0	0	0	DEC 81	6920	524	0	0	0	0
3420	331	0	0	0	0	DEC 80	8150	879	0	0	0	0
850-	322-	0	0	0	0		1230-	355-	0	0	0	0
3400	285	0	0	0	0	JAN 82	10320	809	0	0	0	0
4260	394	0	0	0	0	JAN 81	12410	1273	0	0	0	0
860-	109-	0	0	0	0		2090-	464-	0	0	0	0
2830	252	0	0	0	0	FEB 82	13150	1061	0	0	0	0
2370	248	0	0	0	0	FEB 81	14780	1521	0	0	0	0
460	4	0	0	0	0		1630-	460-	0	0	0	0
2730	271	0	0	0	0	MAR 82	15880	1332	0	0	0	0
2370	248	0	0	0	0	MAR 81	17150	1769	0	0	0	0
360	23	0	0	0	0		1270-	437-	0	0	0	0
2160	222	0	0	0	0	APR 82	18040	1554	0	0	0	0
2280	261	0	0	0	0	APR 81	19430	2030	0	0	0	0
120-	39-	0	0	0	0		1390-	476-	0	0	0	0
840	113	0	0	0	0	MAY 82	18880	1467	0	0	0	0
1370	176	0	0	0	0	MAY 81	20800	2206	0	0	0	0
530-	63-	0	0	0	0		1920-	539-	0	0	0	0
490	79	151	104	0	0	JUN 82	19370	1746	151	104	0	0
510	75	0	0	0	0	JUN 81	21310	2281	0	0	0	0
20-	4	151	104	0	0		1940-	535-	151	104	0	0

KEEPING SCORE MASBO COOPERATIVE CORP

CURRENT MONTH							YEAR TO DATE						
ELECTRICITY		GAS		OIL			ELECTRICITY		GAS		OIL		
KWH	$	CCF	$	GAL	$		KWH	$	CCF	$	GAL	$	
2903	235	14	16	0	0	JUL 81	2903	235	14	16	0	0	
3729	305	17	19	0	0	JUL 80	3729	305	17	19	0	0	
826-	70-	3-	3-	0	0		826-	70-	3-	3-	0	0	
0	0	15	17	0	0	AUG 81	2903	235	29	33	0	0	
3036	257	17	15	0	0	AUG 80	6765	562	34	34	0	0	
3036-	257-	2-	2	0	0		3862-	327-	5-	1-	0	0	
0	0	0	0	0	0	SEP 81	0	0	0	0	0	0	
3057	258	14	13	0	0	SEP 80	9822	820	48	47	0	0	
3057-	258-	14-	13-	0	0		9822-	820-	48-	47-	0	0	
6298	545	0	0	0	0	OCT 81	9201	780	29	33	0	0	
4526	380	161	85	0	0	OCT 80	14348	1200	209	132	0	0	
1772	165	161-	85-	0	0		5147-	420-	180-	99-	0	0	
7848	588	572	354	0	0	NOV 81	17049	1368	601	387	0	0	
5718	455	1303	660	0	0	NOV 80	20066	1655	1512	792	0	0	
2130	133	731-	306-	0	0		3017-	287-	911-	405-	0	0	
4552	347	949	541	0	0	DEC 81	21601	1715	1549	928	0	0	
8154	748	2446	1215	0	0	DEC 80	28220	2403	3958	2007	0	0	
3602-	401-	1498-	674-	0	0		6619-	688-	2409-	1079-	0	0	
5212	399	1894	1098	0	0	JAN 82	26813	2114	3443	2026	0	0	
2655	240	2283	1113	0	0	JAN 81	30875	2643	6241	3120	0	0	
2557	159	389-	15-	0	0		4062-	529-	2798-	1094-	0	0	
4927	378	1652	962	0	0	FEB 82	31740	2492	5095	2988	0	0	
6265	557	2188	1068	0	0	FEB 81	37140	3200	8429	4188	0	0	
1338-	179-	536-	106-	0	0		5400-	708-	3334-	1200-	0	0	
4637	364	2209	1277	0	0	MAR 82	36377	2856	7304	4265	0	0	
5498	503	2242	1094	0	0	MAR 81	42638	3703	10671	5282	0	0	
861-	139-	33-	183	0	0		6261-	847-	3367-	1017-	0	0	
4477	372	1253	736	0	0	APR 82	40854	3228	8557	5001	0	0	
5169	496	1191	594	0	0	APR 81	47807	4199	11862	5876	0	0	
692-	124-	62	142	0	0		6953-	971-	3305-	875-	0	0	
3794	318	355	222	0	0	MAY 82	44648	3546	8912	5223	0	0	
4676	454	420	235	0	0	MAY 81	52483	4653	12282	6111	0	0	
882-	136-	65-	13-	0	0		7835-	1107-	3370-	888-	0	0	
3696	311	0	0	0	0	JUN 82	48344	3857	8912	5223	0	0	
4412	432	42	30	0	0	JUN 81	56895	5085	12324	6141	0	0	
716-	121-	42-	30-	0	0		8551-	1228-	3412-	918-	0	0	

ATTACHMENT #2

CAMBRIDGE HOUSING AUTHORITY

C.H.A.

RECEIVED
'82 NOV 26 PM 4 CAMBRIDGE MASSACHUSETTS
02139
(617) 864-3020

CAMBRIDGE COMMUNITY
DEVELOPMENT DEPT.

November 22, 1982

Councillor Francis Duehay
Cambrdige City Council
City Hall
Cambridge, MA 02139

Dear Councillor Duehay,

I would like to thank you and the members of the Environment and Energy Committee for the opportunity to discuss the Cambridge Housing Authority's energy conservation activities. I appreciated the chance to share this information with you, and to hear of the work of other agencies throughout the City.

As you requested at that hearing, we have prepared a report on the energy conservation improvements that remain for the future. I hope the enclosed document proves useful in your planning efforts.

Thank you again for hosting an informative session on energy in Cambridge.

Sincerely,

Frederic P. Putnam
Director
Office of Planning
and Development

FPP/tr

enc.

cc: Richard Fahlander

Cambridge Housing Authority Energy Conservation Planning Overview

The Cambridge Housing Authority is committed to a long-term program of energy conservation in its 24 developments. Approximately $4 million has been invested to this end, over the past five years. Moreover, careful attention is paid to energy-efficient system design in all new developments. The results have been encouraging - energy consumption at CHA developments has been falling steadily, making Cambridge one of the most energy-efficient large housing authorities in the nation.

Despite this serious attention to energy conservation, there remains a good deal of work to be done to further reduce consumption. Some of this work is already underway or planned, while some remains for future efforts. Currently the Authority is involved in the following projects:

1. Substantial rehabilitation of Washington Elms and Jefferson Park, to include new, energy-efficient heating systems. This will involve installation of modular, hydrotherm boilers, with water temperature in inverse proportion to the outdoor temperature. Moreover, some valves are controlled at the individual unit level, by thermostats which have an upper limit.

2. Adaptive rehabilitation of the Putnam School, with a similar heating system to the one described above.

3. Construction of a new elderly housing development, built to extremely tight thermal standards. Here the Authority will pioneer a recently-developed boiler system which captures the exhaust heat so as to increase vastly the combustion efficiency of the unit.

4. Conversion of the Newtowne Court heating system from purchased steam to forced hot water, with a boiler in each building. The boilers will be new, efficient models with state-of-the-art controls.

5. Purchase of computerized energy management system for the Manning Apartments. A subsequent evaluation of this approach to energy conservation will assist the Authority in deciding whether to add other developments to the system. In addition, CHA is embarking on an evaluation of methods to reduce electric heating costs in Manning, and plans to pursue cost-effective measures.

6. Installation of attic insulation and storm windows at Lincoln Way.

With these projects demanding such a large share of the Authority staff's time, several other energy conservation opportunities remain to be addressed. On a broader scale, manager and tenant education represents a serious gap in our efforts at all our developments. Such an education program will require a great deal of creative thought by the Authority, since the traditional incentives motivating tenants and landlords in the private sector are absent in the case of public housing.

The complexity of this issue demands serious attention, both due to the difficulty of finding solutions and the centrality of the actors' co-operation to the success of the conservation program. On a more specific level, the precise configuration of measures varies among developments. A detailed audit has been completed on each of the 13 federally-sponsored developments, making the cataloging of remaining improvements possible. For the state-aided developments, however, the information available at this time is more limited. Therefore, the following is a "wish list" of energy conservation improvements.

1. Corcoran Park. In this 152-unit, family development, the CHA has improved the exterior walls through installation of siding, thereby reducing the heat loss factor of the development. Future work should include adjustments to the hot water reset controller and the domestic hot water setpoint, replacement of shower heads and faucets with water-saving fixtures, and the addition of insulation to the basement, attic, and crawl space. Moreover, the boilers are approaching the end of their useful lives and will have to be replaced as they go.

2. Putnam Gardens. This development, having families in its 123 units, has seen significant energy conservation investment. The Authority has reroofed one of the building with the new roof having a great deal of insulation; the underground heat lines have been replaced with well-insulated ones; the windows have been replaced with double-paned ones; the burner has been replaced; and heat control valves and a condensate return tank have been added. The following improvements remain for the future: reroofing of the 2 other buildings, replacement of shower-head and faucets with water-saving fixtures, insulation of basement, exterior walls, and vertical and horizontal building heating pipes; and relamping to reduce wattages.

3. John F. Kennedy. Kennedy, less than twenty years old, houses the elderly in 88 units. The building envelope is relatively tight, so improvements will focus on the heating system. For instance, the existing oil burners will be replaced with newer, efficient models; the thermostats should be moved and a hot water reset controller added to provide each zone with separate control; and radiator valves need to be replaced.

4. Newtowne Court. A 294-unit, family development, Newtowne Court is to receive major investments to reduce energy expenditures. The domestic hot water piping has been replaced and insulated, reroofing in three of the six buildings has been done, and an entirely new heating plant will be built. After this highly efficient system is in place, building envelope improvements will be next, including basement insulation, caulking and weatherstripping of doors and windows, replacement of faucets, and reroofing at the remaining three buildings.

5. Harry S. Truman. This elderly development of 67 units was built in 1970 and is in good physical condition. Heating and domestic hot water is provided by electricity, which is operating properly. The only major energy improvement on the horizon is roof repair with additional insulation.

6. Daniel F. Burns. Burns is in reasonably good condition, similar to Truman, although there have been significant water leaks observed. It houses the elderly, in 199 units. The improvements contemplated here are concentrated on adjusting or weatherstripping doors and windows for a tighter fit, and replacing faucets and showerheads with water-conserving features, in addition to the envelope measures to plug the leaks which will tighten the structure from the energy perspective as well.

7. Miller's River. This is a 304-unit, elderly development of recent construction. The roof allows excessive heat loss, and the building has experienced water leaks. Therefore, future improvements will include reroofing with reinsulation, recaulking and weatherstripping doors and windows, installing water-saving fixtures, and structural improvements to fix the leaks.

8. Lyndon B. Johnson. These 181 units of elderly housing were built in 1973, and are slated for improvements in lighting, doors and windows, and faucets and showerheads. Also, like Burns and Miller's River, significant water leak problems will have to be corrected.

9. R.C. Weaver. Similar to the Johnson development in terms of existing conditions and elderly tenants, Weaver's 20 units demand only minor investments in lighting, doors and windows, and faucets and showerheads.

10. UDIC's. These developments, totalling 26 units of family housing, are in fairly good condition. Some work will need to be done on the exterior walls, caulking and weatherstripping doors and windows, new thermostats, and attic insulation.

11. Homeownership Developments. These developments offer 30 units of family housing and will require some attention. Insulation is needed in the basement walls, building exteriors, domestic hot and cold water pipes, and horizontal heat piping; weatherstripping and caulking is required on most doors and windows; new thermostats would be important; a 3-way valve and hot water reset controller would be quite useful additions; and faucets and showerheads ought to be replaced with water saving fixtures.

12. Washington Elms. As indicated earlier, this 175 units of family housing is undergoing substantial rehabilitation with a high level of attention to energy-efficient design. The Authority has no plans for further improvements in the near future.

13. River Howard. This new development of 32 units of family housing is a model of energy-efficiency for CHA's other developments. Its modular boilers with step controls provide maximum seasonal efficiency; the zone valves in each apartment facilitate precise control; and the insulated walls and roofs plus thermal-pane, double glazed windows allow minimal heat loss. The Authority is pleased about the low consumption experienced here, and has no plans to work on the energy systems here.

14. Jefferson Park Extention. This part of Jefferson Park will contain 173 units of family housing, and is being substantially rehabilitated. Like Washington Elms, the redesign has incorporated the latest energy controls systems, and is being constructed to tight thermal standards.

15. Jefferson Park. The other 109 of family units at the Jefferson Park development are slated for energy conservation improvements. Already, the heat plant has been modernized, the boiler room retrofitted, and new, more energy-efficient windows installed. Future plans include the installation of a new domestic hot water heater and some modern boiler controls.

16. Woodrow Wilson Court. This development of 69 units of family housing, has experienced a serious program of conservation improvements. The heat plant has been renovated, and new doors and windows have been put in. Future work will focus on boiler controls and installation of water-saving fixtures.

17. Lincoln Way. These 60 family units have received recent attention for their energy conservation potential. The underground heat lines have been replaced and insulated, storm windows have been installed, and the roof is being insulated. In the future, the Authority will install a system of boiler controls, improve the efficiency of the domestic hot water heating, and caulk and weatherstrip all doors and windows.

18. Roosevelt Towers. Housing families in a total of 207 units, Roosevelt Towers consists of 75 units in a mid-rise building and 132 units in a series of low-rise buildings. The mid-rise has recently undergone a major rehabilitation, complete with energy conservation features, heat control devices, and a new pump. Therefore, future energy improvements are likely to be concentrated on the low-rises. The Authority is evaluating currently the options for controlling the heat in these buildings, and will follow through by installing the most appropriate system of thermostats and controls. Moreover, a set of envelope improvements will be slated.

19. Jackson Gardens. The 46 units of family housing that comprise Jackson Gardens have received substantial investments recently, in order to improve the energy efficiency of the development. Three of the roofs have been replaced with insulated ones, the heat plant has been replaced, and new exterior and interior doors installed. Remaining work includes the completion of the reroofing, reducing the heat loss through the windows, and replacement of showerheads and faucets with water saving fixtures.

20. Frank J Manning. This 199 unit, 19-story building houses elderly tenants. It is now undergoing a serious evaluation of its energy consumption. The Authority is considering the following improvements: the purchase of an energy management system for the building, the retrofit installation of electric heat storage units, and envelope improvements. Furthermore, the Authority will make a substantial investment

to stop the water leakage problem, which will improve the thermal quality of the building as well.

21. Norfolk Street. Providing 39 units of elderly housing and built in 1975, this development does not require significant energy conservation investment. In 1981 the heat plant was upgraded, so it is now operating at a high level of seasonal efficiency. Further work here may include improvements to the domestic hot water system, installation of water-saving faucets and showerheads, and recaulking of windows.

22. Linnean Street. These 29 units of elderly housing are part of the Authority's most innovative energy program. Last year, a trombe wall was constructed at this development, enabling sunlight to be stored and used to heat the building. This exciting experiment will be evaluated for its applicability to other CHA buildings.

23. Condominium Units. These are five units housing the elderly in condominiums. Since they are scattered in various buildings and were recently purchased by the Authority, energy conservation improvements have not yet been made. Work here might in the future consist of caulking and weatherstripping windows and doors, installation of better thermostats, and replacement of showerhead and faucet fixtures with water-conserving devices.

24. Willow Street. There are 15 units of family housing at Willow Street. The Authority has completed recently $200,000 worth of rehabilitation work--tightening exterior roofs, replacing windows and doors, and adding siding. Therefore, no further work is planned here.

The above "laundry lists" represents the improvements that the Cambridge Housing Authority has identified as important given its energy conservation goals. They are being integrated into the Authority's long range plans, as the CHA maintains its role at the forefront of housing authority energy-consciousness.

ATTACHMENT #2A

CITY OF CAMBRIDGE

147 HAMPSHIRE ST., CAMBRIDGE, MASSACHUSETTS 02139

PUBLIC WORKS DEPARTMENT
Everett R. Kennedy
Acting Commissioner

TO: Everett Kennedy

FROM: Seth Goldfine

DATE: September 24, 1982

RE: Fiscal Year 1982
Energy Use

Attached is a copy of some energy use statistics for Fiscal Year 1982. Where there have been substantial increases in energy use I plan to monitor temperatures and controls more closely during the coming heating season, and when applicable, use our on call-electrical contractor, Scelzi Electric Service, to make low cost repairs/improvements to those controls. I trust I have your backing in this matter.

attachment

Fiscal Year 1982 Energy Use Statistics

1. SAVINGS

The following list represents those buildings in which there has been a decrease, in FY 1982 from 1981, in BTU's per square foot per degree day (that is a decrease in units of energy with an adjustment factor for temperature conditions during the year). Those buildings marked with an asterisk have achieved BTU/SF/DD savings greater than 10%:

Central Square Library	*
City Hall	*
City Hospital	*
Coffin (telephone)Building	*
Corporal Burns	*
D.P.W. Shop	*
Engine 2	*
Engine 3	
Engine 4	
Engine 5	*
Engine 6	
Engine 7	
Engine 8	
Engine 9	*
Field Branch Library	
Golf Course	*
Hoyt Shelter	*
Model Cities	
Police Station	*
Ridge Shelter	*
Water Treatment Plant	*
105 Windsor Street	*

2. INCREASE/INCOMPLETE

The following buildings have, as indicated, either had an increase in BTU/SQ.FT./DD or have incomplete computer print-outs. Incomplete buildings will be rerun shortly where data is available. Again, those buildings with a greater than 10% increase are marked with an asterisk.

Mount Auburn Library	
Cemetary Garage	*
Cemetary Office	
City Hall Annex	*
D.P.W. Office/Garage	
Fire Headquarters	*
Electrical Dept.	incomplete
Neville Manor	incomplete
Water Dept. Garage	incomplete
N. Cambridge Library	incomplete
Sixth St. Library	incomplete

3. ENERGY COSTS

Despite the reduction of energy use in previous years, this is the first time in the computing program that we have seen unit savings surpass energy cost increases. The result is a $175,201. net savings, or reduction in cost, when comparing FY 1982 to 1981.

MEMO A

technical development corporation

11 beacon street, boston, massachusetts 02108 617-523-7557

Memo to Richard Fahlander

Date: 16 January 1983

From Steve Morgan and Edith Stowell

Subject: 12/31/82 update on Cambridge Energy Conservation Loan Program

The following sets forth (1) in the lefthand column, the names of agencies for whom audits have been completed under the Cambridge Energy Conservation Loan Program; (2) in the second column, the audit cost for each agency plus the amount of any interest-free loan requested; (3) in the third column, the private money already expended or committed for implementation; and (4) in the right-hand column, work planned in the near future (P) or the maximum implementation cost based on the audit report (M).

Buckingham, Browne & Nichols	$13,500	$ 2,000	$70,000 (P)
Blessed Sacrament School	1,932	47,400	72,500 (M)
Cambridge Center for Adult Ed.	2,156	--	25,219 (M)
Cambridge Friends School	1,432	--	10,221 (P)
Cambridge Community Services	8,500	23,000	41,000 (P)
Central School	570	1,681	2,281 (P)
Charles River Academy	2,600	5,238	7,600 (P)
Church of Jesus Christ/Latter Day Saints	2,246	800	18,690 (P)
Christ Church	2,110	100	27,152 (M)
First Baptist Church	1,200	3,350	5,890 (M)
First Parish	2,320	--	25,267 (M)
Immaculate Conception	4,468	--	12,800 (M)
Margaret Fuller Neighborhood House	3,000	9,600	11,900 (P)
North Cambridge Congregational	1,186	7,039	7,039 (P)
New England Food Coop	900	--	4,120 (M)
Old Cambridge Baptist	1,672	8,737	6,316 (M)
Sacred Heart School	12,744	40,535	40,535 (M)
St. John School	1,260	22,500	39,510 (M)
St. Patrick's	2,490	1,650	3,975 (P)
Society of St. John's	2,176	5,088	18,260 (M)
Youville Hospital	14,500	--	873,000 (M)
	$ 81,712	$178,718	$1,323,275
TDC Costs through 12/31/82	20,373		
	102.085		
	x 2.5		
	$255.213		

ATTACHMENT #3

CITY OF CAMBRIDGE

COMMUNITY DEVELOPMENT DEPARTMENT

City Hall Annex Inman & Broadway

To Interested Persons

From Don Falk, Residential Energy Coordinator **Date** December 16, 1982

Subject Grants Summary

Attached is a summary of Residential Energy Grants administered by our office from 1980 through the present. The figures include Federal and State-funded programs, use of CDBG funds, and other sources.

As of December 15, 1982, the cumulative totals are:

CA$H	$367,611
WEATHERIZATION	240,009
NEIGHBORHOOD PROGRAMS	126,900
TOTAL	$734,520

Attachment

RESIDENTIAL ENERGY PROGRAM

SUMMARY OF GRANTS ADMINISTERED 1980-1983

(current programs marked with an *)

PROGRAM & GRANTS	AMOUNT	IN-KIND	TOTAL	SOURCE
I. CASH PROGRAM				
80-81 MCAF	$ 57,278	$ 750 (booklets)	$ 58,028	EOCD
80-81 CSC VOLUNTEER GRANT	2,000		2,000	EOCD
81-82 MCAF (including contingency allocation)	111,488	750 (booklets)	112,238	EOCD
81 MASSSAVE AUDITING PROGRAM	—	15,000 (auditor salaries)	15,000	MSI
82 SUMMER YOUTH PROGRAM	20,610	—	20,610	EMHRDA
82 MASSSAVE AUDITING PROGRAM		30,000 (auditor salaries)	30,000	MSI
Portuguese Pilot Program	60	—		MSI
*82-83 MCAF	95,425	1,000	96,425	EDCD
*82-83 TENANT AUDIT EDUCATION	1,500	1,200 (publications, slide-tape show, staff)	2,700	MASS AUDUBON/ EDER
*83 MASSSAVE AUDITING PROGRAM	—	30,000 (est) (auditor salaries)	30,000	MSI
*83 MASSSAVE PORTUGUESE AUDITING PROGRAM	(under negotiation)	(under negotiation)		MSI
*83 COM GAS CONSERVATION PROGRAM	—	(under negotiation)		COMMON. GAS
*82-83 UMASS COMMUNITY ENERGY PROGRAM	—	1,000 (volunteer and staff time)	1,000	UMASS/ BOSTON
TOTAL AS OF DECEMBER 15, 1982	$287,911	$79,700	$367,611	

PROGRAM & GRANTS	AMOUNT	IN-KIND	TOTAL	SOURCE
II. WEATHERIZATION				
81 DOE-WAP (Jan-June)	$ 97,605	—	$ 97,605	EOCD/DOE
(July-Sept.)	1,160	—	1,160	EOCD/DOE
(Oct.-Dec.)	27,356	—	27,356	EOCD/DOE
82 DOE-WAP (Jan.-Mar.)	4,097	—	4,097	EOCD/DOE
*(April-Dec.)	109,791	—	109,791	EOCD/DOE
*83 STATE WEATHERIZATION GRANT	(under nego.)	—		EOCD
*83 HUD CONSERVATION/SOLAR BANK	(under nego.)	—		EOCD/HUD
*83 DOE-WAP	(under nego.)	—		EOCD/DOE
TOTAL AS OF DECEMBER 15, 1982	$240,009	—	$240,009	

PROGRAM & GRANTS	AMOUNT	IN-KIND	TOTAL	SOURCE
II. WEATHERIZATION				
81 DOE-WAP (Jan-June)	$ 97,605	—	$ 97,605	EOCD/DOE
(July-Sept.)	1,160	—	1,160	EOCD/DOE
(Oct.-Dec.)	27,356	—	27,356	EOCD/DOE
82 DOE-WAP (Jan.-Mar.)	4,097	—	4,097	EOCD/DOE
*(April-Dec.)	109,791	—	109,791	EOCD/DOE
*83 STATE WEATHERIZATION GRANT	(under nego.)	—		EOCD
*83 HUD CONSERVATION/SOLAR BANK	(under nego.)	—		EOCD/HUD
*83 DOE-WAP	(under nego.)	—		EOCD/DOE
TOTAL AS OF DECEMBER 15, 1982	$240,009	—	$240,009	

PROGRAM & GRANTS	AMOUNT	IN-KIND	TOTAL	SOURCE
III. NEIGHBORHOOD ENERGY PROJECTS (NEP)				
A. EAST CAMBRIDGE				
80-81 EC NEP	$ 12,500	—	$ 12,500	ECSC/CDBG
81-82 EC NEP	12,500	—	12,500	ECSC/CDBG
*82-83 EC NEP	12,500	—	12,500	ECSC/CDBG
E. CAMBRIDGE TOTAL AS OF 12/15/82	137,500	—	$137,500	
B. NORTH CAMBRIDGE				
81-82 NC NEP	17,500	—	17,500	NCSC/CDBG
82 NC TENANT WEATHERIZATION (TW)	27,000	—	27,000	NCSC/CDBG
*82-83 NC NEP	14,100	—	14,100	NCSC/CDBG
*82-83 NC TW	48,300	—	48,300	NCSC/CDBG
NORTH CAMBRIDGE TOTAL AS OF DECEMBER 15, 1982	$ 89,400	—	$ 89,400	
NEIGHBORHOOD TOTAL	$126,900		$126,900	

I. INFILTRATION

A. WINDOWS

1. caulk around storm window frame (inside or outside)
2. tighten or refit storm window and frame
3. tighten primary sash stops and parting beads
4. replace broken sash cords
5. replace glass and deteriorated glazing
6. strengthen sash frames with brackets (L's or T's)
7. install spring bronze (in special cases only, felt stick may be substituted)
8. replace broken or missing sash locks
9. nonpermanent measures: glass patch
   rope caulk
   plastic storm windows

*10. replace sash
*11. install interior or exterior storm windows

B. DOORS

1. install door weatherstripping
2. install door sweep
3. replace broken door glass or deteriorated glazing
4. tighten or replace hinges, rehang door, planing as needed
5. tighten or repair storm door and glass
6. repair door casing or moulding
*7. install storm door

C. BASEMENTS

1. windows and doors as above, or as appropriate
2. caulk and stuff sill boxes
3. stuff miscellaneous cracks and openings
4. repair gaps in foundation masonry

D. EXTERIOR

1. caulk window frames
2. caulk door frames
3. caulk foundation sill
4. caulk all utility entries, flue pi vents, etc.

II. DHW SYSTEM

1. insulate hot water tank (if in unheated space)
2. drain tank sediment
3. insulate hot water pipes (unheated spaces)
4. install low-flow showerhead
5. install low-flow faucet aerators
6. lower tank temperature to 110-120^{o}F

(OVER)

III. HEATING SYSTEM

1. wrap heating system pipes (in unheated spaces)
2. repair boiler/furnace insulation
3. install radiator reflectors
4. replace detective radiator/baseboard vents
5. insulate ducts
6. calibrate and level thermostat
7. Audit: perform efficiency test
*8. Burner: clean, tune, lubricate, replace filter, optimize firing rate
*9. replace burner (if required to meet efficiency/performance standards)
*10. install automatic flue damper
*11. install mudlating aquastat
*12. install clock thermostat

IV. INSULATION

*1. attic
*2. basement perimeter
*3. basement overhead
*4. walls

*major work, recommended as resources allow

S-94/A

Report from the Committee on Environment re: "Energy Management Projects".

In City Council,

February 28, 1983