

Chapter IV

RESULTS OF SYSTEMS ANALYSIS

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Results of Systems Analysis

The tables, which constitute the bulk of this chapter, provide detailed information about a number of integrated solar energy systems designed to meet the energy needs of single family houses, apartment buildings, shopping malls, communities, and industrial plants located in Albuquerque, N. Mex.; Boston, Mass.; Fort Worth, Tex.; and Omaha, Nebr. This extensive catalog was prepared to compare, on an equitable basis, the performance of the enormous variety of systems that are capable of meeting the energy requirements of these buildings and communities. The examples have been chosen to indicate the relative attractiveness of a number of different system components, which may become available during the next decade, and to indicate the facility with which different combinations of components work together as integrated systems.

This chapter is divided into two major parts:

1. A summary table giving the monthly costs for each system analyzed and the effective cost of solar energy generated by each system (this table also serves as an index to the catalog tables, which provide details about each system); and
2. A *catalog* of solar energy systems which devotes one page to each system, summarizing the assumptions made in analyzing its performance.

Chapter I of this report discusses the methods used to evaluate the economic parameters illustrated in the tables. It provides a simple technique for performing an accurate life-cycle cost analysis of energy systems that may be owned by any of several different types of owners. It also discusses the origin of the assumptions made about the financing and tax status of each type of owner. The methodology and data described in this chapter are used in a computer program that calculates the levelized monthly costs for each system; supplies information about the first costs, operating costs, and lifetimes of the system components; the fossil and electrical energy purchased; the assumed escalation rate of energy prices; and the type of owner.

Chapter II discusses the assumptions made about current and future prices of oil, gas, coal, and electricity. It provides information about the price charged for energy now on the market, the marginal cost of new energy sources, the cost of energy from sources likely to be available by the year 2000, and the time over which a transition from one source to another is likely to

occur. A simple mathematical method is presented that can translate differing estimates about future energy sources and costs into a forecast of prices that can be used in life-cycle cost analysis,

Chapter III discusses the computer programs that compute the amount of fuel and electricity that must be purchased annually to meet the energy needs of the building or community. These programs compute the amount of energy that can be provided by any solar energy system used; the purchased energy is the difference between onsite demands and available onsite solar energy.

Chapter V discusses the assumptions made about the cost and performance of each subsystem used in the analysis and provides detailed information about the buildings being analyzed and assumptions made about the energy consumed by the buildings.

An attempt was made to reduce the results of the somewhat complex analysis presented in this report to a set of simple, easily interpretable numbers—a monthly energy bill and an effective solar energy cost in ¢/kWh.

A GUIDE TO THE TABLES

Two types of numbers are provided to represent the costs of the systems examined: 1) a set of levelized monthly costs perceived by the energy consumer, with various assumptions about tax credits given and the price of nonsolar energy, and 2) a cost in ¢/kWh of solar energy (or energy conservation) obtained by comparing it with a "reference system." The reference system represents a conventional energy system operating in a building identical to the one used to analyze the performance of the solar or energy conservation system. An attempt is made to choose a reference system that most nearly resembles the system used to provide backup energy for the solar energy device.

THE SUMMARY TABLES

The summary tables provide the following information about each system examined:

- A brief descriptive title and an identifying number.
- The percentage of the energy used by the reference system that is supplied by the solar energy system. If an energy conservation device is employed that does not use solar energy, this number represents the percentage energy saving. The formula for this percentage (P_s) is as follows:

$$P_s = 100 \frac{E_r - E_t}{E_r}$$

subscript "r" refers to the reference system, subscript "t" refers to the test system, i.e., the system being compared with the reference system.

- The effective cost of solar energy with and without an investment tax credit. (When a conservation system is shown which does not use solar energy, this cost reflects the effective cost of saving

energy using the conservation device.) In some cases, the life-cycle cost of the energy conservation system (excluding the cost of energy purchased) is actually lower than the life-cycle cost of the reference system (excluding the cost of energy purchased) resulting in a situation where the effective cost of the energy conserved is negative.

The formula for effective energy cost (EC) is as follows:

$$EC = \frac{C_r + OM_r + CR_r - C_t - OM_t - CR_t}{E_r - E_t}$$

C = levelized annual capital costs (including financing charges, taxes, and insurance)

OM = levelized annual operating and maintenance costs (excluding purchases of electricity and fuels)

CR = levelized cost of replacements

- The levelized monthly energy costs for the set of owner types described below make four different assumptions about the kinds of tax credits given and the cost of conventional energy.
- A table number that indicates the number of the table in the catalog which describes the system in more detail. When a single number appears in this column, the catalog page corresponds exactly to the summary case. When two numbers appear, the first table number shown describes an identical system, but some of the costs (usually collector costs) shown in the table are not the same as those used to compute the costs shown in the summary table. The second catalog page referenced describes a slightly different system (e. g., it might have a different Collector area), but the unit costs of the components are the same as those used to compute

the costs shown on the line in the summary table, (This method was used to minimize the number of catalog pages.) When the letter "G" appears with a table number, the catalog page referenced describes an identical system which assumes oil fuel prices while the costs shown in the summary table assure that gas was the fuel used. When the letter "M" appears with a table number in the summary table the catalog page referenced describes an identical system owned by an industrial corporation, while the summary table shows the economics for municipal utility ownership. When the letter "T" appears with a table number, the catalog page referenced describes an identical system with ordinary electric rates while the costs shown in the summary table assume that marginal or "time-of-day" rates are charged.

The tables indicate the costs resulting from financing by a homeowner (for single family houses), by a real estate partnership (for apartments and shopping malls), by a municipal utility (for community systems and industries), and by an industrial corporation requiring a 20-percent return on investments (for industries).

Each of these costs is paired with a cost that would result if the additional solar or conservation equipment were owned instead by a privately owned utility. Here, it is assumed that the owner other than the private utility owns a share equal in value to the cost of the reference energy system (i. e., the backup system, in most cases).

THE CATALOG OF ENERGY SYSTEMS

Each page of the catalog is devoted to a single energy system designed to serve the building and the city indicated. The pages are divided into three parts:

- A drawing of the building giving a rough indication of the external appearance of the system.
- An energy flow-diagram indicating the way in which Collectors, storage de-

vices, engines, and energy-consuming devices are combined to meet the energy demands of the buildings.

- A set of three tables providing details about the costs and performance assumed for the system.

- Table A provides an itemized cost list of all components used in the system. It includes an estimate of the first cost, the annual operating and maintenance costs (exclusive of purchased energy) which are charged during the first year of the systems operation, and the expected lifetime of the component (rounded to 10, 15, or 30 years).

The second part of the table indicates the amount of nonsolar energy (*electricity* or fossil fuel) that was purchased to provide backup for the solar energy system. In the case of electricity the amount shown is the difference between the amount purchased from an electric utility and the amount sent from the onsite generating equipment back into the electric grid for possible purchase by the utility. The peak amount of electricity purchased during any hour of the year is also shown.

- Table B provides estimates of the levelized monthly costs for a system that begins operation in 1976, and also for a similar system that would begin operations in 1985. The only difference between the 1976 cases and the 1985 cases is that the conventional energy prices in the 1985 cases have escalated to a higher level by the startup date, as shown in chapter II. For ease of comparison with the 1976 cases, prices have not been inflated between 1976 and 1985 for the 1985 cases (i.e., all cases start in 1976 dollars, and cost inflate at 5.5 percent in each succeeding year). With the advanced solar energy systems, the 1976 costs are shown only for reference purposes; they are not meant to suggest that all technologies examined were available in 1976. The lev-

elized cost of the reference system is also shown for comparison.

The costs achieved with a 20-percent investment tax credit (ITC) could also be reached with low interest loans and other incentives. The table below shows the interest rate of a loan which would result in the same an-

nual capital costs (k,) as a 20-percent ITC.

The costs achieved with "full incentives" assumed a combination of 20-percent investment tax credit, 3-year straight-line depreciation, and exemption from property taxes. These cost reductions could also be reached with tax credits or other incentives.

Owner	k, 20% ITC	Loan interest (baseline fraction financed)	Loan interest (95% financed)
Homeowner, new construction	0075	0.033	0.065
Homeowner, retrofit	0.092	0.048	0.043
Real estate owner	0.067	0.019	0.070
Industry (20% IRR)	0.239	—	0.274
Municipal utility	0081	0.041	0.041
Private utility	0.126	0.066	0.045

Owner	k, Full incentives	Equivalent ITC (%)
Homeowner, new construction	0.031	65
Homeowner, retrofit	0,048	65
Real estate owner	0.022	43
Industry (20% IRR)	0.111	58
Municipal utility	0.061	50
Private utility,	0.071	53

– Table C provides an estimate of the effective cost of solar (or conservation) energy computed using the technique described in the description of the summary tables. The cost of conventional electricity and fuels levelized over the same time interval are provided for comparison.

SUMMARY TABLE LISTING

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service							
			No credits		20% ITC		Project Ion 1 No credits		Project Ion 2 No credits		Projection 2 20% ITC		Projection 3 20% ITC	
ALBUQUERQUE SINGLE FAMILY														
<i>Reference system</i>														
Conv. Gas Heat, Gas Hot Water, and Central Electric A/C (SF-1)	1	0.0	NA/	NA	NA/	NA	116. /	NA	173. /	NA	173. /	NA	287. /	NA
Systems compared to reference system														
Conv. Improved Gas Heat, Hot Water, and Central Electric A/C	2	11.9	71/	5.81	.62/	5.73	111./	123.	160./	172.	159. /	172.	265./	278.
Conv. Insulated House; Gas Heat and Hot Water and Central Electric A/C	3	16.8	.26/	3.98	.02/	3.77	106. /	119.	153. /	166.	152. /	165.	253./	266.
Solar Hot Water; Flat-Plates (1977 Prices); SF-1	4	15.9	6.1 9/	2.61	5.22/	11.78	127. /	148.	173./	195.	170. /	192.	273./	295.
Solar Hot Water; Flat-Plates (Future Price); SF-1	5	15.9	4.45/	0.04	3.75/	9.44	121. /	140.	167./	186.	165. /	184.	268. /	287.
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-1	6	41.0	9.47/	15.25	8.02/	14.01	172./	222.	201. /	251.	188. /	240.	276.1	328.
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-1	7	41.0	6.12/	10.34	5.18/	9.53	143./	179.	172. /	208.	164. /	201.	251. /	289.
<i>Reference system</i>														
Conv. Oil Heating and Central Electric A/C (SF-5)	8	0.0	NA/	NA	NA/	NA	179. /	NA	230./	NA	230./	NA	458. /	NA
Systems compared to reference system														
Conv. Improved Oil Heating and Central Electric A/C (SF-5)	9	11.5	.63/	5.94	.55/	5.87	163. /	178.	208./	223.	208./	223.	406. /	421.
Conv. Insulated House; Oil Heating and Central Electric A/C (IF-5)	10	18.5	-.10/	3.16	-.25/	3.03	153./	167.	195./	209.	194. /	209.	379. /	393.
Solar Hot Water; Flat-Plates (1977 Prices); SF-5	11	18.0	4.76/	10.17	4.01/	9.53	173./	197.	216./	239.	212./	236.	396./	420.
Solar Hot Water; Flat-plates (Future Price); SF-5	11/135	18.0	3.42/	8.19	2.88/	7.73	168. /	188.	210./	230.	207./	228.	392. /	413.
Solar Heating; Flat-Plates (1977 Prices); Low-Temp. Storage; SF-5	12	45.4	7.46/	12.20	6.32/	11.22	194./	246.	222./	274.	209./	263.	326. /	380.
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-5	12/137	45.4	4.82/	8.33	4.08/	7.69	165./	204.	193./	231.	185./	224.	302. /	341.

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service							
			No credits		20% ITC		Project Ion 1 No credits		Project Ion 2 20%ITC		Projection 3 20% ITC			
<i>Reference system</i>														
<i>Conv. Gas Heat, Hot Water, and Absorption A/C (IF-7)</i>	13	0.0	NA/	NA	NA/	NA	122./	NA	187. /	NA	187. /	NA	295./	NA
<i>Systems compared to reference system</i>														
<i>Solar Heating and Cooling; Flat-Plates (1977 Prices); Low-Temp. Storage; SF-7</i>	14	56.2	6.55/	10.87	5.55/	10.01	165./	219.	190. /	244.	178./	233.	248./	304.
<i>Solar Heating and Cooling; Flat-Plates (Future Price), Low-Temp. Storage; SF-7</i>	15	56.2	4.24/	7.48	3.59/	6.93	137. /	177.	161./	202.	153. /	195.	224. /	265.
<i>Reference system</i>														
<i>Conv. Insulated House; Gas Heat, Hot Water, and Absorption A/C (1 F-7)</i>	16	0.0	NA/	NA	NA/	NA	110. /	NA	163. /	NA	163. /	NA	260./	NA
<i>Systems compared to reference system</i>														
<i>Solar Engine Cogeneration, Insulated House; ORCS With Cooling Tower, One-Axis Tracker (Future Design), Low-Temp. Storage; IF-7</i>	17	42.2	14.66/	22.99	12.71 /	21.32	184. /	249.	218./	283.	203./	270.	235./	302.
<i>Solar Engine Cogeneration, Insulated House; ORCS With Cooling Tower, One-Axis Tracker (Future Design), High-Temp. Storage, Gas Backup; IF-7</i>	18	67.8	10.26/	15.99	8.84/	14.77	183./	255.	203./	275.	185. /	259.	203. /	277.
<i>Solar Engine Cogeneration, Insulated House; ORCS With Cooling Tower, One-Axis Tracker (Future Design), Battery and High-Temp. Storage, Gas Backup; IF-7</i>	19	63.7	12.75/	19.52	11.02/	18.05	207./	287.	229./	309.	209. /	291.	229. /	312.
<i>Conv. Engine Cogeneration, insulated House; Stirling Engine (Low Eff.) Direct-Drive Heat Pump, Gas Hot Water; IF-9</i>	20	45.6	5.45/	8.28	5.23/	8.09	113. /	137.	146. /	170.	144./	168.	174. /	198.
<i>Reference system</i>														
Conv. System, All Electric; Heat Pump (SF-1).	21	0.0	NA/	NA	NA/	NA	156. /	NA	203. /	NA	203./	NA	395./	NA
<i>Systems compared to reference system</i>														
<i>Conv. System, All Electric; Improved Heat Pump (High Price) (SF-2)</i>	22	14.5	5.27/	10.32	4.78/	9.91	162. /	181.	203./	222.	201./	221.	367./	387.
<i>Conv. System, All Electric; Improved Heat Pump (Low Price) (SF-2)</i>	23	14.5	1.34/	4.97	1.22/	4.87	46. /	160.	187. /	201.	187. /	201.	353./	367.
<i>Solar Hot Water; Flat-Plates (1977 Prices); SF-2</i>	24	28.4	2.67/	5.51	2.25/	5.15	47./	169.	182. /	204.	179. /	201.	321./	343.
<i>Solar Hot Water; Flat-Plates (Future Price); SF-2</i>	24/150	28.4	1.91 /	4.39	1.61/	4.13	41./	160.	176. /	195.	174. /	193.	316./	336.

Systems compared to reference system—Continued

Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-2	25	37.0	5.22/ 883	4.43/ 816	170 / 206.	201 / 237	193. / 230.	321 ./ 358	
Solar Heating; Flat-Plates (1977 Prices); SF-2	26	41.4	5.32/ 886	4.51 / 817	172 / 212.	202. / 241.	193. / 234.	313. / 354.	
Solar Heating; Flat-Plates (Future Price); SF-2	26/154	414	3.53/ 624	2.98/ 578	152. / 183	182 / 212	176. / 207	295 / 327	
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-2	27	48.4	6.22/ 10.04	5.26/ 9.23	187 / 237.	213 / 263	201. / 253.	309. / 361	
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-2	27/154	484	4.02/ 682	3.40/ 6.29	158 / 195.	184 / 221	176 / 214	284. / 322.	
100-Percent Solar Heating; Flat-Plates (1977 Prices), Community Seasonal Low-Temp. Storage; SF-2	28	65.4	7.17/ 11.20	5.90/ 10.12	214. / 286.	234. / 305	211 / 286.	290 / 364	
100-Percent Solar Heating; Flat-Plates (Future Price), Community Seasonal Storage; SF-2	29	65.4	4.36/ 7.00	3.62/ 6.37	165. / 211.	184. / 231	171 / 219	249./ 298	
PV System; Air-Cooled Si Arrays (\$0.50/W); SF-2	30	85.6	5.29/ 8.31	4.44/ 7.59	213./ 284.	234. / 304.	215 / 288.	299. / 372	
PV System; Air-Cooled Thin-Film Arrays (\$0.10/W); SF-2	31	59.9	2.05/ 3.78	1.72/ 3.50	141./ 169.	169./ 197.	163. / 192.	276./ 305.	
PV Cogeneration; One-Axis Concentrator With Si Cells (\$15/W Cells), Multitank Low-Temp. Storage; SF-2	32	92.7	11.66/ 17.65	9.81 / 16.08	358. / 508.	368. / 519.	322. / 479.	364 / 521.	
Reference system									
Conv. Insulated All Electric House; Heat Pump (IF-2)	33	0.0	NA/ NA	NA/ NA	142. / NA	183. / NA	183. / NA	350./ NA	
Systems compared to reference system									
PV System, Insulated House; Air-Cooled Si Arrays (\$1/W); IF-2	34/171	51.9	9.68/ 15.33	8.15/ 14.03	222./ 291.	249./ 317.	230./ 302.	338./ 409.	
PV System, Insulated House; Air-Cooled Si Arrays (\$0.50/W); IF-2	34	51.9	5.37/ 9.00	4.53/ 8.28	170. / 214.	197. / 241.	187./ 232.	294./ 340.	
PV System; Air-Cooled Si Arrays (\$0.50/W), Battery Storage; IF-2	35	45.2	8.50/ 13.49	7.32/ 12.49	190. / 243.	215./ 267.	202. / 257.	303./ 357.	
PV System, Insulated House; Air-Cooled Si Arrays (\$0.50/W); Improved IF-2	36	61.2	4.78/ 7.94	4.04/ 7.31	165. / 210.	188./ 233.	178. / 224.	272. / 319.	
PV System, Insulated House; Air-Cooled Thin-Film Arrays (\$0.30/W); IF-2	37	29.1	4.24/ 8.23	3.55/ 7.64	148./ 175.	180./ 207.	175. / 203.	306./ 333.	
PV System, Insulated House; Air-Cooled Thin-Film Arrays (\$0.10/W); IF-2	38	37.5	2.05/ 4.58	1.71 / 4.29	132./ 154.	162./ 184.	159. / 181.	281./ 303.	
PV System, Insulated House; Air-Cooled Thin-Film Arrays (\$0.10/W); Improved SF-2.	39	46.2	1.99/ 4.15	1.69/ 3.89	127./ 151.	154./ 177.	151. / 175.	260./ 283.	
PV Cogeneration, Insulated House; One-Axis Concentrator With Si Cells (\$15/W) Cells, Multitank Low-Temp. Storage; IF-2.	40	76.7	8.95/ 13.89	7.55/ 12.69	235./ 323.	249. / 337.	224./ 316.	282. / 374.	
PV Cogeneration, Insulated House; Plastic Dye PV Concentrator, Multitank Low-Temp. Storage; IF-2.	41	100.8	2.63/ 4.41	2.21 / 4.05	124. / 166.	133./ 175	123. / 166	160. / 203	
PV System, Insulated House; Plastic Dye PV Concentrator With Passive Cooling; IF-2.	42	90.0	2.36/ 4.12	1.98/ 3.80	133./ 170.	150. / 187.	142. / 181.	214. / 252.	

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service			
			No credits		200/0 ITC		Project Ion 1 No credits	Projection 2 No credits	Projection 2 20% ITC	Projection 3 20% ITC
<i>Systems compared to reference system—Continued</i>										
<i>PV System, Insulated House; Air-Cooled Si Arrays (\$0.50/W), Low-Temp. Storage; Improved IF-2</i>	43	73.9	5.75/ 8.87	5.02/ 8.24	157. / 211.	177. / 231.	164./ 220.	182./ 238.		
<i>Reference system</i>										
<i>Conv. All Electric House; Resistance Heat and Window A/C (SF-3)</i>	44	0.0	NA/ NA	NA/ NA	177. / NA	238. / NA	238./ NA	490./ NA		
<i>Systems compared to reference system</i>										
<i>Conv. All Electric House; Resistance Heat and Window A/C, 65/85 Thermostat (SF-3)</i>	45	4.2	-.00/ 5.27	-.00/ 5.27	171. / 179.	230./ 238.	230./ 238.	472./ 480.		
<i>Conv. Insulated All Electric House; Resistance Heat and Window A/C (IF-3)</i>	48	21.5	.37/ 1.63	.251 1.53	149./ 159.	198./ 208.	197./ 207.	399./ 409.		
<i>Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-4</i>	49	47.0	3.47/ 5.54	2.94/ 5.09	169./ 205.	204./ 240.	195. / 232.	337./ 374.		
<i>Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-4</i>	49/192	47.0	2.31/ 3.83	1.95/ 3.53	149./ 176.	184./ 211.	178. / 205.	320. / 347.		
<i>Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-4</i>	52	56.2	3.98/ 6.23	3.37/ 5.70	179./ 224.	208./ 254.	196./ 243.	317. / 364.		
<i>Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-4</i>	53	67.2	2.83/ 4.48	2.39/ 4.11	151./ 191.	174. / 215.	163./ 205.	259./ 301.		
ALBUQUERQUE SINGLE FAMILY TIME-OF-DAY RATES										
<i>Reference system</i>										
<i>Conv. All Electric House (SF-3); Marginal Electric Rates</i>	T44	0.0	NA/ NA	NA/ NA	241./ - NA	241./ NA	241./ NA	241./ NA		
Systems compared to reference system										
<i>Conv. Off-Peak Electric Heating; Window A/C, Low-Temp. Storage (SF-4)</i>	46									
<i>Conv. Off-Peak Electric Heating and Cooling System; Central Electric Chilling, Low-Temp. Thermal and Cold Storage (SF-4)</i>	47	-6	-96.34/ .*****	-75.80/ .*****	183./ 204.	183./ 204.	179./ 200.	179./ 200.		
<i>Solar Off-Peak Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-4</i>	50	.1	● .*****, .*****	● .*****/ .*****	197./ 232.	197./ 232.	188./ 225.	188./ 225.		
<i>Solar Off-Peak Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-4</i>	50/194	46.7	4.06/ 6.42	3.42/ 5.87	196./ 236.	196./ 236.	185./ 227.	185./ 227.		
<i>Solar Off-Peak Heating and Cooling; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-4</i>	51	47.2	2.88/ 4.70	2.42/ 4.31	176./ 207.	176./ 207.	168./ 200.	168./ 200.		
<i>Solar Off-Peak Heating and Cooling; Flat-Plates (Future Price), Low-Temp. Storage; SF-4</i>	51/196	47.2	6.28/ 9.69	5.33/ 8.89	212./ 271.	212./ 271.	196./ 258.	196./ 258.		
<i>Solar Off-Peak Heating and Cooling; Flat-Plates (Future Price), Low-Temp. Storage; SF-4</i>	51/196	47.2	5.12/ 8.00	4.35/ 7.34	192./ 242.	192./ 242.	179./ 231.	179./ 231.		

BOSTON SINGLE FAMILY

Reference system

Conv. Gas Heat, Hot Water, and Central Electric A/C (SF-1)	54	0.0	NAI	NA	NAI	NA	204. / NA	328. / NA	328. / NA	549./ NA
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Systems compared to reference system

Conv. Improved Gas Heat, Hot Water, and Central Electric A/C (SF-1)	55	12.8	.73/ 5.92	.64/ 5.84	188. / 202.	293./ 307.	293. / 307.	496. / 510.
Conv. Gas Heat, Hot Water, Central Electric Chilling, 65/85 Thermostat (SF-1)	56	5.5	-.00/ 11.36	-.00/ 11.36	193. / 206.	312./ 325.	312./ 325.	514./ 527.
Solar Hot Water; Flat-Plates (1977 Prices); SF-1	57	12.0	9.46/ 19.01	7.97/ 17.74	211./ 235.	317.1 341.	314./ 338.	518./ 542.
Solar Hot Water; Gas Heat, Central Electric A/C; SF-1	57/125	12.0	6.66/ 14.88	5.61/ 13.98	204./ 225.	310./ 331.	308./ 329.	512./ 533.
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-1	58	34.1	15.44/ 24.47	13.06/ 22.44	266. / 330.	340./ 404.	323./ 390.	498. / 564.
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-1	58/127	34.1	9.80/ 16,19	8.28/ 14.89	226./ 272.	300./ 345.	289./ 336.	464./ 511.

Reference system

Conv. Insulated House; Gas Heat, Hot Water, and Central Electric A/C (IF-1)	59	0.0	NA/ NA	NAI	NA	174./ NA	266./ NA	266. / NA	456./ NA
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Systems compared to reference system

Conv. Insulated House; Improved Gas Heat, Hot Water, and Central Electric A/C (IF-1)	60	12.3	.74/ 7.97	.65/ 7.89	62./ 176.	240./ 255.	240./ 255.	416. / 431.
Conv. Insulated House; Oil Heat and Central Electric A/C (IF-5)	61	-12.9	-3.74/ -11.07	-3.53/ -10.89	96./ 211.	303./ 318.	303. / 318.	506./ 521.
Conv. Insulated House; Gas Heat, Hot Water, and Absorption Cooling (IF-7)	62	-3.5	-5.61 / -35.64	-3.86/ -34.15	76./ 193.	277./ 294.	276. / 293.	455./ 472.
Conv. Engine Cogeneration; Insulated House; Stirling Engine (Low Eff.), Heat Pump, Gas Hot Water, Low-Temp. Storage, Gas Backup; IF-9	63	42.8	5.23/ 8.44	4.92/ 8.17	134./ 157.	200./ 222.	198. / 221.	259./ 282.

Reference system

Conv. Oil Heat and Central Electric A/C (SF-5)	64	0.0	NA/ NA	NA/ NA	230./ NA	301./ NA	301./ NA	609./ NA
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Systems compared to reference system

Conv. Improved Oil Heat, Gas Hot Water, and Central Electric A/C (SF-5)	65	13.9	.57/ 5.44	.50/ 5.38	211.1 227.	274./ 290.	274./ 290.	546.1 563.
Conv. Oil Heat and Central Electric A/C, 65/85 Thermostat (SF-5)	66	4.7	-.00/ 13.48	-.00/ 13.48	219./ 235.	285./ 301.	285./ 301.	575./ 590.
Solar Hot Water; Flat-Plates (1977 Prices); SF-5	67	13.0	7.56/ 15.98	6.37/ 14.96	234./ 260.	298./ 324.	294./ 321.	568./ 595.
Solar Hot Water; Flat-Plates (Future Price); SF-5	67/135	13.0	5.32/ 12.67	4.48/ 11.96	227.1 250.	291./ 314.	288./ 311.	563./ 586.
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-5	68	36.9	12.35/ 19.85	10.45/ 18.23	283./ 350.	334./ 400.	317. / 386.	530./ 599.
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-5	68/137	36.9	7.84/ 13.22	6.62/ 12.19	243./ 291.	294.1 341.	283. / 332.	496. / 545.

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service						
			No credits		200/0 ITC		Projection 1 No credits		Projection 2 20% ITC		Projection 3 20% ITC		
<i>Reference system</i>													
Conv. Gas Heat, Hot Water, and Absorption A/C (SF-7).....	69	0.0	NA/ NA	NA/ NA	208./ NA	341./ NA	341./ NA	552./ NA					
<i>Systems compared to reference system</i>													
Solar Heating and Cooling; Flat-Plates (1977 Prices); Low-Temp. Storage; SF-7.....	70	42.2	12.12/ 19.69	10.25/ 18.09	258./ 326.	326./ 395.	310./ 380.	461./ 532.					
Solar Heating and Cooling; Flat-Plates (Future Price); Low-Temp. Storage; SF-7.....	70/143	42.2	7.69/ 13.19	6.50/ 12.17	218./ 267.	287./ 336.	276./ 327.	427./ 479.					
<i>Reference system</i>													
Conv. All Electric House; Heat Pump (SF-2) . . .	71	0.0	NA/ NA	NA/ NA	261./ NA	349./ NA	349./ NA	709./ NA					
<i>Systems compared to reference system</i>													
Conv. All Electric House; Improved Heat Pump (SF-2).....	72	15.2	1.31/ 4.85	1.19/ 4.74	239./ 254.	317./ 332.	316./ 331.	631./ 646.					
Solar Hot Water; Flat-Plates (1977 Prices); SF-2.....	73	20.4	4.08/ 8.25	3.44/ 7.71	248./ 272.	321./ 345.	318./ 342.	617./ 642.					
Solar Hot Water; Flat-Plates (Future Price); SF-2.....	73/150	20.4	2.86/ 6.46	2.41/ 6.07	241./ 261.	314./ 335.	312./ 333.	611./ 632.					
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-2.....	74	28.7	5.48/ 10.04	4.36/ 9.08	254./ 290.	321./ 358.	312./ 350.	587./ 626.					
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-2.....	74/154	28.7	2.99/ 6.40	2.24/ 5.76	233./ 261.	301./ 329.	295./ 323.	570./ 599.					
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-2.....	75	40.3	9.64/ 15.30	8.15/ 14.03	298./ 362.	357./ 421.	340./ 407.	581./ 647.					
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-2.....	75/154	40.3	6.12/ 10.12	5.17/ 9.31	258./ 303.	317./ 362.	306./ 353.	547./ 594.					
PV System; Air-Cooled Si Arrays (\$50/W); SF-2	76	57.0	7.64/ 12.05	6.42/ 11.01	305./ 376.	362./ 433.	343./ 416.	574./ 648.					
PV System; Air-Cooled Thin-Film Arrays (\$10/W); SF-2.....	77	40.2	3.53/ 6.33	2.95/ 5.83	242./ 274.	307./ 339.	301./ 333.	565./ 598.					
PV Cogeneration; One-Axis Concentrator With Si Cells (\$15/W Cells); Multitank Low-Temp. Storage; SF-2.....	78	63.3	16.44/ 24.93	13.84/ 22.72	448./ 599.	494./ 645.	447./ 605.	633./ 791.					
<i>Reference system</i>													
Conv. Insulated All Electric House; Heat Pump (IF-2).....	79	0.0	NA/ NA	NA/ NA	226./ NA	300./ NA	300./ NA	601./ NA					
<i>Systems compared to reference system</i>													
Conv. Insulated All Electric House; Improved Heat Pump (IF-2).....	80	10.7	1.67/ 8.21	1.51/ 8.08	214./ 230.	282./ 298.	282./ 297.	558./ 574.					
PV System, Insulated House; Air-Cooled Si Arrays (\$0.50/W); IF-2.....	81	36.8	7.75/ 3.11	6.53/ 12.07	247./ 292.	304./ 348.	293./ 340.	524./ 570.					
PV System, Insulated House; Air-Cooled Si Arrays (\$0.50/W), Battery Storage; IF-2.....	82	32.8	12.09/ 9.31	10.42/ 17.88	268./ 321.	323./ 376.	310./ 366.	534./ 589.					

PV System, Insulated House; Air-Cooled Si Arrays (\$0.50/W); IF-2	83	46.3	6.55/ 10.96	5.55/ 10.11	238./ 284.	289. / 335.	278./ 326.	487./ 534.
PV System, Insulated House; Air-Cooled Thin-Film Arrays (\$0.10/W); IF-2	84	35.8	2.70/ 5.71	2.29/ 5.36	202./ 226.	257./ 281.	254./ 279.	480. / 505.
PV Cogeneration, Insulated House; One-Axis Concentrator With Si Cells (\$15/W Cells), Multitank Low-Temp. Storage; Improved IF-2	85	58.9	12.06/ 18.78	10.18/ 17.17	302./ 392.	343.1 432.	317./ 410.	482./ 575
PV System, Insulated House; Heat Engine, Air-Cooled Silicon Arrays (\$0.50/W), Low-Temp. Storage; IF-2	86	71.2	5.78/ 9.02	5.02/ 8.37	178. / 230.	224./ 276.	212. / 266.	255./ 308.
<i>Reference system</i>								
Conv. All Electric House; Resistance Heat and Window A/C (SF-3)	87	0.0	NA/ NA	NA/ NA	307./ NA	421./ NA	421./ NA	883./ NA
<i>Systems compared to reference system</i>								
Conv. All Electric House; Resistance Heat and Window A/C, 65/85 Thermostat (SF-3)	88	2.5	-.00/ 9.38	-.00/ 9.38	301./ 310.	412. / 421.	412. / 421.	865./ 874.
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-4	89	43.9	6.54/ 10.12	5.53/ 9.26	309./ 369.	380./ 440.	363./ 425.	651./ 713.
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-4	89/198	43.9	4.14/ 6.60	3.50/ 6.05	269./ 310.	340./ 381.	329. / 372.	617.1 659.
<i>Reference system</i>								
Conv. Insulated All Electric House; Resistance Heat and Window A/C (IF-3)	90	0.0	NA/ NA	NA/ NA	240./ NA	326./ NA	326./ NA	676./ NA
<i>Systems compared to reference system</i>								
Conv. Insulated House; Resistance Heat and Window A/C, 65/85 Thermostat (IF-3)	91	3.5	-.00/ 11.10	-.00/ 11.10	234./ 245.	318./ 328.	318./ 328.	658./ 668
FORT WORTH SINGLE FAMILY								
<i>Reference system</i>								
Conv. Gas Heat, Hot Water, and Central Electric A/C (SF-7)	92	0.0	NA/ NA	NA/ NA	132./ NA	188./ NA	188./ NA	326./ NA
<i>Systems compared to reference system</i>								
Conv. Improved Gas Heat, Hot Water, and Central Electric A/C (SF-1)	93	9.2	.87/ 7.70	.76/ 7.60	127./ 141.	177. / 191.	176. / 190.	309./ 323.
Conv. Insulated House; Gas Heat, Hot Water, and Central Electric A/C (IF-1)	94	20.2	-.21/ 2.81	-.35/ 2.69	115./ 129.	158./ 172.	158./ 171.	277./ 291.
Solar Hot Water Flat-plates (1977 Prices); SF-1	95	12.1	8.20/ 16.89	6.91/ 15.79	146./ 169.	193. / 216.	189. / 213.	320./ 344.
Solar Hot Water; Flat-plates (Future price); SF-1	95/5	12.1	5.83/ 13.39	4.91 / 12.60	139./ 160.	186./ 207.	184. / 205.	315./ 335
Solar Heating; Flat-plates (1977 Prices), Low-Temp. Storage; SF-1	96	25.3	13.17/ 21.60	11.16/ 19.88	189. / 236.	227. / 274.	215. / 264.	337./ 386
Solar Heating; Flat-plates (Future Price), Low-Temp. Storage; SF-1	96/127	25.3	8.57/ 14.87	7.25/ 13.74	163./ 198,	201. / 236.	193. / 230.	315./ 351.

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service							
			No credits		200/0 ITC		Projection 1 No credits		Projection 2 No credits		Projection 2 20%ITC		Projection 3 20%ITC	
<i>Reference system</i>														
Conv. Gas Heat, Hot Water, and Absorption A/C (SF-7)	97	0.0	NA/ NA	NA/ NA	NA/ NA	NA/ NA	134./ NA	NA/ NA	206./ NA	NA/ NA	206./ NA	NA/ NA	321./ NA	NA/ NA
<i>Systems compared to reference system</i>														
Conv. Insulated House; Gas Heat, Hot Water, and Absorption A/C (IF-7)	98	19.4	-.63/ 3.02	-.68/ 2.98	116./ 133.	173./ 190.	173./ 190.	273./ 290.						
Solar Heating and Cooling; Flat-Plates (1977 Prices); Low-Temp. Storage; SF-7	99	47.7	9.45/ 15.43	7.99/ 14.19	208./ 277.	242./ 311.	225./ 297.	306./ 378.						
Solar Heating and Cooling; Flat-Plates (Future Price); Low-Temp. Storage; SF-7	99/143	47.7	6.00/ 10.37	5.07/ 9.57	168./ 219.	202./ 253.	191./ 244.	272./ 324.						
<i>Reference system</i>														
Conv. All Electric House; Heat Pump (SF-2)	100	0.0	NA/ NA	NA/ NA	NA/ NA	NA/ NA	179./ NA	NA/ NA	233./ NA	NA/ NA	233./ NA	NA/ NA	451./ NA	NA/ NA
<i>Systems compared to reference system</i>														
Conv. All Electric House; Improved Heat Pump (High Cost) (SF-2)	101/125	15.0	6.16/ 11.89	5.59/ 11.41	186./ 210.	232./ 256.	229./ 254.	417./ 441.						
Conv. All Electric House; Improved Heat Pump (SF-2)	101	15.0	1.55/ 5.61	1.41/ 5.49	166./ 183.	213./ 229.	212./ 229.	399./ 416.						
Solar Hot Water; Flat-Plates (1977 Prices); SF-2	102	22.3	3.54/ 7.53	2.98/ 7.06	173./ 198.	215./ 240.	212./ 237.	384./ 409.						
Solar Hot Water; Flat-Plates (Future Price); SF-2	102/150	22.3	2.50/ 6.01	2.11/ 5.67	166./ 188.	209./ 230.	206./ 228.	379./ 401.						
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-2	103	26.5	6.26/ 11.09	5.31/ 10.28	192./ 227.	232./ 268.	225./ 262.	388./ 425.						
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-2	103/152	26.5	4.16/ 8.03	3.53/ 7.49	176./ 205.	216./ 245.	212./ 241.	375./ 405.						
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-2	104	34.9	7.65/ 12.70	6.48/ 11.70	209./ 258.	245./ 294.	234./ 285.	380./ 431.						
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-2	104/154	34.9	4.98/ 8.79	4.21/ 8.13	183./ 220.	219./ 256.	212./ 250.	358./ 396.						
PV System; Air-Cooled Si Arrays (\$0.50/W); SF-2	105	64.9	6.78/ 10.79	5.70/ 9.86	238./ 311./	266./ 339.	247./ 322.	362./ 437.						
PV System; Air-Cooled Thin-Film Arrays (\$0.10/W); SF-2	106	45.5	2.63/ 5.03	2.20/ 4.66	165./ 195.	199./ 230.	194./ 225.	335./ 366.						
PV Cogeneration; One-Axis Concentrator With Si Cells (\$15/W Cells), Multitank Low-Temp. Storage; SF-2	107	58.4	17.96/ 27.33	15.12/ 24.91	401./ 553.	427./ 579.	380./ 540.	484./ 643.						

Reference system

Conv. Insulated All Electric House; Heat Pump (IF-2)	108	0.0	NA/	NA	NA/	NA	157./	NA	203./	NA	203./	NA	387./	NA
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Systems compared to reference system

Conv. Insulated All Electric House; Improved Heat Pump (IF-2)	109	11.4	1.79/	8.31	1.63/	8.17	150./	167.	191./	208.	190./	207.	355./	372.
PV System, Insulated House; Air-Cooled Si Arrays (\$ I/W); Improved IF-2	11 2/172	50.3	10.38/	16.54	8.76/	15.16	234./	306.	261./	333.	242.1	317.	352./	427.
PV System, Insulated House; Air-Cooled Thin-Film Arrays (\$0.50/W); IF-2	110	40.2	6.89/	11.79	5.81/	10.86	186./	232.	217./	263.	207./	254.	333./	380.
PV System, Insulated House; Air-Cooled Thin-Film Arrays (\$0.50/w), Battery Storage; IF-2	111	36.6	10.54/	16.97	9.08/	15.72	208./	263.	238.1	293.	226./	282.	347./	403.
PV System, Insulated House; Air-Cooled Si Arrays (\$0.50/W); Improved IF-2	112	50.3	5.92/	9.98	5.01/	9.21	181./	229.	208./	256.	198./	247.	308./	357.
PV System, Insulated House; Air-cooled Thin-Film Arrays (\$0.10/W); IF-2	113	38.6	2.51/	5.37	2.13/	5.05	143./	169.	173./	199.	170./	196.	294./	320.
PV System, Insulated House; One-Axis Concentrator With Si Cells (\$0.15/W Cells); Multitank Low-Temp. Storage; Improved IF-2	114	58.9	11.77/	18.40	9.93/	16.83	258./	348.	278./	369.	253./	348.	337./	432.
Conv. Engine Cogeneration, Insulated House; Stirling Engine (Low Eff.), Direct Drive Heat Pump, Gas Hot Water, Low-Temp. Storage, No Grid Connect Ion (IF-9)	115	51.4	2.96/	4.89	2.80/	4.75	115./	138.	152./	175.	150./	173.	183./	207.
PV Heat Engine System, Insulated House; Air-Cooled Thin-Film Arrays (\$0.50/W), Low-Temp. Storage; IF-2	116	70.5	5.82/	9.10	5.07/	8.46	161./	215.	184./	237.	171./	227.	192./	247.

Reference system

Conv. All Electric House; Resistance Heat and Window A/C (SF-3)	117	0.0	NA/	NA	NA/	NA	182./	NA	245./	NA	245./	NA	502./	NA
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Systems compared to reference system

Conv. All Electric House; Resistance Heat and Window A/C, 65/85 Thermostat (SF-3)	118	8.6	-.00/	3.17	-.00/	3.17	169./	178.	227./	236.	227./	236.	462./	471.
Conv. Insulated All Electric House; Resistance Heat and Window A/C (IF-3)	119	27.0	.15/	1.28	.08/	1.22	143./	153.	190./	200.	189./	199.	379./	389.
Conv. Insulated All Electric House; Resistance Heat and Window A/C, 65/85 Thermostat (IF-3)	120	34.4	.12/	1.00	.06/	.96	132./	142.	174./	184.	174./	184.	346./	356.

OMAHA SINGLE FAMILY

Reference system

Conv. Gas Heat, Hot Water, and Central Electric A/C (SF-1)	121	0.0	NA/	NA	NA/	NA	125./	NA	180./	NA	180./	NA	302./	NA
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Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service					
			No credits		20% ITC		Projection 1 No credits		Projection 2 20% ITC		Projection 3 20% ITC	
<i>Systems compared to reference system</i>												
Conv. Improved Furnace, Gas Hot Water, and Central Electric A/C (SF-1)	122	11.9	.77/ 6.21	.67/ 6.12	121./ 136.	169. / 185.	169. / 184.	284./ 299.				
Conv. Gas Heat, Hot Water, and Central Electric A/C, 65/85 Thermostat (SF-1)	123	10.0	-.00/ 6.08	-.00/ 6.08	115./ 129.	167. / 181.	167. / 181.	272./ 286.				
Solar Hot Water; Flat-Plates (1977 Prices); SF-1	124	10.4	9.04/ 19.03	7.62/ 17.81	142./ 166.	191. / 215.	188. / 213.	303./ 328.				
Solar Hot Water; Flat-Plates (Future Price); SF-1	125	10.4	6.42/ 15.16	5.41/ 14.30	135./ 157.	185./ 206.	182./ 204.	298./ 320.				
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-1	126	24.0	14.00/ 22.72	11.98/ 21.00	191./ 240.	233./ 282.	221./ 272.	330./ 381.				
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-1	127	24.0	9.40/ 15.98	8.07/ 14.85	165./ 202.	207./ 244.	199./ 237.	308./ 346.				
<i>Reference system</i>												
Conv. Insulated House; Gas Heat, Hot Water, and Central Electric A/C (IF-1)	128	0.0	NA/ NA	NA/ NA	111./ NA	154./ NA	154./ NA	261./ NA				
<i>Systems compared to reference system</i>												
Conv. Insulated House; Improved Gas Heat, Hot Water, and Central Electric A/C (IF-1)	129	11.3	.80/ 8.40	.70/ 8.31	108./ 124.	146./ 161.	146./ 161.	248./ 264.				
Conv. Insulated House; Gas Heat, Hot Water, and Central Electric A/C, 65/85 Thermostat (IF-1)	130	11.4	-.00/ 7.16	-.00/ 7.16	103./ 117.	142./ 156.	142./ 156.	234./ 249.				
<i>Reference system</i>												
Conv. Oil Heat and Central Electric A/C (SF-5)	131	0.0	NA/ NA	NA/ NA	204./ NA	263./ NA	263./ NA	522./ NA				
<i>Systems compared to reference system</i>												
Conv. Improved Oil Heating, Gas Hot Water, and Central Electric A/C (SF-5)	132	13.0	.61/ 5.79	.53/ 5.72	186./ 204.	237./ 255.	237./ 255.	461./ 479.				
Conv. Oil Heat and Central Electric A/C, 65/85 Thermostat (SF-5)	133	8.7	-.00/ 7.30	-.00/ 7.30	195./ 212.	249./ 267.	249./ 267.	492./ 509.				
Solar Hot Water; Flat-Plates (1977 Prices); SF-5	134	11.4	7.23/ 16.16	6.09/ 15.19	209./ 236.	261./ 288.	257./ 285.	486./ 513.				
Solar Hot Water; Flat-Plates (Future Price); SF-5	135	11.4	5.14/ 13.07	4.33/ 12.38	202./ 227.	254./ 279.	252./ 276.	480./ 505.				
Solar Heating; Flat-Plates (1977 Prices); SF-5	136	26.2	11.55/ 18.97	9.94/ 17.60	244./ 297.	288./ 340.	277./ 331.	466./ 520.				
Solar Heating; Flat-Plates (Future Price); Low-Temp. Storage; SF-5	137	26.2	7.87/ 13.58	6.81/ 12.68	219./ 259.	262./ 302.	255./ 296.	444./ 485.				

Reference system

Conv. Insulated House; Oil Heat and Central Electric A/C (IF-5)	138	0.0	NA/	NA	NA/	NA	125./	NA	173./	NA	173./	NA	285./	NA
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Systems compared to reference system

Conv. Insulated House; Improved Oil Heating, Hot Water, and Central Electric A/C (IF-5)	139	12.6	.64/	7.44	.56/	7.37	121./	138.	162./	180.	162./	179.	268./	286.
Conv. Insulated House; Oil Heat and Central Electric A/C, 65/85 Thermostat (IF-5)	140	10.2	-.00/	8.06	-.00/	8.06	116./	133.	160./	177.	160./	177.	258./	274.

Reference system

Conv. Gas Heat, Hot Water, and Absorption A/C (SF-7)	141	0.0	NA/	NA	NA/	NA	127./	NA	188./	NA	188./	NA	297./	NA
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Systems compared to reference system

Solar Heating and Cooling; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-7	142	44.4	9.97/	16.35	8.43/	15.04	211./	281	245./	315.	228./	301.	313./	385
Solar Heating and Cooling; Flat-Plates (Future Price); Low-Temp. Storage; SF-7	143	44.4	6.33/	11.00	5.351	10.17	171./	223.	205./	256.	194./	247.	279./	332.

Reference system

Conv. Insulated House; Gas Heat, Hot Water, and Absorption A/C (IF-7)	144	0.0	NA/	NA	NA/	NA	111./	NA	158./	NA	158./	NA	254./	NA
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Systems compared to reference system

Solar Engine System, Insulated House; ORCS and One-Axis Tracker (Future Design), High-Temp. Oil Storage; IF-7	145	33.0	27.39/	41.58	23.57/	38.32	244./	334.	276/	365.	251./	345.	280./	374.
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Reference system

Conv. All-Electric House; Heat Pump (SF-2)	146	0.0	NA/	NA	NA/	NA	190./	NA	249./	NA	249./	NA	490./	NA
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Systems compared to reference system

Conv. Improved Heat pump (SF-2)	147	18.1	.98/	3.65	.89/	3.57	173./	189.	223./	239.	222./	238.	424./	440.
Conv. All Electric House; Heat Pump, 65/85 Thermostat (SF-2)	148	7.0	-.00/	5.96	-.00/	5.96	181./	195.	237./	251.	237./	251.	462./	476.
Solar Hot Water; Flat-Plates (1977 prices); SF-2	149	16.8	3.90/	8.18	3.29/	7.65	191./	215.	241./	265.	237./	262.	442./	467.
Solar Hot Water; Flat-plates (Future price); SF-2	150	16.8	2.76/	6.50	2.33/	6.12	184./	205.	234./	255.	232./	253.	437./	458.
Solar Heating; Using Flat-plates (1977 Prices), Low-Temp. Storage; SF-2	151	20.5	6.56/	11.57	5.58/	10.73	209./	243.	257./	292.	250.1286.		447./	483.
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-2	152	20.5	4.48/	8.54	3.80/	7.96	195./	222.	243./	271.	238./	267.	435./	464.
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-2	153	29.1	7.63/	12.60	6.47/	11.60	227./	275.	271./	319.	260./	310.	438./	488.
Solar Heating; Flat-Plates (Future Price); Low-Temp. Storage; SF-2	154	29.1	4.97/	8.69	4.20/	8.04	201./	237.	245./	281.	237./	275.	416./	453.
PV System; Air-Cooled Si Arrays (\$1/W); SF-2	155	53.6	12.61/	19.33	10.60/	17.61	363./	484.	401./	521,	365./	490.	517./	643.
PV Cogeneration; Air-Cooled Si Arrays (\$0.50/W); SF-2	156	53.6	6.83/	10.83	5.74/	9.90	259./	331.	297./	369.	277./	352.	430./	505.

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service					
			No credits		20% ITC		Projection 1 No credits		Projection 2 No credits		Projection 2 20% ITC	
Systems compared to reference system—Continued												
PV Cogeneration; Water-Cooled Si Arrays (\$1/w), Multitank Low-Temp. Storage; SF-2.	157	63.2	15.18/ 23.00	12.78/ 20.94	441./ 607.	472./ 638.	421./ 594.	547./ 720.				
PV Cogeneration; Water-Cooled Si Arrays (\$0.50/w), Multitank Low-Temp. Storage; SF-2	158	63.2	8.64/ 13.36	7.27/ 12.19	303./ 403.	334./ 434.	305./ 409.	431./ 535.				
PV System; Air-Cooled Thin-Film Arrays (\$0.30/W); SF-2	159	29.2	5.54/ 9.56	4.64/ 8.80	212./ 252.	259./ 298.	250./ 291.	438./ 478.				
PV System; Air-Cooled Thin-Film Arrays (\$0.10/W); SF-2	160	37.9	2.61/ 4.94	2.18/ 4.58	183./ 213.	226./ 256.	221./ 251.	395./ 426.				
PV System; Air-Cooled Thin-Film Arrays (\$0.10/W), Battery Storage; SF-2	161	35.2	3.45/ 6.18	2.93/ 5.74	189./ 221.	231./ 263.	225./ 258.	397./ 430.				
PV Cogeneration; One-Axis Concentrator With Si Cells (\$15/W Cells); Multitank Low-Temp. Storage; SF-2	162	59.4	14.73/ 22.39	12.41 / 20.40	411./ 563.	441./ 593.	395./ 553.	517./ 675.				
PV Cogeneration; One-Axis Concentrator With Si Cells (\$15/W Cells), Multitank Low-Temp. and Battery Storage; SF-2	163	57.5	15.83/ 23.96	13.37/ 21.86	423./ 579.	452./ 609.	405./ 568.	526./ 690.				
PV Cogeneration; One-Axis Concentrator With Si Cells (\$1/W Cells), Multitank Low-Temp. Storage; SF-2	164	69.3	3.93/ 6.35	3.30/ 5.82	200./ 256.	226./ 282.	211./ 270.	317./ 376.				
Reference system												
Conv. Insulated All Electric House, Heat Pump (IF-2)	165	0.0	NA/ NA	NA/ NA	161./ NA	208./ NA	208./ NA	399./ NA				
Systems compared to reference system												
Conv. Insulated All Electric House; Heat Pump, 65/85 Thermostat (IF-2)	166	8.0	-.00/ 7.36	-.00/ 7.36	153./ 168.	197./ 212.	197./ 212.	375./ 390.				
Conv. Insulated All Electric House; Improved Heat Pump (IF-2)	167	13.5	1.31 / 6.15	1.19/ 6.04	152./ 169.	193./ 210.	193./ 210.	362./ 379.				
Solar Hot Water, Insulated House; Flat-Plates (Future Price), Low-Temp. Storage, IF-2	168	22.0	2.74/ 6.67	2.31/ 6.30	154./ 177.	193./ 215.	190./ 213.	346./ 368.				
Solar Heating, Insulated House Using Flat-Plates (Future Price), Low-Temp. Storage, IF-2	169	33.9	4.54/ 8.36	3.84/ 7.76	167./ 200.	200./ 233.	194./ 228.	330./ 364.				
Solar Heating, Insulated House; Flat-Plates (Future Price); Low-Temp. Storage; IF-2	170	38.6	4.86/ 8.63	4.11/ 7.99	171./ 208.	202./ 240.	195./ 233.	323./ 362.				
PV System, Insulated House; Air-Cooled Si Arrays (\$1/W); IF-2	171	36.1	12.55/ 20.08	10.54/ 18.36	248./ 318.	284./ 353.	265./ 338.	409./ 481.				
PV System, Insulated House; Air-Cooled Si Arrays (\$1/W); Improved IF-2	172	47.9	9.71/ 15.47	8.18/ 14.16	240./ 311.	270./ 341.	252./ 325.	376./ 450.				
PV System, Insulated House; Air-Cooled Si Arrays (\$0.50/W); IF-2	173	36.1	6.88/ 11.75	5.77/ 10.81	196./ 241.	231./ 276.	221./ 267.	364./ 411.				
PV System, Insulated House; Air-Cooled Si Arrays (\$0.50/W), Battery Storage; IF-2	174	32.1	10.67/ 17.17	9.17/ 15.89	217./ 271.	251./ 305.	239./ 294.	378./ 433.				

Systems compared to reference system—Continued

PV System, Insulated House; Air-Cooled Si Arrays (\$0.50/W), Improved IF-2	175	47.9	5.48/ 9.25	4.62/ 8.52	188./ 234.	218./ 265.	208. / 256.	332./ 381.
PV System, Insulated House; Air-Cooled Thin-Film Arrays (\$030/W); Improved IF-2	176	32.2	3.91/ 7.51	3.31/ 7.00	163. / 193.	199./ 228.	194./ 224.	336./ 367.
PV System, Insulated House; Air-Cooled Thin-Film Arrays (\$ 0. 10/W); Improved IF-2	177	37.3	2.32/ 4.95	1.97/ 4.65	150. / 175.	183./ 209.	180. / 206.	317. / 343.
PV Cogeneration, Insulated House; One-Axis Concentrator With Si Cells (\$15/W Cells), With Multitank Low-Temp. Storage; improved IF-2	178	57.4	10.89/ 17.00	9.19/ 15.55	266./ 356.	291./ 381.	266. / 359.	366./ 460.
PV Cogeneration, Insulated House; One-Axis Concentrator With Si Cells (\$15/W Cells), Multitank Low-Temp. Storage; Improved IF-2	179	80.5	14.34/ 21.81	12.09/ 19.89	381./ 536.	397./ 552.	351./ 512.	416. / 578.
PV Cogeneration, Insulated House; One-Axis Concentrator With Si Cells (\$1/W Cells), Multitank Low-Temp. Storage; Improved IF-2	180	43.4	5.27/ 9.07	4.43/ 8.35	178./ 220.	208./ 250.	198. / 242.	321./ 365.
PV Cogeneration, Insulated House; One-Axis Concentrator With Si Cells (\$1/W Cells), Multitank Low-Temp. Storage; IF-2	181	52.1	5.38/ 9.01	4.52/ 8.28	183./ 232.	210./ 259.	198. / 249.	308./ 358.
PV Cogeneration, Insulated House; One-Axis Concentrator With Si Cells (\$1/W Cells), Multitank Low-Temp. Storage; Improved IF-2	182	63.0	4.99/ 8.21	4.23/ 7.56	182. / 234.	205./ 257.	192. / 246.	285./ 340.
PV Cogeneration, Insulated House; Air-Cooled Si Arrays (\$0.50/w), Diesel Backup, Low-Temp. Storage; IF-2	183	72.0	5.39/ 8.38	4.70/ 7.79	161. / 216.	178./ 234.	165. / 223.	182. / 239.
PV Cogeneration, Insulated House; Plastic Dye Concentrator, Multitank Low-Temp. Storage; IF-2	184	79.7	3.42/ 5.75	2.87/ 5.28	165. / 212.	185./ 233.	174. / 223.	256./ 306.
PV System, Insulated House; Plastic Dye Concentrator; IF-2	185	74.8	3.02/ 5.24	2.53/ 4.82	165./ 208.	191./ 234.	181. / 225.	285. / 329.
Conv. Engine Cogeneration, Insulated House; Stirling Engine (Low Eff), Direct Drive Heat Pump, Gas Hot Water, Low-Temp. Storage (IF-9)	186	56.3	2.49/ 4.07	2.35/ 3.95	106. / 129.	133. / 156,	131/ 155.	157./ 180.

Reference system

Conv. All Electric House; Resistance Heat and window A/C (SF-3)	187	0.0	NA/ NA	NA/ NA	206./ NA	277./ NA	277./ NA	570./ NA
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Systems compared to reference system

Conv. All Electric House; Resistance Heat and Window A/C, 65/85 Thermostat (SF-3)	188	4.7	-.00/ 5.17	-.00/ 5.17	198./ 208.	267./ 277.	267./ 277	547/ 557
Solar Heating: Flat-plates (1977 Prices), Low-Temp. Storage; SF-4	191	32.7	5.37/ 8.59	4.55/ 7.89	226./ 270	277./ 320	265./ 311	471./ 517
Solar Heating, Flat-Plates (Future Price), Low-Temp. Storage; SF-4	192	32.7	3.46/ 5.79	2.93/ 5.34	200./ 232.	251./ 282.	243. / 276	449 / 482.

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service			
			No credits		20% ITC		Projection 1 No credits		Projection 2 20% ITC	
Systems compared to reference system—Continued										
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-3	197	38.3	6.23/ 9.76	5.27/ 8.94	243./ 300.	290./ 347.	275./ 334.	466. / 525.		
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-3	198	38.3	3.95/ 6.41	3.34/ 5.89	207./ 246.	254./ 293.	244./ 285.	435. / 476.		
100-Percent Solar Heating; Insulated House; Flat-Plates (1977 Prices), Community Seasonal Low-Temp. Storage; SF-2	199	76.4	6.79/ 10.21	5.66/ 9.25	299./ 408.	321. / 430.	285. / 399.	375. / 490		
100-Percent Solar Heating; Flat-Plates (Future Price), Central Electric A/C, Community Seasonal Aquifer Storage; SF-2	200	76.4	4.15/ 6.27	3.52/ 5.72	215./ 282.	237./ 304.	217. / 287.	307./ 377		
Reference system										
Conv. Insulated All Electric House; Resistance Heat and Window A/C (IF-3).	201	0.0	NA/ NA	NA/ NA	159./ NA	211./ NA	211./ NA	423./ NA		
Systems compared to reference system										
Conv. Insulated All Electric House; Resistance Heat and Window A/C, 65/85 Thermostat (IF-3)	202	5.9	-.00/ 6.54	-.00/ 6.54	152./ 163.	201. / 213.	201./ 213,	403. / 414.		

**OMAHA SINGLE FAMILY
TIME-OF-DAY RATES**

Reference system

Conv. All Electric House (SF-3); Marginal Electric Rates.	T187	0.0	NA/ NA	NA/ NA	278./ NA	278./ NA	278./ NA	278./ NA		
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Systems compared to reference system

Conv. Off-Peak Electric Heating; Window A/C, Low-Temp. Storage (SF-4).	189	-.7	-79.79/ .****	-62.11 / .****	218./ 241.	218./ 241.	213./ 237.	213./ 237.		
Conv. Off-Peak Electric Heating and Chilling; Low-Temp. Thermal and Cold Storage (SF-4).	190	-.3	• .** , *****	• ****, ****,	236./ 278.	236./ 278.	226./ 270.	226./ 270.		
Solar Off-Peak Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-4	193	32.3	6.32/ 10.04	5.31/ 9.18	246./ 296.	246./ 296.	232. / 284.	232./ 284.		
Solar Off-Peak Heating; Flat-Plates (Future Price), Low-Temp. Storage; SF-4	194	32.3	4.39/ 7.22	3.67/ 6.60	220./ 258.	220./ 258.	210./ 250.	210./ 250.		
Solar Heating and Cooling; Flat-Plates (1977 Prices), Low-Temp. Thermal and Cold Storage; Off-Peak Electric Backup Heating and Chilling	195	32.7	9.71/ 15.03	8.24/ 13.77	268./ 341.	268./ 341.	248./ 324.	248.1 324.		
Solar Off-Peak Heating and Cooling; Flat-Plates (1977 Prices), Low-Temp. Storage; SF-4	196	32.7	7.80/ 12.24	6.62/ 11.23	242./ 303.	242./ 303.	226./ 289.	226./ 289.		

ALBUQUERQUE HIGH RISE (196 UNITS)

Reference system

Conv. Central Electric Chilled-Water System With Fan Coil Units and a Central Gas Boiler (HR-1)	203	0.0	NA/	NA	NA/	NA	51./	NA	71./	NA	71./	NA	129/	NA
Systems compared to reference system														
Solar Hot Water; Flat-Plates (1977 Prices); HR-1	204	8.1	12.20/	18.90	9.05/	17.55	58.1	63.	76./	81.	74./	80	129./	136
Solar Hot Water; Flat-Plates (Future Prices); HR-1	204/278	8.1	7.61/	13.28	5.66/	12.45	54./	59.	72./	77.	71./	76	126./	132
Solar Heating; I-Cover Pond, Seasonal Aquifer Storage; HR-1	205	26.4	8.45/	11.17	6.61/	10.38	65./	72.	77.1	84.	72./	82	122./	132
PV System; Air-Cooled Si Arrays (\$1/W), Bat- tery Storage; HR-1	206	45.7	21.56/	26.53	16.38/	24.32	136./	158.	152./	174.	129./	165	170./	205
PV System; Air-Cooled Si Arrays (\$0.50/W); HR-1	207	51.1	8.47/	11.05	6.23/	10.09	84.1	96.	100.1	113.	89.1	108	132./	151
PV System; Air-Cooled Si Arrays (\$ I/W); HR-1	207/281	51.1	15.28/	19.38	11.26/	17.67	117./	138.	134./	154.	114./	146	157.1	189.
PV System; Air-Cooled Si Arrays (\$0.50/W), Battery Storage; HR-1	208	45.7	12.55/	15.69	9.57/	14.42	96./	110.	112.1	126.	99./	21	140./	161
PV System; Air-Cooled Thin-Film Arrays (\$0.30/W); HR-1	209	11.7	26.18/	34.42	19.68/	31.65	78./	88.	98.1	107.	90./	04	144./	157

Reference system

Conv. Central Gas Boiler and Absorption Chilling, Two-Pipe System to Fan-Coil Units (HR-7)	210	0.0	NA/	NA	NA/	NA	49./	NA	73./	NA	73./	NA	121./	NA
Systems compared to reference system														
PV System; Two-Axis Concentrator With GaAs Cells (Low Price), Battery and Multi- tank Low-Temp. Storage; HR-8	211	74.9	4.31/	5.68	3.26/	5.23	85./	95	100./	110.	92./	107	153./	168.
PV System; Two-Axis Concentrator With GaAs Cells (Low Price), Battery and Multi- tank Low-Temp. Storage; HR-7	212	97.1	5.37/	6.76	4.14/	6.24	101./	115.	114./	128.	102./	123.	155./	176.
PV System; Two-Axis Concentrator With GaAs Cells (Low Price), iron-REDOX Battery and Multitank Low-Temp. Storage; HR-7	213	106.8	6.66/	8.27	5.16/	7.62	87./	105.	87.1	105.	71./	98	71./	98.
PV System; Two-Axis Concentrator With GaAs Cells (Low Price), iron-REDOX Battery and Multitank Low-Temp. Storage; HR-7	214	06.6	8.35/	10.19	6.53/	9.41	106./	126.	106./	126.	86./	118	86./	118
100-Percent Solar PV System; Two-Axis Con- centrator With GaAs Cells (Low Price), Iron- REDOX Battery and Multitank Low-Temp. Storage; HR-7	215	00.0	9.67/	11.75	7.58/	10.86	114./	135.	114./	135.	92./	126.	92./	126.
PV System; Two-Axis Concentrator With GaAs Cells (Low Price), Battery and Multi- tank Low-Temp. Storage; HR-7	216	21.4	6.62/	8.13	5.15/	7.50	97./	116.	97./	116	79./	108	79./	108
Conv. Engine Cogeneration; Gas-Fired Diesel/ORCS Engine/Generator and Low- Temp. Storage; HR-8	217	37.7	11.51/	14.44	8.97/	13.35	78./	90.	99.1	111	89./	106	109./	126
PV System; Two-Axis Concentrator With GaAs Cells (Low Price), Multitank Low- Temp. Storage; HR-7	218	73.5	5.03/	6.52	3.85/	6.02	61./	72	69./	81.	60./	77.	69./	85

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service							
			No credits		20% ITC		Project Ion 1 No credits		Project Ion 2 No credits		Projection 2 20% ITC		Projection 3 20% ITC	
<i>Systems compared to reference system—Continued</i>														
Solar Engine; LT ORCS and 2-Cover Pond, Seasonal Aquifer Storage, HR-7	219	100.0	15.95/	9.25	12.35/	7.72	179./	213.	179./	213.	141./	197.	141./	197.
Solar Engine; LT ORCS and 2-Cover Pond, Seasonal Aquifer Storage, HR-7	220	100.0	11.19/	3.75	8.49/	2.60	130./	156.	130./	156.	102./	144.	102./	144.
Solar Engine Cogeneration; Two-Axis Dish With High Eff. Stirling Engine/Generator, Gas Backup, and Low-Temp. Storage; HR-8	221	66.9	4.51/	5.56	3.78/	5.25	56./	63.	67./	74.	62./	72.	72./	82.
Solar Engine Cogeneration; Two-Axis Dish With Low Eff. Stirling Engine/Generator, Gas Backup, and Multitank High- and Low-Temp. Storage; HR-8	222	71.5	6.01/	7.49	4.77/	6.97	67./	78.	77./	88.	68./	84.	77./	93
Solar Engine Cogeneration; Two-Axis Dish With Low Eff. Stirling Engine/Generator, Gas Backup, and Multitank High- and Low-Temp. Storage; HR-7	223	76.4	7.31/	9.00	5.81/	8.36	79./	92.	87./	100.	75./	95.	82./	103
Solar Engine Cogeneration; Two-Axis Dish With High Eff. Stirling Engine/Generator, Gas Backup, and Multitank Low-Temp. Storage; HR-8	224	81.4	6.53/	8.02	5.23/	7.46	75./	87.	81./	93.	70./	89.	76./	95
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engines (High Eff.), Battery and High- and Low-Temp. Storage; Gas Backup; HR-7	225	98.4	11.39/	14.54	8.26/	13.20	130./	162.	131./	163.	99./	149.	99./	150.
100-Percent Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (High Eff.) Battery and High- and Low-Temp. Storage; HR-7	226	100.0	12.25/	15.51	8.96/	14.11	140./	174.	140./	174.	107./	160.	107./	160.
<i>Reference system</i>														
Conv. All Electric System; Central Electric Chilled-Water System and Fan Coil Units With Resistance Heaters (HR.2)	227	0.0	NA/	NA	NA/	NA	84./	NA	113./	NA	113./	NA	232./	NA
Systems compared to reference system														
Solar Hot Water; Flat-Plates (1977 Prices); HR-2	228	19.3	3.35/	5.07	2.48/	4.71	87./	92.	114./	119.	112./	118.	220./	227.
Solar Heating; Flat-Plates (Future Price); HR-2	228/322	19.3	2.09/	3.53	1.55/	3.30	84./	88.	110./	115.	109./	114.	218./	223.
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; HR-2	229	31.4	4.45/	6.05	3.29/	5.55	95./	102.	120./	128.	115./	125.	218./	228.
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; HR-2	229/324	31.4	2.80/	4.03	2.07/	3.72	87./	93.	113./	118.	109./	117.	212./	220.
Solar Heating; Flat-Plates (1977 Prices), Seasonal Low-Temp. Storage; HR-2	230	52.6	5.55/	7.42	3.87/	6.70	85./	99.	97./	112.	84./	106.	134./	156.
Solar Heating; Flat-Plates (Future Price), Seasonal Low-Temp. Storage; HR-2	230/328	52.6	4.30/	5.89	2.95/	5.32	75./	88.	87./	100.	77./	95.	126./	145.

Solar Heating; Flat-Plates (1977 Prices), Cheap Seasonal Low-Temp. Storage; HR-2	231	52.6	4.11/ 5.43	3.00/ 4.96	74./ 84.	86 / 96	77./ 92	127./ 142
Solar Heating; Flat-Plates (Future Price), Seasonal Aquifer Storage; HR-2	232	52.6	2.70/ 3.70	1.96/ 3.39	63./ 71.	75./ 83.	69./ 80	119./ 130
Solar Heating; I-Cover Pond, Seasonal Aquifer Low-Temp. Storage; HR-1	233	51.6	1.91/ 2.60	1.52/ 2.43	57./ 62.	69./ 74.	66./ 73.	116./ 123,
Solar Heating; Two-Axis Concentrator (Med. Price), Multitank Low-Temp. Storage; HR-2	234	307	3.69/ 5.08	2.79/ 4.70	91./ 98.	117./ 123.	113./ 121	216./ 224
PV Cogeneration; Two-Axis Concentrator With Si Cells (Med. Price), Multitank Low-Temp. Storage; HR-2	235	37.1	4.13/ 5.54	3.10/ 5.10	95./ 103.	120./ 128	114./ 125	214./ 225
PV Cogeneration; Two-Axis Concentrator With Si Cells (Med. Price) Replaced Every 10 Years, Multitank Low-Temp. Storage; HR-2	236	37.1	6.85/ 7.96	5.81/ 7.52	110./ 116.	135./ 141	129./ 138	229./ 239
PV System; Two-Axis Concentrator With Si Cells (Med. Price); HR-2	237	6.2	22.59/ 30.53	16.99/ 28.14	102./ 109.	130./ 138	125./ 135.	240./ 250.
PV System; Two-Axis Concentrator With St Cells (Med. Price) Replaced Every 10 Years; HR-2	238	6.2	38.15/ 44.34	32.58/ 41.96	116./ 122.	145./ 150.	139./ 148.	254./ 263
PV Cogeneration; Two-Axis Concentrator With Si Cells (Med. Price), Multitank Low-Temp. Storage; HR-2	239	54.3	5.28/ 6.77	3.97/ 6.2	110./ 122.	133./ 145.	122./ 140	214./ 232.
PV Cogeneration; One-Axis Concentrator With Si Cells (\$15/W Cells), Multitank Low-Temp. Storage; HR-2	240	63.4	10.02/ 12.47	7.55/ 11.4	164./ 187.	188./ 210.	164./ 201.	261./ 297
PV Cogeneration; one-Axis Concentrator With Si Cells (\$15/W Cells), Battery and Multitank Low-Temp. Storage; HR-2	241	62.9	10.29/ 12.77	7.77/ 11.69	166./ 189.	189./ 212	166./ 202	262./ 298.
PV Cogeneration; Two-Axis Concentrator With High Eff. Cells, Multitank Low-Temp. Storage; HR-2	242	101.1	2.90/ 3.69	2.20/ 3.39	103./ 115.	123./ 135,	113./ 130.	192./ 210
PV System; Two-Axis Concentrator With High Eff. Cells, iron.REDOX Battery and Multitank Low-Temp. Storage; HR-2	243	96.3	3.08/ 3.92	2.35/ 3.60	104./ 116.	124./ 136.	113./ 131.	194./ 211.
PV Cogeneration; Two-Axis Concentrator With High Eff. Cells, Multitank Low-Temp. Storage; Diesel Backup; HR-2	244	78.7	5.18/ 6.40	4.03/ 5.91	81./ 96.	92./ 106.	78./ 100.	88./ 109.
Reference system								
Conv. All-Electric System; Resistance Heat, Window A/C and Individual Electric Water Heaters (HR-4)	245	0.0	NA/ NA	NA/ NA	83.1 NA	112./ NA	112./ NA	229./ NA
Systems compared to reference system								
PV System; Air-Cooled Si Arrays (\$ I/W); HR-4	246	36.0	14.95/ 18.68	11 .00/ 17.00	149./ 168.	173./ 192.	153./ 184.	254./ 284.
PV System; Air-Cooled Si Arrays (\$0.50/W); HR-4	246	36.0	8.32/ 10.55	6.12/ 9.61	115./ 127.	140./ 151.	129./ 146	229./ 247
PV System; Air-Cooled Thin-Film Arrays (\$0.10/W); HR-4	247	25.2	5.37/ 7.07	3.94/ 6.46	95./ 101.	120./ 126	115./ 124	219./ 228.
PV System; Air-Cooled Thin-Film Arrays, Vertical on Wall (\$0.10/W); HR-4	248	6.3	3.63/ 6.37	2.60/ 5.94	84./ 86.	112./ 114	111./ 114	223./ 226

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service							
			No credits		20% ITC		Projection 1 No credits		Projection 2 No credits		Projection 3 20% ITC			
<i>BOSTON HIGH RISE (196 UNITS)</i>														
<i>Reference system</i>														
<i>Conv. Electric Chilled-Water System With Fan Coil Units and Central Gas Boiler (HR-1) . . .</i>	249	0.0	NA/	NA	NA/	NA	105./	NA	155./	NA	155./	NA	283./	NA
<i>Systems compared to reference system</i>														
<i>Solar Hot Water; Flat-Plates (1977 Prices);</i>														
<i>HR-1</i>	250	6.7	16.86/	27.36	12.50/	25.50	111./	118.	157./		155./	163.	279./	287.
<i>Solar Hot Water; Flat-Plates (Future Price);</i>														
<i>HR-1</i>	250/278	6.7	10.55/	19.63	7.83/	18.47	107./	113	153 /		152. /	158.	276./	282.
<i>Conv. Engine Cogeneration; Diesel/ORCS, Absorption and Electric Chillers, Low-Temp. Storage; HR-8.</i>														
	251	33.5	13.64/	16.43	11.44/	15.49	102./	111.			140./	153	181./	194.

235./

Reference system

Conv. All Electric System; Resistance Heat, Individual Window A/C, and Electric Water Heaters (HR-4)	260	0 0	NA/	NA	NA/	NA	169. /	NA	231./	NA	231./	NA	483./	NA
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Systems compared to reference system

PV System; Air-Cooled Si Arrays (\$0.50/W); HR-4	261	22.5	12.04/	15.32	8.85/	13.96	181./	192.	231./	242	220./	238	423/	441.
PV System; Air-Cooled Si Arrays (\$1/W); HR-4	261/349	22.5	21.62/	27.08	15.91/	24.65	214.1	233.	264.1	283	244./	275	448./	478.
PV System; Air-Cooled Thin-Film Arrays (\$0.10/W); HR-4	262	159	5.69/	8.38	3.64/	7.51	160.1	167.	213.1	220.	208./	217	423./	433.

FORT WORTH HIGH RISE (196 UNITS)

Reference system

Conv. Central Electric Chilled-Water System With Fan Coil Units and Central Gas Boiler for Heat (HR-1)	263	0 0	NA/	NA	NA/	NA	76.1	NA	102.1	NA	102./	NA	186./	NA
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Systems compared to reference system

Solar Hot Water; Flat-Plates (1977 Prices), HR-1	264	6.5	15.48/	26.32	11.47/	24.61	85./	93.	108./	117.	105./	115	187. /	197
Solar Hot Water; Flat-Plates (Future Price), HR-2	264/278	6.5	9.62/	19.15	7.14/	18.09	81./	88.	104./	111	102./	110	184 /	192
Conv. Engine Cogeneration, Diesel/ORCS, Absorption and Electric Chillers, Low-Temp Storage; HR-8	265	36.2	6.67/	9.12	5.29/	8.54	72./	83.	96./	106.	90./	104	112./	126.
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (Low Eff.) High-Temp. Storage, Gas Backup, HR-8	266	560	11.51/	14.67	8.86/	13.54	112./	132.	128./	149	111./	141.	126./	156
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (Low Eff.), High-Temp. and Multitank Low-Temp. Storage, Gas Backup; HR-8	267	63.2	9.74/	12.08	7.83/	11.27	106. /	123.	120. /	137.	106. /	31.	118./	143.
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (High Eff.), Multitank Low-Temp. Storage, Gas Backup; HR-8	268	707	8.12/	10.08	6.53/	9.41	99./	115.	109. /	125.	97./	20	107./	130.

Reference system

Conv. All Electric; Central Chilled-water System and Fan Coil Units With Resistance Heaters (HR-2)	269	0.0	NA/	NA	NA/	NA	101./	NA	133./	NA	133./	NA	265./	NA
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Systems compared to reference system

Solar Hot Water; Flat-Plates (1977 Prices), HR-2	270	15.8	4.87/	7.97	3.63/	7.44	108./	115.	138./	146.	135./	144.	259./	268.
Solar Hot Water; Flat-Plates (Future Price); HR-2	270/322	15.8	4.18/	6.76	3.42/	6.43	106./	112.	136./	143.	135/	142.	258./	266.
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; HR-2	271	224	5.97/	8.74	4.42/	8.08	115./	124.	144./	154.	139/	151.	260./	272.

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service							
			No credits		20% ITC		Projection 1 No credits		Projection 2 No credits		Projection 2 20% ITC		Project ion 3 20% ITC	
Systems compared to reference system—continue														
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; HR-2	271/324	22.4	3.76/ 6.03	2.78/ 5.61	107./ 115.	137./ 144.	133./ 143.	254./ 264.						
Solar Heating; Flat-Plates (1977 Prices), Seasonal Low-Temp. Storage; HR-2	272	38.6	7.15/ 9.89	5.02/ 8.98	110./ 127.	129./ 146.	117./ 140.	195./ 218.						
Solar Heating; Flat-Plates (Future Price), Seasonal Low-Temp. Storage; HR-2	272/328	38.6	5.43/ 7.79	3.75/ 7.07	100./ 114.	119./ 133.	109./ 129.	187./ 207.						
Solar Heating; Flat-Plates (1977 Prices), Seasonal Aquifer Storage; HR-2	273	38.6	5.57/ 7.69	4.08/ 7.05	101./ 114.	120./ 133.	111./ 129.	189./ 207.						
Solar Heating; Flat-Plates (Future Price), Aquifer Thermal Storage; HR-2	273/232	38.6	3.57/ 5.24	2.61/ 4.83	89./ 99.	108./ 118.	103./ 116.	180./ 194.						
Reference system														
Conv. All Electric System; Resistance Heat, Individual Window A/C and Electric Water Heaters (HR-4)	274	0.0	NA/ NA	NA/ NA	96./ NA	127./ NA	127./ NA	256./ NA						
Systems compared to reference system														
PV System; Air-Cooled Thin-Film Arrays (\$0.10/W); HR-4	275	19.5	4.90/ 7.28	3.07/ 6.50	101./ 107.	129./ 135.	124./ 133.	239./ 248.						
OMAHA HIGH RISE (196 UNITS)														
Reference system														
Conv. Central Electric Chilled-Water System With Fan Coil Units and Central Gas Boiler (HR-1)	276	0.0	NA/ NA	NA/ NA	57./ NA	76./ NA	76./ NA	129./ NA						
Systems compared to reference system														
Solar Hot Water; Flat-Plates (1977 Prices); HR-1	277	5.2	20.05/ 34.32	14.86/ 32.11	66./ 74.	84./ 92.	82./ 91.	133./ 142.						
Solar Hot Water; Flat-Plates (Future Price); HR-1	278	5.2	12.54/ 25.13	9.31/ 23.75	62./ 69.	80./ 87.	79./ 86.	130./ 138.						
Solar Heating; I-Cover Pond, Seasonal Aquifer Storage; HR-1	279	34.0	12.80/ 16.48	10.07/ 15.32	94./ 107.	105./ 118.	95./ 113.	140./ 158.						
Solar Heating; I-Cover Pond, Seasonal Aquifer Storage; HR-1	280	34.0	8.30/ 11.06	6.67/ 10.36	78./ 87.	89./ 98.	83./ 96.	128./ 141.						
PV System; Air-cooled Si Arrays (\$1/W); HR-1	281	31.3	23.43/ 30.38	17.26/ 27.75	122./ 144.	137./ 160.	117./ 151.	153./ 187.						
PV System; Air-Cooled Si Arrays (\$1/W), Battery Storage; HR-1	282	34.3	22.66/ 28.93	16.97/ 26.50	124./ 146.	139./ 161.	118./ 152.	150./ 184.						
PV System; Air-Cooled Si Arrays (\$1/W), Seasonal iron-REDOX Battery Storage; HR-1	283	66.0	33.33/ 41.07	25.06/ 37.54	257./ 309.	265./ 318.	209./ 294.	217./ 302.						
PV System; Air-Cooled Si Arrays (\$0.50/W); HR-1	284	31.3	13.07/ 17.68	9.64/ 16.21	88./ 103.	104./ 119.	93./ 114.	128./ 150.						
PV System; Air-Cooled Si Arrays (\$0.50/W), Battery Storage; HR-1	285	34.3	13.71/ 18.06	10.31/ 16.61	92./ 108.	107./ 122.	95./ 117.	127./ 149.						

PV System, Air-Cooled Si Arrays (\$0.50/W), Seasonal Iron-Redox Battery Storage; HR-1	286	66.0	16.85/ 21.04	12.74/ 19.29	144./ 173.	153/ 181.	125./ 170.	133./ 177.
PV System; Air-Cooled Thin-Film Arrays (\$0.30/W); HR-1	287	18.8	12.21/ 17.69	9.01/ 16.32	73./ 84.	90./ 101.	84./ 98.	125./ 139.
PV System; Air-Cooled Thin-Film Arrays (\$0.10/W), HR-1	288	18.8	7.75/ 12.21	5.73/ 11.34	65./ 73.	81./ 90.	78./ 88	119./ 130.
PV System; Air-Cooled Thin-Film Arrays (\$0.10/W) Vertical on Wall, HR-1	289	9.2	3.71/ 10.09	2.75/ 9.68	57./ 63.	75./ 81.	74./ 80.	120./ 127.
PV Cogeneration; Two-Axis Concentrator With Si Cells, Multitank Low-Temp Storage; HR-1	290	35.4	9.01/ 12.32	6.86/ 11.40	78./ 90.	91./ 103.	83./ 99.	119./ 136.
PV Cogeneration; Diesel Backup, Two-Axis Concentrator With High Eff. Cells, Multitank Low-Temp. Storage, HR-2	291	53.7	7.81/ 10.71	5.62/ 9.78	76./ 92.	87./ 103.	75./ 98.	86./ 109.
Solar Engine Cogeneration; One-Axis Tracker, ORCS Engines, High-Temp. Storage; HR-7	292	13.9	45.74/ 57.69	35.95/ 53.51	108./ 125.	129./ 147	115./ 141.	135./ 161.
<i>Reference system</i>								
Conv. Gas Heat, Hot Water, and Absorption Chilling (HR-7)	293	0.0	NA/ NA	NA/ NA	57./ NA	79./ NA	79./ NA	125./ NA
<i>Systems compared to reference system</i>								
Solar Heating and Cooling, One-Axis Tracker (Future Design), Low-Temp. Storage; HR-7	294	35.7	8.20/ 11.67	5.94/ 10.71	80./ 94.	93./ 107.	84./ 103.	121./ 140.
Solar Heating and Cooling; One-Axis Tracker (Future Design), Low-Temp. Storage; HR-7	295	28.1	17.73/ 22.87	13.91/ 21.23	105./ 121.	120./ 135.	108./ 130.	147./ 169.
Solar Engine; LT ORCS, 2-Cover Pond, Seasonal Aquifer and Low-Temp. Storage; HR-7	296	100.0	17.85/ 21.51	13.98/ 19.85	220./ 260.	220./ 260.	177./ 242.	177./ 242.
PV Cogeneration; Two-Axis Concentrator With Si Cells (Low Price), Multitank Low- Temp. Storage; HR-7	297	46.4	6.41/ 8.87	4.89/ 8.22	77./ 90.	90./ 102.	82./ 99.	111./ 128.
PV Cogeneration; Two-Axis Concentrator With Si Cells (Low Price) Multitank Low- Temp. Storage; HR-7	298	54.4	6.61/ 8.96	5.04/ 8.29	82./ 96.	93./ 107.	84./ 103.	111./ 130.
PV Cogeneration; Two-Axis Concentrator With GaAs Cells (Low Price), Seasonal Low- Temp. Storage; HR-8	299/300	82.3	7.04/ 9.27	5.25/ 8.57	99./ 120.	104./ 124.	88./ 118.	108./ 137.
PV Cogeneration; Two-Axis Concentrator With GaAs Cells (Low Price), Battery and Multitank Low-Temp. Storage; HR-7	301	100.0	17.66/ 21.27	13.88/ 19.66	218./ 258.	218./ 258.	176./ 240.	176./ 240.
PV Cogeneration; One-Axis Tracker With Si Cells (\$15/W Cells), and Multitank Low- Temp. Storage; HR-7	302	30.1	20.06/ 26.12	15.10/ 24.01	115./ 135.	131./ 151.	114./ 144.	151./ 180.
PV System; One-Axis Tracker With Si Cells (\$1/W cells), Multitank Low-Temp. Storage;	303	35.9	9.20/ 12.57	7.03/ 11.65	84./ 97.	98./ 111.	89./ 108.	123./ 142.
PV Cogeneration; Two-Axis Concentrator With High Eff. Cells, Multitank Low-Temp. Storage; HR-7	304	68.9	5.86/ 7.87	4.45/ 7.26	84./ 100.	95./ 110.	84./ 106.	107./ 128.

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service			
			No credits		20% ITC		Projection 1 No credits		Projection 2 20% ITC	
Systems compared to reference system—Continued										
Solar Engine; LT ORCS, 2-Cover Pond, Seasonal Aquifer and Low-Temp. Storage; HR-7	305	100.0	16.46/ 21.81	11.39/ 19.64	205./ 264.	205./ 264.	149./ 240.	149./ 240.		
Conv. Engine Cogeneration; Diesel/ORCS Engines, Absorption and Electric Chillers, Low-Temp. Storage (HR-8)	306	35.6	9.52/ 11.86	8.13/ 11.27	77./ 87.	95./ 104.	89./ 101.	105./ 117.		
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (Low Eff.), Multitank Low-Temp. Storage; HR-8	307	50.9	7.23/ 9.26	5.96/ 8.72	77./ 88.	90./ 101.	83./ 98.	95./ 110.		
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (Low Eff.), Multitank Low-Temp. Storage; HR-8	308	62.5	9.21/ 11.56	7.39/ 10.78	97./ 113.	107./ 123.	94./ 117.	103./ 127.		
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (Low Eff.), High-Temp. and Multitank Low-Temp. Storage; HR-8	309	65.3	9.23/ 11.60	7.35/ 10.80	99./ 116.	108./ 125.	95./ 117.	103./ 128.		
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (High Eff.), Multitank Low-Temp. Storage; HR-8	310	67.3	6.95/ 9.02	5.43/ 8.37	83./ 99.	92./ 108.	81./ 103.	89./ 111.		
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (High Eff.), Battery Storage, High- and Low-Temp. Storage; HR-8	311	80.4	11.22/ 14.15	8.59/ 13.03	128./ 154.	133./ 159.	110./ 149.	115./ 154.		
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (Low Eff.), High-Temp. and Multitank Low-Temp. Storage; HR-8	312	82.0	12.11/ 15.06	9.41/ 13.90	138./ 164.	142./ 169.	118./ 159.	122./ 163.		
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (High Eff.), Battery, High-, and Low-Temp. Storage; HR-8	313	86.5	14.28/ 17.81	10.90/ 16.37	163./ 197.	167./ 200.	135./ 187.	138./ 190.		
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (High Eff.), Battery Storage; HR-8	314	98.9	16.75/ 21.21	12.33/ 19.33	206./ 255.	206./ 255.	158./ 234.	159./ 235.		
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (High Eff.), Battery, High-, and Low-Temp. Storage; HR-8	315	96.2	5.66/ 19.54	11.83/ 17.91	190./ 231.	191./ 232.	151./ 215.	152./ 216.		
100-Percent Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (High Eff.), Battery, High-, and Low-Temp. Storage; HR-8	316	100.0	7.53/ 22.14	12.93/ 20.18	217./ 267.	217./ 267.	166./ 246.	166./ 246.		
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (High Eff.), Battery, High-, and Low-Temp. Storage; HR-7	317	98.7	7.09/ 21.47	12.73/ 19.61	210./ 257.	210./ 257.	163./ 237.	163./ 238.		
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (High Eff.), Battery, High-, and Low-Temp. Storage; HR-7	318	98.1	17.10/ 21.42	12.79/ 19.58	209./ 255.	209./ 256.	163./ 236.	163./ 236.		
Conv. Engine Cogeneration; Stirling Engine (Low Eff.), Absorption and Electric Chillers, Low-Temp. Storage (HR-8)	319	38.0	4.72/ 6.27	4.35/ 6.12	59./ 66.	76./ 82.	74./ 82.	90./ 97.		

Reference system

Conv. All Electric System; Central Chilled-Water System and Fan Coil Units With Resistance Heaters (HR-2)	320	0.0	NAI	NA	NA/	NA	87./	NA	11 3./	NA	113./	NA	2 2 3./	NA
Systems compared to reference system														
Solar Hot Water; Flat-Plates (1977 Prices); HR-2	321	12.5	5.07/	8.41	3.76/	7.05	89./	96.	13./	20.	110./	119.	206./	215.
Solar Hot Water; Flat-Plates (Future Price); HR-2	322	12.5	3.17/	6.09	2.35/	5.74	85./	91.	09./	15.	107./	114.	203./	210
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; HR-2	323	19.5	6.18/	8.98	4.57/	8.29	94./	104	16./	25	111./	123.	199./	212.
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; HR-2	324	19.5	3.90/	6.18	2.88/	5.75	87./	94.	08./	16.	105./	115.	194./	203.
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; HR-2	325	26.3	7.66/	10.43	5.65/	9.57	104./	116,	123./	136.	114./	132.	196./	213.
Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; HR-2	326	26.3	4.83/	6.96	3.56/	6.42	91./	100.	111./	120,	105./	118.	186./	199.
100% Solar Heating; Flat-Plates (1977 Prices), Seas. Low-Temp. Storage; HR-2	327	61.1	7.73/	10.20	5.46/	9.24	127./	152.	1 37./	163.	114./	153.	157./	197.
1000% Solar Heating; Flat-Plates (Future Price), Seas. Low-Temp. Storage; HR-2	328	61.1	5.72/	7.75	3.98/	7.00	106./	127.	116./	138.	98./	130.	142./	173.
100% Solar Heating; Flat-Plates (1977 Prices), Seas. Aquifer Storage; HR-2	329	61.1	6.76/	8.78	4.94/	8.01	11 7./	138.	127./	148.	108./	140.	152./	184.
1000% Solar Heating; Flat-Plates (Future Price), Seas. Aquifer Storage; HR-2	330	61.1	4.39/	5.88	3.19/	5.37	92./	107.	103./	118.	90./	113.	134./	156.
PV System, Two-Axis Concentrator With Si Cells (Med. Price), Multitank Low-Temp. Storage; HR-2	331	42.3	6.90/	9.03	5.20/	8.30	109./	124.	125./	140.	1 13./	135.	178./	200.
PV Cogeneration; Two-Axis Concentrator With si Cells (Med. Price), Multitank Low-Temp. Storage; HR-2	332	43.0	4.23/	5.80	3.16/	5.35	90./	102.	106./	118,	98./	114.	163./	179.
PV Cogeneration; Two-Axis Concentrator With Si Cells, Multitank Low-Temp. Storage; HR-6	333	46.4	4.86/	6.52	3.66/	6.00	96./	109.	11 1./	124.	101./	120.	163./	181.
PV Cogeneration; Two-Axis Concentrator With GaAs Cells, Multitank Low-Temp. Storage; HR-2	334	42.6	6.60/	8.64	4.98/	7.95	107./	122.	123./	138.	111./	133.	176 /	197.
PV Cogeneration; Two-Axis Concentrator With GaAs Cells (Low Price), Multitank Low-Temp. Storage; HR-2	335	43.9	4.27/	5.78	3.26/	5.35	91./	102.	106./	118.	99./	114.	163./	179.
PV Cogeneration; Two-Axis Concentrator With GaAs Cells (Low Price), Seasonal Low-Temp. Storage; HR-2	336	73.3	4.53/	6.08	3.24/	5.53	96./	115.	104./	123.	88./	116.	120./	149.
PV System; Two-Axis Concentrator With GaAs Cells (Low Price), Seasonal Multitank Low-Temp. Storage; HR-2	337	74.1	5.52/	7.40	3.87/	6.70	109./	133.	1 17./	140.	96./	132.	128./	164.
PV Cogeneration; One-Axis Concentrator With Si Cells (\$15/W Cells), Multitank Low-Temp. Storage; HR-2	338	28.4	9.80/	13.17	6.97/	11.96	115./	132.	135./	151.	121./	145.	200./	224.
PV Cogeneration; One-Axis Concentrator With Si Cells (\$15/W Cells), Multitank Low-Temp. Storage; HR-2	339	40.7	13.53/	17.10	10.1 9/	15.67	154./	179.	170./	195.	147./	185.	213./	251.
PV Cogeneration; One-Axis Concentrator With Si Cells (\$1/W Cells), Multitank Low-Temp. Storage; HR-2	340	31.9	5.30/	7.32	3.98/	6.76	94./	105..	113./	124.	106./	121.	181./	196.

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service							
			No credits		20% ITC		Projection 1 No credits		Projection 2 No credits		Projection 2 20% ITC		Projection 3 20% ITC	
Systems compared to reference system—Continued														
PV Cogeneration; One-Axis Concentrator With Si Cells (\$1/w Cells), Multitank Low-Temp. Storage; HR-2	341	46.1	6.51/ 8.43	4.98/ 7.78	108./ 123.	123./ 138.	111./ 133.	173./ 195.						
PV Cogeneration; Two-Axis Concentrator With High Eff. Cells, Multitank Low-Temp. Storage; HR-2	342	49.1	4.431 5.92	3.36/ 5.46	95.1 107.	110./ 122.	101./ 118.	163./ 181.						
PV Cogeneration; Two-Axis Concentrator With High Eff. Cells, Seasonal Low-Temp. Storage; HR-2	343	85.7	4.90/ 6.49	3.49/ 5.89	106./ 129.	112./ 136.	92./ 127.	117./ 152.						
PV Cogeneration; Two-Axis Concentrator With High Eff. Cells, Seasonal Multitank Low-Temp. Storage; HR-2	344	98.1	3.35/ 4.45	2.44/ 4.07	87./ 105.	91./ 110.	76./ 103.	95./ 122.						
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (Low Eff.), High-Temp. and Multitank Low-Temp. Storage; HR-6	345	87.4	7.93/ 9.71	6.20/ 8.97	153./ 180.	160./ 186.	134./ 175.	159./ 201.						
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engine (Low Eff.), High Temp. and Multitank Low-Temp. Storage; HR-6	346	90.7	8.35/ 10.12	6.59/ 9.37	165./ 192.	171./ 198.	144./ 186.	169./ 212.						
Reference system														
Conv All Electric System, Resistance Heat, Individual Window A/C, and Electric Water Heaters (HR-4)	347	0.0	NA/ NA	NA/ NA	83./ NA	09./ NA	109./ NA	215./ NA						
Systems compared to reference system														
PV System; Air-Cooled Si Arrays (\$ 1/W), HR-4	348	9.2	18.94/ 23.93	3.94/ 21.80	31./ 147.	53./ 69.	137./ 162.	225./ 250.						
PV System; Air-Cooled Si Arrays (\$ 1/W), HR-4	349	23.5	1 9.19/ 24.13	4.11/ 21.96	44./ 163.	65./ 84.	145./ 175.	230./ 260.						
PV System, Air-Cooled Si Arrays (\$ 1/W), Battery Storage; HR-4	350	22.7	21 .37/ 26.63	5.87/ 24.28	49./ 169.	69./ 89.	149./ 180.	233./ 264.						
PV System, Air-Cooled Si Arrays (\$0.50/W), HR-4	351	19.2	10.66/ 13.78	7.84/ 12.57	05./ 115.	27./ 37.	118./ 133.	206./ 221.						
PV System, Air-Cooled Si Arrays (\$0 501 W), HR - 4	352	18.4	16.33/ 19.97	2.64/ 18.39	20./ 131.	42./ 53.	131./ 148.	218./ 235.						
PV System: Air-Cooled Si Arrays (\$0.50/W). HR-4	353	23.5	10.79/ 13.80	7.93/ 12.58	111./ 123.	132./ 144.	121./ 139.	206./ 224.						
PV System, Air-Cooled Si Arrays (\$0 501 W), Battery Storage, HR-4	354	41.3	1 7.49/ 21.33	13.23/ 19.51	176./ 202.	191./ 218.	162./ 205.	226./ 269.						
PV System; Air-Cooled Si Arrays (\$050/W): HR-4	355	46.7	12.64/ 15.80	9.31/ 14.38	158./ 182.	175./ 199.	149./ 188	219./ 258.						
PV System, Air-Cooled Thin-Film Arrays (\$0.30/W), HR-4	356	11.5	11.22/ 14.93	8.23/ 13.65	97./ 104.	120./ 127.	114./ 25.	209./ 220.						
PV System; Air-Cooled Thin-Film Arrays* (\$0.30/W); HR-4	357	12.9	11.01/ 14.53	8.09/ 13.29	98./ 106,	121./ 129.	115./ 26.	208./ 220.						
PV System; Air-Cooled Thin-Film Arrays Vertical (\$0.10/W); HR-4.	358	5.2	3.441 6.77	2.461 6.35	82./ 85.	107./ 110.	106./ 10.	207./ 211.						

PV System; Air-Cooled Thin-Film Arrays Vertical (\$0.10/W); HR-4	359	4.9	3.95/ 7.53	2.83/ 7.05	83./ 86.	108./ 110.	107./ 110.	208./ 211.
PV System, Air-Cooled Thin-Film Arrays (\$0.10/W) HR4	360	129	6.96/ 9.56	5.10/ 8.77	89./ 95.	112./ 118.	108./ 116.	202./ 210.
PV System; Air-Cooled Thin-Film Arrays (\$0.10/W, HR-4	361	14.8	6.92/ 9.38	5.08/ 8.60	91./ 97.	113./ 119.	109./ 117.	201./ 209.
PV System, Air-Cooled Thin-Film Arrays (\$0.10/W), Battery Storage: HR-4	362	162	7.39/ 9.83	5.46/ 9.01	92./ 99.	114./ 121.	109./ 119.	199./ 209.
PV System, Air-Cooled Thin-Film Arrays (\$0.10/w) HR-4	363	16.5	6.93/ 9.30	5.08/ 8.51	92./ 98.	114./ 120.	109./ 118.	199./ 208.
ALBUQUERQUE SHOPPING CENTER								
<i>Reference system</i>								
Conv. Gas Heat, Hot Water, and Central Electric A/C (SC-1)	364	0.0	NA/ NA	NA/ NA	8.5/ NA	114./ NA	114./ NA	219./ NA
Systems compared to reference system								
Solar Hot Water; Flat-Plates (1977 Prices); SC-1	365	3.0	8.99/ 22.44	6.64/ 21.44	88./ 95.	115./ 122.	114./ 121.	217./ 225.
Solar Hot Water; Flat-Plates (Future price), SC-1	365/401	3.0	5.53/ 18.20	4.08/ 17.59	86./ 92.	113./ 120.	112./ 119.	216./ 223.
<i>Reference system</i>								
Conv. Gas Heat, Hot Water, and Absorption Chilling (SC-7)	366	0.0	NA/ NA	NA/ NA	79./ NA	115./ NA	115./ NA	202./ NA
Systems Compared to reference system								
Conv. Gas Heat, Hot Water, and Double-Effect Absorption Chilling (SC-7)	367	9.7	.91/ 4.60	.581 4.46	76./ 82.	105./ 112.	104./ 111.	186./ 193.
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage, SC-7	368	19.8	13.81/ 18.30	10.53/ 16.90	119./ 135.	142./ 158.	130./ 53.	206./ 229.
Solar Heating; Flat-plates (Future price), Low-Temp. Storage; SC-7	368/405	19.8	7.76/ 11.20	5.70/ 10.32	96./ 109.	120./ 132.	112./ 129.	189./ 205.
100% Solar Heating and Cooling; Flat-Plates (1977 prices), Seas. Low-Temp. Storage; SC-7	369	30.1	13.20/ 17.37	9.67/ 15.87	136./ 159.	153./ 176.	133./ 168.	204./ 238.
Solar Heating; Flat-Plates (Future Prices), Low-Temp. Storage; SC-7	69/407	30.1	8.25/ 11.25	6.05/ 10.32	108./ 125.	125./ 142.	113./ 137.	184./ 207.
Solar Heating and Cooling; One-Axis Tracker (1977 Design), Low-Temp. Storage; SC-7	370	19.6	12.97/ 17.31	9.88/ 15.99	115./ 131.	139./ 154.	128./ 150.	204./ 226.
Solar Heating and Cooling; One-Axis Tracker (Future Design), Low-Temp. Storage; SC-7	371	24.1	4.42/ 6.73	3.33/ 6.26	85./ 96.	106./ 117.	101./ 114.	175./ 188.
Solar Heating and Cooling; One-Axis Tracker (Future Design), Low-Temp. Storage; SC-7	372	-848	-1.44/ -2.12	-1.10/ -1.97	149./ 160.	235./ 246.	230./ 244.	364./ 378.
Solar Heating and Cooling; One-Axis Tracker (Future Design), Seasonal Low-Temp. Storage; SC-7	373	30.1	6.72/ 9.16	5.17/ 8.50	100./ 113.	117./ 130.	108./ 127.	179./ 197.
Solar Heating; One-Axis Tracker (Future Design), Cheap Seasonal Storage; SC-7	374	30.1	5.71/ 8.02	4.31/ 7.43	94./ 107.	111./ 124.	104./ 121.	174./ 191.
Solar Engine Cogeneration; ORCS, One-Axis Tracker (Future Design), Multitank High-Temp. Storage, Absorption Chillers; SC-7	375	15.2	44.88/ 55.56	34.91/ 51.30	193./ 223.	244./ 273.	216./ 262.	262./ 308.

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service					
			No credits		20% ITC		Projection 1 No credits		Projection 2 20% ITC		Projection 3 20% ITC	
<i>Systems compared to reference system—Continued</i>												
<i>Solar Engine Cogeneration; ORCS, One-Axis Tracker (Future Design), Multitank High-Temp. Storage, Absorption Chillers; SC-7</i>												
	376	36.5	19.97/ 24.85	15.35/ 22.88	189./ 222.	227./ 260.	196./ 247.	231./ 282.				
<i>Reference system</i>												
<i>Conv. All-Electric Shopping Center (SC-2)</i>												
	377	0.0	NA/ NA	NA/ NA	90./ NA	120./ NA	120./ NA	239./ NA				
<i>Systems compared to reference system</i>												
<i>Solar Hot Water; Flat-Plates (1977 Prices); SC-2</i>												
	378	8.5	2.78/ 6.64	2.05/ 6.33	89./ 96.	116./ 123.	115./ 122.	225./ 233.				
<i>Solar Hot Water; Flat-Plates (Future Price); "SC-2</i>												
	378/416	8.5	1.71/ 5.33	1.26/ 5.14	88./ 94.	115./ 121.	114./ 120.	224./ 231.				
<i>Solar Heating; Flat-Plates (1977 Price), Low-Temp. Storage; SC-2</i>												
	379	12.7	3.59/ 6.58	2.65/ 6.18	92./ 100.	118./ 126.	116./ 125.	224.1 233.				
<i>Solar Heating; Flat-Plates (Future Design), Low-Temp. Storage, SC-2</i>												
	379/418	12.7	2.20/ 4.87	1.62/ 4.62	89./ 95.	115./ 122.	114./ 121.	221./ 229.				
<i>Solar Heating; Flat-Plates (1977 Price), Seasonal Low-Temp. Storage; SC-2</i>												
	380	18.1	4.41 / 7.06	3.14/ 6.52	95./ 105.	120./ 130.	116./ 128.	217./ 229.				
<i>Solar Heating; Flat-Plates (Future Price), Seasonal Low-Temp. Storage, SC-2</i>												
	380/422	18.1	3.12/ 5.49	2.19/ 5.09	91./ 99.	116./ 124.	112./ 123.	214./ 224.				
<i>PV System; Air-Cooled si Arrays (\$0.50/W); SC-2</i>												
	381	60.4	7.76/ 9.98	5.72/ 9.11	160./ 187.	181./ 207.	156./ 197.	239./ 279.				
<i>PV System; Air-Cooled Si Arrays (\$1/W); SC-2</i>												
	381/423	60.4	14.27/ 17.96	10.52/ 16.36	238./ 282.	258./ 302.	214./ 283.	296./ 366.				
<i>PV System; Air-Cooled Thin-Film Arrays (\$0.10/W); SC-2</i>												
	382	42.1	4.86/ 6.62	3.57/ 6.08	113./ 128.	136./ 150.	125./ 146.	216./ 237.				
<i>PV Cogeneration; Two-Axis Concentrator With High Eff. Cells, Multitank Low-Temp. Storage; SC-2</i>												
	383	86.8	3.96/ 5.10	3.02/ 4.70	125./ 145.	141./ 161.	125./ 154.	191./ 219.				
<i>PV Cogeneration; Two-Axis Concentrator With High Eff. Cells, Battery and Multitank Low-Temp. Storage; SC-2</i>												
	384	80.6	4.36/ 5.58	3.33/ 5.14	127./ 147.	144./ 163.	127./ 156.	194./ 222.				
FORT WORTH SHOPPING CENTER												
<i>Reference system</i>												
<i>Conv. Gas Heat, Hot Water, and Central Electric A/C (SC-1).</i>												
	385	0.0	NA/ NA	NA/ NA	103./ NA	137./ NA	137./ NA	264./ NA				

<i>Systems compared to reference system</i>												
<i>Solar Hot Water; Flat-plates (1977 Prices);</i>												
SC-1	386	2.5	12.07/ 32.09	8.92/ 30.75	107./ 116/	140./ 149	138./ 148	264./ 273.				
<i>Solar Hot Water; Flat-plates (Future Price);</i>												
SC-1	386/401	2.5	7.36/ 26.34	5.44/ 25.52	105./ 114.	137./ 146	137./ 146.	262./ 271.				
<i>Solar Heating and Cooling; Absorption A/C, One-Axis Tracker (Future Design Low-Temp. Storage; SC-7)</i>												
	387	229	8.62/ 12.63	6.22/ 11.60	110./ 127	133./ 150.	123./ 145	202./ 225				
<i>Solar Heating and Cooling; Absorption A/C, One-Axis Tracker (Future Design), Low-Temp. Storage; SC-7</i>												
	388	18.4	13.69/ 19.19	10.06/ 17.64	123./ 141.	148./ 166	136./ 161	218./ 243				
<i>Solar Heating and Cooling; Absorption A/C, One-Axis Tracker (Future Design), Low-Temp. Storage; SC-7</i>												
	389	18.7	26.52/ 34.87	19.54/ 31.89	166./ 194.	192./ 220.	168./ 210.	249./ 291				
<i>Solar Heating and cooling; Absorption A/C, One-Axis Tracker (Future Design), Seasonal Low-Temp. Storage; sc-7</i>												
	390	30.6	10.54/ 14.68	7.48/ 13.37	129./ 151.	147./ 170.	130./ 163.	205./ 238.				
<i>Solar Heating and Cooling; Absorption A/C, One-Axis Tracker (Future Design), Seasonal Low-Temp. Storage; SC-7</i>												
	391	30.6	13.08/ 17.68	9.46/ 16.13	143./ 168.	161./ 186.	141./ 178.	216./ 253				
<i>Solar Heating and Cooling; Absorption A/C, One-Axis Tracker (1977 Design), Seasonal Low-Temp. Storage; SC-7</i>												
	391/407	30.6	25.28/ 32.57	18.50/ 29.68	210./ 250.	228./ 269.	191./ 253.	266./ 327.				
<i>Solar Engine Cogeneration; ORCS and One-Axis Tracker (Future Design), 011 Backup, Multitank High-Temp. 011 Storage; SC-7</i>												
	392	-2.5	*** **/ * - - - -	● - - - - - , - - - - -	209./ 242.	269./ 301.	241./ 289.	296./ 345.				
<i>Reference system</i>												
Conv. All-Electric Shopping Center (SC-2)	393	0.0	NA/ NA	NA/ NA	111./ NA	146./ NA	146./ NA	290./ NA				
<i>Systems compared to reference system</i>												
<i>Solar Hot Water; Flat-Plates (1977 Prices);</i>												
SC-2	394	7.3	3.73/ 9.48	2.76/ 9.06	113./ 122.	148./ 156.	46./ 155.	286./ 295.				
<i>Solar Hot Water; Flat-Plates (Future Price);</i>												
SC-2	394/416	7.3	2.27/ 7.70	1.68/ 7.44	111./ 119.	146./ 153.	45./ 153.	284./ 293.				
<i>Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SC-2</i>												
	395	11.3	4.571 8.77	3.371 8.26	110./ 120.	141./ 150.	38./ 149.	264./ 275.				
<i>Solar Heating; Flat-Plates (Future Price), Low-Temp. Storage; SC-2</i>												
	395/420	11.3	2.80/ 6.60	2.06/ 6.29	106./ 115.	137./ 146.	35./ 145.	261./ 271.				
<i>Solar Heating; Flat-Plates (1977 Prices), Seasonal Low-Temp. Storage; SC-2</i>												
	396	15.1	4.99/ 8.55	3.62/ 7.96	113./ 124.	144./ 155.	140./ 153.	263./ 276.				
<i>Solar Heating; Flat-Plates (Future Price) Seasonal Low-Temp. Storage; SC-2</i>												
	396/422	15.1	3.27/ 6.44	2.35/ 6.05	108./ 118.	139./ 148.	136./ 147.	259./ 271.				
<i>PV System; Air-Cooled Si Arrays (\$0.50/W);</i>												
SC-2	397	46.4	9.98/ 13.02	7.35/ 11.90	183./ 211.	211./ 239.	186./ 228	297./ 339.				
<i>PV System; Air-Cooled Si Arrays (\$ I/W); SC-2.</i>												
	397/423	46.4	18.33/ 23.26	13.52/ 21.20	261./ 307.	288./ 334.	243./ 315.	354./ 426.				
<i>PV System; Air-Cooled Thin-Film Arrays (\$0.10/W); Building Equipped SC-2</i>												
	398	32.3	6.25/ 8.79	4.60/ 8.08	136./ 152,	165./ 181.	154./ 176	272./ 295				

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service							
			No credits		200/0 ITC		Projection 1 No credits		Projection 2 No credits		Projection 2 20% ITC		Projection 3 20% ITC	
OMAHA SHOPPING CENTER														
Reference System														
Conv. Gas Heat, Hot Water, and Central Electric A/C (SC-1).....	399	0.0	NA/	NA	NA/	NA	85./	NA	112./	NA	112./	NA	210./	NA
Systems compared to reference system														
Solar Hot Water; Flat-Plates (1977 Prices); SC-1.....	400	2.4	13.54/	35.32	10.01/	33.82	90./	98.	116./	124.	114./	124.	211./	221.
Solar Hot Water; Flat-Plates (Future Price); Se-1.....	401	2.4	8.26/	28.87	6.10/	27.95	87./	96.	114./	122.	113./	121.	209./	218.
Reference system														
Conv. Gas Heat, Gas Hot Water, and Absorption Chillers (SC-7).....	402	0.0	NA/	NA	NA/	NA	79./	NA	108./	NA	108./	NA	189./	NA
Systems compared to reference system														
Conv. Gas Heat, Hot Water, and Double-Ef. feet Absorption Chilling (SC-7).....	403	7.6	1.60/	7.92	1.02/	7.67	78./	86.	104./	112.	103./	112.	181./	190.
Solar Heating; Flat-Plates (1977 Prices), Low-Temp. Storage; SC-7.....	404	16.8	20.25/	27.48	14.90/	25.20	31./	152.	153./	174.	137./	167.	212./	242.
Solar Heating; Flat-Plates (Future Price); SC-7.....	405	16.8	12.73/	18.27	9.33/	16.83	09./	125.	131./	147.	121./	143.	196./	218.
100-Percent Solar Heating; Flat-Plates (1977 Prices), Seasonal Low-Temp. Storage; SC-7.....	406	27.8	19.43/	25.41	14.33/	23.23	61./	190.	179./	208.	154./	197.	224./	267.
Solar Heating; Flat-Plates (Future Price), Seasonal Low-Temp. Storage; SC-7.....	407	27.8	12.21/	16.57	8.99/	15.20	26./	148.	144./	165.	128./	158.	199./	229.
Solar Heating; One-Axis Tracker (1977 Designs), Low-Temp. Storage; SC-7.....	408	15.3	23.69/	31.46	18.02/	29.04	136./	156.	158./	179.	143./	172.	218./	248.
Solar Heating; One-Axis Tracker (Future Design), Low-Temp. Storage; SC-7.....	409	11.3	11.73/	18.00	8.97/	16.82	97./	109.	121.1	134.	116./	131.	193./	208.
Solar Heating and Cooling; One-Axis Tracker (Future Design) and Low-Temp. Storage; SC-7.....	410	26.3	13.27/	17.73	10.07/	16.36	129./	149.	147./	167.	132./	161.	203./	232.
Solar Heating; One-Axis Tracker (Future Design), Low-Temp. Storage; SC-7.....	411	92.8	3.64/	4.86	2.78/	4.49	88./	108.	90./	110.	77./	104.	85./	113.
Solar Heating and Cooling; One-Axis Tracker (Future Design), Seasonal Low-Temp. Storage; SC-7.....	412	27.8	10.41/	14.21	7.89/	13.13	118./	136.	135./	153.	123./	148.	193./	219.
Solar Engine Cogeneration; ORCS, One-Axis Tracker (Future Design), High-Temp. Storage; SC-7.....	413	-1.8	*****	*****	*****	*****	196./	229.	239./	272.	210./	260.	250./	300.
Reference system														
Conv. All-Electric (SC-2).....	414	0.0	NA/	NA	NA/	NA	96./	NA	126./	NA	126./	NA	247./	NA

Systems compared to reference system

Solar Hot Water; Flat-Plates (1977 Prices); SC-2	415	6.6	4.18/ 10.42	3.09/ 9.95	97./ 105.	125./ 133.	123./ 132.	237./ 246.
Solar Hot Water; Flat-Plates (Future Price); SC-2	416	6.6	33961 46.86	25.11/ 43.08	135./ 152.	163./ 180.	152./ 175.	265./ 289.
Solar Heating; Flat-Plates (1977 Prices) and Low-Temp. Storage; SC-2	417	101	5 1 3 1 9 7 3	3.79/ 9.16	100./ 109.	27./ 136.	124./ 135	235./ 245.
Solar Heating; Flat-Plates (Future Prices) and Low-Temp. Storage; SC-2	418	10.1	4.46/ 9.01	3.15/ 8.51	98./ 108.	26./ 135,	123./ 134.	233./ 244.
Solar Heating; Flat-Plates (1977 Prices) and Low-Temp. Storage; SC-2	419	12.6	6.82/ 11.09	5.06/ 10.34	105./ 116	32./ 142	127./ 141.	236./ 249.
Solar Heating; Flat-Plates (Future Prices) and Low-Temp. Storage; SC-2	420	126	4.42/ 8.14	3.29/ 7.66	99./ 108.	26./ 135	123./ 134.	231./ 242.
100-Percent Solar Heating; Flat-Plates (1977 Prices) and Seasonal Low-Temp. Storage; SC-2	421	24.2	11.31/ 14.58	9.25/ 13.69	133./ 149.	156./ 172.	147./ 168.	240./ 262.
100-Percent Solar Heating; Flat-Plates (Future Prices) and Seasonal Low-Temp. Storage; SC-2	422	24.2	8.92/ 11.64	7.47/ 11.3	122./ 135.	145./ 158.	138./ 155.	232./ 249.
PV System; Air-Cooled Si Arrays (\$1/W) SC-2	423	46.5	8.53/ 23.47	13.66/ 21.40	237./ 283	255./ 301.	211./ 282.	284./ 355.
PV System; Air-Cooled Si Arrays (\$1/W), Battery Storage; SC-2	424	45.4	9.79/ 24.92	14.68/ 22.74	244./ 290.	261./ 307.	215./ 288.	287./ 360
PV System; Air-Cooled Si Array (\$0.50/W); SC-2	425	46.5	0.08/ 13.12	7.43/ 11.99	160./ 188.	178./ 206.	153./ 195.	227./ 269
PV System; Air-Cooled Thin-Film Arrays (\$0.30/W); SC-2	426	25.2	3.53/ 17.97	9.97/ 16.46	148./ 170.	171./ 193.	153./ 186.	249./ 281.
PV System; Air-Cooled Thin-Film Arrays (\$0.10/W); SC-2	427	32.5	6.28/ 8.78	4.62/ 8.07	116./ 132.	137./ 153.	126./ 149.	213./ 236.
PV System; Air-Cooled Thin-Film Arrays (\$0.10/W) Battery Storage; SC-2	428	32.3	6.47/ 9.01	4.77/ 8.29	116./ 132.	138./ 154.	127./ 149.	213./ 236.
PV Cogeneration; Two-Axis Concentrator With High Eff. Cells, Battery and Multitank Low-Temp. Storage; SC-2	429	63.1	6.09/ 7.82	4.68/ 7.23	127./ 149.	139./ 161.	122./ 154.	170./ 202.
PV Cogeneration; Two-Axis Concentrator With High Eff. cells, Multitank Low-Temp. Storage; SC-2	430	66.9	5 12/ 6.70	3.89/ 6.18	120./ 141.	132./ 153,	116./ 147.	166./ 196.

ALBUQUERQUE COMMUNITY

Conventional systems

Conv. Heating and Cooling Systems in Each Building: Mixture of Gas/Electric Hot Water, Gas/Heat-pump/Resistance Heating, and Electric Chilling	431	0.0	NA/ NA	NA/ NA	90./ NA	126./ NA	126./ NA	225./ NA
Conv. Heating and Cooling Systems in Each Building, All Use Electric Hot Water, Resistance Heating, Electric Cooling, and Utility Electricity	432	0.0	NA/ NA	NA/ NA	129./ NA	174./ NA	174/ NA	357./ NA

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy Service			
			No credits		20% ITC		Projection 1 No credits	projection 2 No credits	Projection 2 20% ITC	Projection 3 20% ITC
Reference system										
<i>Conv. Heating and Cooling Systems in Each Building; All Use Electric Hot Water and Cooling; the High Rises and Shopping Center Use Resistance Heating, Other Buildings Use Heat Pumps</i>	433	0.0	NA/ NA	NA/ NA	125./ NA	164./ NA	164./ NA	325./ NA		
Systems compared to reference system										
<i>Conv. Engine Cogeneration; Oil-Burning Diesel/ORCS, Absorption and Electric Chillers</i>	434	54.0	5.33/ 8.08	4.68/ 7.31	122./ 152	135./ 166.	128./ 157.	189./ 218.		
<i>Conv. Engine Cogeneration; Gas-Burning Diesel/ORCS, Absorption and Electric Chillers</i>	G434	54.0	5.33/ 8.08	4.68/ 7.31	101./ 131.	118./ 148.	111./ 139.	126./ 155.		
<i>Conv. Engine Cogeneration; Coal Steam Turbines and Absorption and Electric Chillers. 100-Percent Solar Heating; I-Cover Pond, Seasonal Aquifer Storage, Electric Chillers, and Utility Electricity.</i>	435	41.7	9.18/ 13.85	8.02/ 12.45	125./ 165.	136./ 175.	126./ 164.	157./ 195.		
<i>100-Percent Solar Heating; I-Cover Pond, Seasonal Aquifer Storage, Electric Chillers, and Utility Electricity.</i>	436	54.7	6.67/ 9.86	5.90/ 8.94	140./ 175.	155./ 191.	147./ 181.	210./ 244.		
<i>100-Percent Solar Heating; I-Cover Pond, Seasonal Aquifer Storage, Electric Chillers, and Utility Electricity.</i>	437	54.7	5.52/ 8.28	4.88/ 7.50	127./ 158.	143./ 173.	135./ 165.	199./ 228.		
<i>100-Percent Solar Heating; Flat-Plates (1977 Prices), Seasonal Low-Temp. Storage, Absorption Chillers, and Utility Electricity</i>	438	67.0	7.82/ 11.90	6.81/ 10.68	157./ 213.	66./ 222.	153./ 205.	191./ 244.		
<i>100. Percent Solar Heating; Flat-Plates (Future Price), Absorption Chillers, Low-Temp. Storage, and Utility Electricity.</i>	439	66.9	5.71/ 8.90	4.93/ 7.96	128./ 172.	38./ 181.	127./ 168.	165./ 207.		
<i>Solar Engine Cogeneration; Steam Turbines, Heliostats, High- and Low-Temp. Storage, Absorption and Electric Chillers and Coal Backup</i>	440	70.1	7.91/ 11.56	6.98/ 10.44	150./ 203.	56./ 208.	143./ 192.	158./ 208.		
<i>Solar Engine Cogeneration; Heliostats, Steam Turbines With Coal Superheat, High- and Low-Temp. Storage, Absorption and Electric Chillers, and Coal Backup.</i>	441	66.4	7.75/ 11.37	6.83/ 10.26	144./ 193.	150./ 199.	137./ 184.	155./ 202.		
<i>Solar Engine Cogeneration; Two-Axis Dish, High Eff. Stirling Engines, High- and Low-Temp. Storage, Absorption and Electric Chillers, and Oil Backup.</i>	442	91.4	6.05/ 8.71	5.38/ 7.92	146./ 96.	149./ 198.	137./ 184.	148./ 195.		
<i>Solar Engine Cogeneration; Two-Axis Dish, High Eff. Stirling Engines, High- and Low-Temp. Storage, Absorption and Electric Chillers, and Gas Backup.</i>	G442	91.4	6.05/ 8.71	5.38/ 7.92	143./ 92.	146./ 195.	133./ 180.	136./ 183.		

Solar Engine Cogeneration; Two-Axis Dish, Low Eff. Stirling Engines, High- and Low-Temp. Storage, Absorption and Electric Chillers, and 011 Backup.	443	90.4	6.63/ 9.36	5.95/ 8.54	157./ 207.	159./ 210.	147. / 195.	160. / 207.
Solar Engine Cogeneration; Two-Axis Dish, Low Eff. Stirling Engines, High- and Low-Temp. Storage, Absorption and Electric Chillers, and Gas Backup.	G443	90.4	6.63/ 9.36	5.95/ 8.54	152./ 203.	156./ 206.	43. / 191.	47. / 194.
100-Percent Solar Engine; Low-Temp. ORCS With River-Water Condenser, 2-Cover Pond, Seasonal Aquifer Storage, and Absorption Chillers	444	100.0	8.85/ 12.33	7.95/ 11.25	207./ 278.	207./ 278.	89./ 256.	89. / 256.
100-Percent Solar Engine; Low-Temp. ORCS With Cooling Tower, 2-Cover Pond, Seasonal Aquifer Storage, and Absorption Chillers	445	100.0	11 .07/ 15.28	9.96/ 13.95	252./ 338.	252./ 338	230./ 311	230. / 311.
100-Percent Solar PV Cogeneration; Two-Axis Concentrator With Si Cells (Med. Price), Seasonal iron-REDOX Electrical and Multitank Low-Temp. Storage, and Absorption Chillers (Minimum Collector Area)	446	100.0	9.34/ 13.15	8.38/ 12.00	217./ 295.	217./ 295.	198./ 271.	98./ 271
100-Percent Solar PV Cogeneration; Two-Axis Concentrator With Si Cells (Med. Price), Seasonal iron-REDOX Electrical and Multitank Low-Temp. Storage, and Absorption Chillers (Optimized Collector Area).	447	1000	7.88/ 11.20	7.05/ 10.19	188./ 255,	188./ 255.	171./ 235.	71. / 235.
FORT WORTH COMMUNITY								
<i>Conventional systems</i>								
Conv. Heating and Cooling Systems in Each Building; Mixture of Gas/Electric Hot Water, Gas/Heat-Pump/Resistance Heating, and Electric Chilling	448	0.0	NA/ NA	NA/ NA	117./ NA	158./ NA	158./ NA	294./ NA
Conv. Heating and Cooling Systems in Each Building; All Use Electric Hot Water, Resistance Heating, Electric Cooling, and Utility Electricity	449	0.0	NA/ NA	NA/ NA	145./ NA	193./ NA	193./ NA	392./ NA
<i>Reference system</i>								
Conv. Heating and Cooling Systems in Each Building; All Use Electric Hot Water and Electric Cooling; High Rises and Shopping Center Use Resistance Heating, Other Buildings Use Heat Pumps	450	0.0	NA/ NA	NA/ NA	148./ NA	194./ NA	194./ NA	381./ NA
<i>Systems compared to reference system</i>								
Conv. Engine Cogeneration; 011-Burning Diesel/ORCS, and Absorption and Electric Chillers	451	53.1	5.28/ 8.24	4.61/ 7.43	132./ 166.	145./ 179.	138./ 170.	200./ 232.
Conv Engine Cogeneration; Gas-Burning Diesel/ORCS, and Absorption and Electric Chillers	G451	53.1	5.28/ 8.24	4.61/ 7.43	113./ 147.	133./ 166.	125./ 157.	143./ 175.

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service							
			No credits		20% ITC		Projection 1 No credits		Projection 2 No credits		Projection 2 20% ITC		Projection 3 20% ITC	
Systems compared to reference system—Continued														
Conv. Engine Cogeneration; Coal Steam Turbines, and Absorption and Electric Chillers	452	37.6	1 0.37/	15.92	9.01/	14.29	141/	186,	153./	198.	142./	185.	1 77./	220.
Solar Engine Cogeneration; Steam Turbines, Heliostats, High- and Low-Temp. Storage, Absorption and Electric Chillers, and Coal Backup	453	65.8	9.89/	14.46	8.73/	13.07	187./	251.	1 93./	258.	177. /	238.	196. /	257.
Solar Engine Cogeneration; Steam Turbines With Coal Superheat, Heliostats, High- and Low-Temp. Absorption and Electric-Chillers, and Coal Superheat	454	62.5	9.62/	14.16	8.47/	12.79	177./	238.	184. /	245.	169./	227	190./	248.
OMAHA COMMUNITY														
Conventional systems														
Conv. Heating and Cooling Systems in Each Building; Mixture of Gas/Electric Hot Water, Gas/Heat-Pump/Resistance Heating, and Electric Chilling														
Conv. Heating and Cooling Systems" in Each Building; All Use Electric Hot Water, Resistance Heating, Electric Cooling, and Utility Electricity	455	0.0	NA/	NA	NA/	NA	98. /	NA	1 33. /	NA	1 33./	NA	235./	NA
Reference system	456	0.0	NA/	NA	NA/	NA	131./	NA	1 74. /	NA	174./	NA	351./	NA
Conv. Heating and Cooling System in Each Building; All Use Electric Hot Water and Electric Cooling; High Rises and Shopping Center Use Resistance Heating, Other Buildings Use Heat Pumps	457	0.0	NA/	NA	NA/	NA	1 30. /	NA	168./	NA	168./	NA	326./	NA
Systems compared to reference system														
Conv. District Heating; Central Oil Heat and Electric Chilling, and Utility Electricity	458	34.9	4,49/	7.49	3.87/	6.73	127. /	152.	149./	174.	144./	168.	237./	261.
Conv. District Heating; Central Oil Heat and Electric Chilling, and Utility Electricity	G458	34.9	4.49/	7.49	3.87/	6.73	11 6./	140,	140./	164.	134./	158.	203./	226.
Conv. Engine Cogeneration, Oil-Burning Diesel/ORCS, Absorption and Electric Chillers	459	558	4.98/	770	4,34/	6.93	134. /	170.	147./	183.	138./	173	197./	232.
Conv. Engine Cogeneration; Gas-Burning Diesel/ORCS, Absorption and Electric Chillers	G459	558	4.98/	770	4.34/	6.93	114/	150.	1 30./	166,	122./	156.	137./	171.
Conv. Engine Cogeneration; Coal Steam Turbines, Absorption and Electric Chillers	460	455	7.72/	11 85	6.71/	10.63	139. /	183.	150./	194	139./	181	173./	215
100-Percent Solar Heating; I-Cover Pond, Seasonal Aquifer Storage, Electric Chillers, and Utility Electricity	461	60.1	7.29/	1063	6.48/	9.66	174. /	221.	188./	236.	177. /	222	237. /	282.
100-Percent Solar Heating; Coal Steam Turbines, Absorption and Electric Chillers	461/437	601	7 01/	1003	6.28/	9.16	170. /	212.	184./	227.	174./	215	234. /	275

Solar Engine Cogeneration, Heliostats, Steam Turbines, High- and Low-Temp Storage, Absorption and Electric Chillers, and Coal Backup	462	677	8.83/ 12.89	7.80/ 11.65	188./ 253.	195./ 260.	178./ 240.	198./ 260.
Solar Engine Cogeneration; Heliostats, Steam Turbines With Coal Superheat, High- and Low-Temp. Storage, Absorption and Electric Chillers, and Coal Backup	463	651	8.41/ 12.37	7.41/ 11.17	177./ 238.	184./ 245.	169./ 227.	191./ 248.
Solar Engine Cogeneration; Two-Axis Dish, High Eff. Stirling Engine, High- and Low-Temp Storage, Absorption and Electric Chillers, and Gas Backup	464	875	7.42/ 10.68	6.60/ 9.70	197./ 264.	200./ 268.	184./ 248.	200./ 264.
Solar Engine Cogeneration; Two-Axis Dish, High Eff. Stirling Engines, High- and Low-Temp. Storage, Absorption and Electric Chillers, and Gas Backup	G464	875	7.42/ 10.68	6.60/ 9.70	191./ 258.	196./ 263.	179./ 243.	183./ 247.
Solar Engine Cogeneration; Two-Axis Dish, Low Eff. Stirling Engines, High- and Low-Temp. Storage, Absorption and Electric Chillers, Oil Backup	465	858	8.05/ 11.39	7.22/ 10.39	208./ 276.	212./ 280.	195./ 260.	214./ 278.
Solar Engine Cogeneration; Two-Axis Dish, Low Eff. Stirling Engines, High- and Low-Temp. Storage, Absorption and Electric Chillers, Gas Backup	G465	858	8.05/ 11.39	7.22/ 10.39	202./ 269.	207./ 274.	190./ 254.	195./ 259.
100-Percent Heat Engine, LOW-Temp, ORCS With River Water Condenser, 2-Cover Pond, Seasonal Aquifer Storage, and Absorption Chillers	466	100.0	10.45/ 14.29	9.47/ 13.11	280./ 371.	280./ 371.	257./ 343.	257./ 343.
100-Percent Solar Engine, Low-Temp. ORCS With Cooling Tower, 2-Cover Pond, Seasonal Aquifer Storage, Absorption Chillers	467	100.0	14.30/ 19.54	12.91/ 17.88	371./ 495.	371./ 495.	339./ 456.	339./ 456.
100-Percent solar PV Cogeneration; Two-Axis Concentrator With Si Cells (Med. Price), Seasonal Iron-REDOX Electrical and Multitank Low-Temp. Storage, Absorption Chillers (Minimum Collector Area)	468	1000	12.93/ 18.06	11.63/ 16.50	339./ 460.	339./ 460.	308./ 423.	308./ 423.
100-Percent Solar PV Cogeneration; Two-Axis Concentrator With Si Cells (Med. Price), Seasonal Iron-REDOX Electrical and Multitank, Low-Temp. Storage, Absorption Chillers (Optimized Collector Area)	469	100.0	11.09/ 15.62	9.93/ 14.23	296./ 403.	296./ 403.	268./ 370.	268./ 370.
ALBUQUERQUE INDUSTRIAL								
Reference system								
Conv. Coal Boiler and Utility Electricity (Industrial Owner)	470	0.0	NA/ NA	NA/ NA	1744./ NA	2332./ NA	2332./ NA	4352./ NA
Systems compared to reference system								
Solar Process Heat (180° F), 2-Cover Pond, Low-Temp Storage, Coal Backup Boiler, and Utility Electricity (Industrial Owner)	471	17.9	11.06/ 5.22	9.93/ 4.67	2776./ 2131.	3266./ 2622.	3142./2561	4871./ 4290

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service			
			No credits		200/0 ITC		Project ion 1 No credits	Project ion 2 No credits	Project ion 2 20% ITC	Project ion 3 20% ITC
Systems compared to reference system—Continued										
Solar Process Preheat (180° F max), 2-Cover Pond, Low-Temp Storage, Coal Backup Boiler, and Utility Electricity (Industrial Owner)	472	35.2	5.63/ 2.66	5.06/ 2.38	2593./ 1949.	2991./ 2346.	2866./2285	4316./ 3735.		
Solar Process Heat (180° F), 2-Cover Pond, (Future Price), Low-Temp Storage, Coal Backup Boiler, and Utility Electricity (Industrial Owner)	471/494	17.9	8.12/ 3.37	7.30/ 2.97	2451 ./ 1927.	2942./ 2417.	2852./2373.	4581. / 4103.		
Solar Process Preheat (180° F max.); 2-Cover Pond, (Future Price), Low-Temp Storage, Coal Backup Boiler, and Utility Electricity (Industrial Owner)	472/495	35.2	4.14/ 1.72	3.72/ 1.51	2269./ 1744.	2666./ 2142.	2576./2097.	4026. / 3547.		
Solar Process Heat (180° F), Flat-Plates (1977 Prices), Low-Temp Storage, Coal Backup Boiler, and Utility Electricity (Industrial Owner)	473	35.6	17.66/ 9.46	15.63/ 8.45	5241 ./ 3441.	5636./ 3836.	5190./3617,	6633./ 5060.		
Solar Process Heat (180 °F); Flat-Plate's (Future Price), Low-Temp Storage, Coal Backup	473/497	35.6	11.37/ 5.72	10.06/ 5.07	3862./ 2622.	4257./ 3017.	3969./2876.	5413./ 4319.		
Solar Process Heat (180° F), One-Axis Tracker (1977 Design), High-Temp Storage, Coal Backup Boiler, and Utility Electricity (Industrial Owner)	474	26.9	26.74/ 14.98	23.80/ 13.54	5885./ 3940.	6328./ 4382.	5842./4143.	7427. / 5728.		
Solar Process Heat (350 °F), One-Axis Tracker (Future Design), High-Temp Storage, Coal Backup Boiler, and Utility Electricity (Industrial Owner)	475	25.3	13.10/ 6.70	11.69/ 6.00	3517./ 2520.	3968. / 2971.	3748./2862.	5359. / 4473.		
Solar PV Cogeneration, Two-Axis Concentrators With GaAs Cells (Med. Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electric Backup (Industrial Owner)	476	0.0	NA/ NA	NA/ NA	1468. / NA	2056./ NA	2056. / NA	4076./ NA		
Solar PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Low Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electric Backup (Industrial Owner)	477	17.9	5.36/ 7.72	4.90/ 7.16	1871 ./ 2131.	2362. / 2622.	231 1./2561.	4041. / 4290.		
Reference system										
Conv. Coal Boiler and Utility Electricity (Municipal Utility Owner)	M470	44.7	10.51/ 5.59	9.34/ 5.02	4145. / 2790.	4499. / 3144.	4178./2986.	5417. / 4226.		
Systems compared to reference system										
Solar Process Heat (180° F); 2-Cover Pond, Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M471	47.0	6.77/ 3.40	6.04/ 3.04	3181./ 2204.	3525./ 2548.	331 1./2443.	4501. / 3632,		

Solar Process Preheat (180° F max.); 2-Cover, Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner).	M472	35.2	2.73/	393	2.50/	3.65	1689. /	1949.	2086. /	2346.	2035 /	2285	3485 /	3735
Solar Process Heat (180 °F), 2-Cover Pond, " " (Future Price), LowTemp Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M471/494	17.9	3.98/	5.87	3.65/	5.46	1718.1	1927	2209 /	2417.	2172.12373	3902 /	4103	
Solar Process Preheat (180° F max.); 2-Cover Pond (Future Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility owner)	M472/495	35.2	2.031	2.99	1.86/	2.78	1536./	1744.	1934. /	2142	1897./2097	3347 /	3547	
Solar Process Heat (180° F); Flat-Plates (1977 Prices), Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M473	35.6	730/	10.71	6.47/	9.71	2693.1	3441.	3088.1	3836.	290613617	4349 /	5060	
Solar Process Heat (180° F); Flat-Plates (Future Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M473/497	35.6	4.67/	6.98	4.13/	6.33	2115.1	2622.	2511 /	3017	2393.12876.	3836.1	4319.	
Solar Process Heat (350 °F); One-Axis Tracker (Future Design), High-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M474	26.9	11.77/	16.65	10.57/	15.21	3132.1	3940.	3575. /	4382	3376 /	4143.	4961 /	5728
Solar Process Heat (350°); One-Axis Tracker (1977 Design), High-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Industrial Owner).	M475	25.3	5.87/	8.47	5.301	7.77	2116. /	2520.	2567. /	2971.	2477./2862.	4087 /	4473.	
Solar PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Medium Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electric Backup (Municipal Utility Owner)	M476	44.7	4.57/	6.59	4.10/	6.02	2233./	2790	2587. /	3144.	2456./2986.	3695. /	4226.	
Solar PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Low Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electric Backup (Municipal Utility Owner)	M477	47.0	3.00/	4.35	2.70/	3.99	1812./	2204	2155. /	2548.	2068./2443.	3257. /	3632.	
Reference system														
Conv. Engine Cogeneration; Coal-Burning Steam Turbine (Industrial Owner)	478	0.0	NA/	NA	NA/	NA	1786. /	NA	2269./	NA	2269./	NA	3719. /	NA
Systems compared to reference system														
Solar Engine Cogeneration; Heliostat, Steam Turbines, High-and Low-Temp. Storage, and Coal Backup (Industrial Owner)	479	47.4	1.109/	5.40	9.89/	4.81	4237. /	2748.	4491 /	3002.	4177./2848.	4940. /	3610.	
Reference system														
Conv. Engine Cogeneration; Coal-Burning Steam Turbine (Municipal Utility Owner)	M478	0.0	NA/	NA	NA/	NA	1315. /	NA	1799. /	NA	1799. /	NA	3249. /	NA
Systems compared to reference system														
Solar Engine Cogeneration; Heliostats, Steam Turbines, High- and Low-Temp. Storage, and Coal Backup (Municipal Utility Owner)	M479	47.4	4.93/	7.19	4.44/	6.60	2155. /	2748.	2409./	3002.	2281./2848.	3043. /	3610.	

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service			
			No credits		200/0 ITC		Project Ion 1 No credits		Projection 2 20% ITC	
Reference system										
Conv. Oil Boiler and Utility Electricity (Industrial Owner)	480	0.0	NA/ NA	NA/ NA	2 2 2 8./ NA	3 0 2 8./ NA	3 0 2 8./ NA	6 5 9 4./ NA		
Systems compared to reference system										
Solar Process Heat (180° F); 2-Cover Pond, Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	481	17.9	11 .04/ 6.80	9.91/ 6.25	3018./ 2550.	3662. / 3195.	3538./3133.	6383./ 5979.		
Solar Process Preheat (180° F max.); 2-Cover Pond Collector, Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	482	35.2	5.62/ 3.47	5.05/ 3.18	2605. / 2137.	3100./ 2632.	2975./2571.	5127./ 4722.		
Solar Process Heat (180° F); 2-Cover Pond (Future Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	481/507	17.9	8.10/ 4.95	7.28/ 4.55	2693./ 2345.	3338./ 2990.	3248./2946.	6093. / 5791.		
Solar Process Preheat (180° F max.); 2-Cover Pond (Future Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	482/508	35.2	4.13/ 2.52	3.71/ 2.32	2281./ 1933.	2775./ 2427.	2685./2383,	4837./ 4535.		
Solar Process Heat (180° F); Flat-Plates (1977 Prices), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	483	35.6	17.66/ 10.26	15.63/ 9.26	5249. / 3625.	5740. / 4116.	5294./3897.	7429. / 6032.		
Solar Process Heat (180° F); Flat-Plates (Future Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	483/510	35.6	11 .36/ 6.51	10.05/ 5.87	3868./ 2805.	4359./ 3296.	4072./3154,	6207./ 5289.		
Solar Process Heat (350° F); One-Axis Tracker (1977 Design), High-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	484	26.9	26.74/ 16.05	23.80/ 14.60	601 1./ 4241.	6577. / 4807.	6091./4568.	8577. / 7054.		
Solar Process Heat (350° F); One-Axis Tracker (Future Design), High-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	485	25.3	13.1 0/ 7.83	11 .69/ 7.13	3663./ 2842.	4244. / 3422.	4024./3314.	6574. / 5864.		
Solar PV Cogeneration: Two-Axis Concentrators With GaAs Cells (Med. Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electric Backup (Industrial Owner)	486	44.7	10.51 / 6.23	9.34/ 5.66	4234. / 3055.	4704. / 3525.	4383./3367.	6460. / 5444.		
Solar PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Low Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electric Backup (Industrial Owner), ...	487	47.0	6.77/ 4.01	6.04/ 3.65	3288./ 2487.	3752./ 2950.	3538./2845.	5597./ 4904.		

Reference system

Conv. Oil Boiler and Utility Electricity (Municipal Utility Owner)	M480	0.0	NA/	NA	NA/	NA	2187	/	NA	2988	/	NA	2988	/	NA	6553	/	NA
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Systems compared to reference system

Solar Process Heat (180° F), 2-Cover Pond, Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M481	179	5.36/	717	4.90/	661	2350.	/	2550,	2995	/	3195	2944	/	3133	5789	/	5979
Solar Process Preheat (180° F max.), 2-Cover Pond, Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M482	352	2.73/	365	2.49/	337	1937	/	2137	2432.	/	2632.	2381	/	2571	4533	/	4722
Solar Process Heat (180° F); 2-Cover Pond (Future Price), Low-Temp Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M481/507	179	3.97/	532	3.64/	491	2197	/	2345	2842.	/	2990	2805./	2946	5650	/	5791	
Solar Process Preheat (180° F max.); 2-Cover Pond (Future Price), LowTemp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M482/508	35.2	2.02/	2.71	1.85/	2.50	1785	/	1933.	2279./	2427.	2242./	2383.	4394./	4535.			
Solar Process Heat (180° F): Flat-Plates (1977 Prices), LowTemp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M483	35.6	7.30/	10.44	6.47/	9.44	2937.	/	3625.	3428./	4116.	3245./	3897.	5380./	6032.			
Solar Process Heat (180° F); Flat-Plates (Future Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M483/510	35.6	4.66/	6.70	4.13/	6.05	2358./	2805.	2849./	3296.	2731./	3154.	4867./	5289.				
Solar Process Heat (350° F); One-Axis Tracker (1977 Design), High-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M484	26.9	11.77/	16.29	10.57/	14.85	3493./	4241.	4060./	4807.	3861	./	4568.	6347./	7054.			
Solar Process Heat (350° F); One-Axis Tracker (Future Design), High-Temp. Storage, Oil Backup Boiler, and Utility Electric Backup (Municipal Utility Owner)	M485	25.3	5.87/	8.09	5.30/	7.39	2497./	2842.	3078./	3422.	2988./	3314.	5538./	5864.				
Solar PV Cogeneration; Two-Axis Concen- trators With GaAs Cells (Med. Price), Low- Temp. Storage, Oil Backup Boiler, and Utility Electric Backup (Municipal Utility Owner)	M486	44.7	4.57/	6.38	4.10/	5.81	2558./	3055.	3028./	3525.	2897./	3367.	4973./	5444.				
Solar PV Cogeneration; Two-Axis Concen- trators With GaAs Cells (Low Price), Low- Temp. Storage, Oil Backup Boiler, and Utility Electric Backup (Municipal Utility Owner)	M487	47.0	3.00/	4.15	2.70/	3.79	2154./	2487.	2617./	2950.	2530./	2845.	4588./	4904.				

Conventional oil systems

Conv. Engine Cogeneration; Industry Using Oil-Burning Diesel (Industrial Owner)	488	0.0	NA/	NA	NA/	NA	2319.	/	NA	2981./	NA	2981,	/	NA	6036.	/	NA
Conv. Engine Cogeneration; Oil-Burning Diesel (Municipal Utility Owner)	M488	0.0	NA/	NA	NA/	NA	2082./	NA	2744./	NA	2744./	NA	5799.	/	NA		

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service							
			No credits		200/0 ITC		Projection 1 No credits		Projection 2 No credits		Projection 2 20% ITC			
<i>Reference system</i>														
Conv. Engine Cogeneration; Oil-Burning Stirling Engine (Industrial Owner)	489	0.0	NA/	NA	NA/	NA	2254./	NA	2890./	NA	2890./	NA	5822./	NA
<i>Systems compared to reference system</i>														
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engines, High- and Low-Temp. Storage, and Oil Backup (Industrial Owner).	490	52.4	14.17/	8.22	12.63/	7.46	4680./	3278.	4983./	3580.	4618./	3400.	6012./	4795.
Reference system														
Conv. Engine Cogeneration; Oil-Burning Stirling (Municipal Utility Owner).	M489	0.0	NA/	NA	NA/	NA	2135./	NA	2770./	NA	2770./	NA	5702./	NA
Systems compared to reference system														
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engines, High- and Low-Temp. Storage, and Oil Backup (Municipal Utility Owner).	M490	52.4	6.24/	8.73	5.61/	7.97	2691./	3278.	2994./	3580.	2844./	3400.	4238./	4795.
Reference system														
Conv. Gas Boiler and Utility Electricity (Industrial Owner).	G480	0.0	NA/	NA	NA/	NA	1342./	NA	2279./	NA	2279./	NA	3898.1	NA
Systems compared to reference system														
Solar Process Heat (180° F); 2-Cover Pond, Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner)	G481	17.9	11.04/	6.80	9.91/	6.25	2379./	1911,	3121./	2653.	2997./	2592.	4437./	4033.
Solar Process Preheat (180° F max.); 2-Cover Pond, Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner).	G482	35.2	5.62/	3.47	5.05/	3.18	2203./	1735.	2759./	2291.	2635./	2230.	3903./	3498.
Solar Process Heat (180° F); 2-Cover Pond (Future Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner).	G481/507	17.9	8.10/	4.95	7.28/	4.55	2054./	1706.	2797./	2449.	2707./	2405.	4147./	3845.
Solar Process Preheat (180° F max.); 2-Cover Pond (Future Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner)	G482/508	35.2	4.13/	2.52	3.71/	2.32	1879./	1531.	2435./	2087.	2345./	2042.	3613./	3311.
Solar Process Heat (180° F); Flat-Plates (1977 Prices), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner).	G483	35.6	17.66/	10.26	15.63/	9.26	4853./	3229.	5404./	3780.	4958./	3561.	6222./	4825.
Solar Process Heat (180° F); Flat-Plates (Future Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner).	G483/510	35.6	11.36/	6.51	10.05/	5.87	3472./	2408.	4024./	2960.	3736./	2819.	5000./	4082.

Solar Process Heat (350° F); One-Axis Tracker (1977 Design), High-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner)	G484	26.9	26.74/	16.05	23.80/	14.60	5494.1	3724.	6140./	4370.	5654./4131	7005./	5482.
Solar Process Heat (350° F); One-Axis Tracker (Future Design), High-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner)	G485	25.3	13.10/	7.83	11.69/	7.13	3125./	2303.	3788./	2967.	3568./12858.	4935.1	4225.
Solar PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Med. Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electric Backup (Industrial Owner)	G486	44.7	10.51/	6.23	9.34/	5.66	3755.1	2576.	4298. /	3119	3977./	2961.	4999. / 3983
Solar PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Low Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electric Backup (Industrial Owner)	G487	47.0	6.77/	4.01	6.04/	3.65	2791.1	1989	3330, /	2529	31 17./2424.	4081. /	3388.
Reference system													
Conv. Gas Boiler and Utility Electricity (Municipal Utility Owner)	MG480	0.0	NA/	NA	NA/	NA	1302. /	NA	2238. /	NA	2238./	NA	3858. / NA
Systems compared to reference system													
Solar Process Heat (180° F); 2-Cover Pond, Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG481	17.9	5.36/	7.17	4.90/	6.61	1711./	1911.	2453./	2653.	2403./2592.	3843. /	4033.
Solar Process Preheat (180° F max.); 2-Cover Pond, Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG482	35.2	2.73/	3.65	2.49/	3.37	1535./	1735.	2091./	2291.	2040 /2230.	3309./	3498.
Solar Process Heat (180° F); 2-Cover Pond (Future Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG481/507	17.9	3.97/	5.32	3.64/	4.91	1558. /	1706.	2301./	2449.	2264./2405.	3704./	3845.
Solar Process Preheat (180° F max.); 2-Cover Pond (Future Price, Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG482/508	35.2	2.02/	2.71	1.85/	2.50	1383./	1531.	1939. /	2087.	1902./2042.	3170. /	3311.
Solar Process Heat (180° F); Flat-Plates (1977 Prices), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG483	35.6	7.30/	10.44	6.47/	9.44	2540. /	3229.	3092./	3780.	2909./3561	4173./	4825.
Solar Process Heat (180° F); Flat-Plates (Future Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG483/510	35.6	4.66/	6.70	4.1 3/	6.05	1962. /	2408.	2514. /	2960.	2396./2819.	3660. /	4082.
Solar Process Heat (350° F); One-Axis Tracker (1977 Design), High-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG484	26.9	11.77/	16.29	1 0.57/	14.85	2977. /	3724.	3622./	4370.	3423./4131	4775. /	5482
Solar Process Heat (350° F); One-Axis Tracker (Future Design), High-Temp. Storage, Gas Backup, Boiler, and Utility Electricity (Municipal utility Owner)	MG485	253	5.87/	8.09	5.30/	7.39	1959, /	2303.	2622. /	2967.	2532./2858.	3899. /	4225.

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service					
			No credit S		20% ITC		Projection 1 No credits		Project Ion 2 No credits		Project Ion 2 20% ITC	
Systems compared to reference system—Continued												
Solar PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Med. Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electric Backup (Municipal Utility Owner)	MG486	44.7	4.57/ 6.38	4.10/ 5.81	2079./ 2576.	2622./ 3119.	2490./2961.	3513. / 3983.				
Solar PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Low Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electric Backup (Municipal Utility Owner)	MG487	47.0	3.00/ 4.15	2.70/ 3.79	1656. / 1989.	2196./ 2529.	2109/2424	3073.1 3388.				
Conventional gas systems												
<i>Conv. Engine Cogeneration; Gas-Burning Diesel (Industrial Owner)</i>	G488	0.0	NA/ NA	NA/ NA	1275. / NA	2097./ NA	2097. / NA	2857./ NA				
<i>Conv. Engine Cogeneration; Gas-Burning Diesel (Municipal Utility Owner)</i>	MG488	0.0	NA/ NA	NA/ NA	1037. / NA	1859. / NA	1859. / NA	2619. / NA				
Reference system												
<i>Conv. Engine Cogeneration; Gas-Burning Stirling Engine (Industrial Owner)</i>	G489	0.0	NA/ NA	NA/ NA	1252. / NA	2041./ NA	2041. / NA	2770 / NA				
Systems compared to reference system												
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engines, High- and Low-Temp. Storage, and Oil Backup (Municipal Utility Owner)	MG490	52.4	14.17/ 8.22	12.63/ 7.46	4204./ 2801	4579. / 3176.	4214./2997	4561. / 3344,				
OMAHA INDUSTRIAL												
Reference system												
<i>Conv. Coal Boiler and Utility Electricity (Industrial Owner)</i>	491	0.0	NA/ NA	NA/ NA	1813. / NA	2429. / NA	2429./ NA	4563./ NA				

<i>Systems compared to reference system</i>												
Solar Process Heat (180° F) 2-Cover Pond Low-Temp Storage, Coal Backup Boiler, and Utility Electricity (Industrial Owner)	492	168	18.27/	973	16 41/ 881	3530 / 2644	4054 / 3168	3861 /3073	5722 / 4935			
Solar Process preheat (180 °F max) 2-Cover Pond, Low-Temp Storage, Coal Backup Boiler, and Utility Electricity (Industrial Owner)	493	253	12.13/	646	10 90/ 585	3440. / 2554.	3918 / 3032.	3725 /2937	5449. / 4661.			
Solar Process Heat (180° F). 2-Cover Pond (Future Price), Low-Temp Storage Coal Backup Boiler. and Utility Electricity (industrial Owner).	494	168	13.36/	6.63	12.02/ 5.97	3020. / 2323	3545. / 2847.	3406./2779	5267. / 4640			
Solar process Preheat (180° F max.); 2-Cover Pond (Future Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Industrial Owner)	495	253	8.87/	4.40	7 98/ 396	2930. / 2233.	3409. / 2711.	3270 /2643.	4993. / 4366.			
Solar Process Heat (180° F): Flat-Plates (1977 Prices), Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Industrial Owner)	496	24.3	40.57/	22.49	35.90/ 20.20	7636./ 4926.	8120. / 5411	7420./5066	9159. / 6806			
Solar Process Heat (1800 F); Flat-Plates (Future Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (industrial Owner)	497	24.3	26.07/	13.88	23.06/ 12.40	5462./ 3635.	5946./ 4119.	5496./3898.	7235./ 5637			
Solar Process Heat (3500 F): One-Axis Tracker (1977 Design), High-Temp, Storage, Coal Backup Boiler, and Utility Electricity (industrial Owner)	498	24.5	49.12/	28.51	43.74/ 25.86	8963. / 5854.	9446./ 6337.	8634./5938.	*****/ 7675			
Solar Process Heat (350° F): One-Axis Tracker (Future Design), High-Temp. Storage, Coal Backup Boiler, and Utility Electricity (industrial Owner)	499	25.3	23.64/	13.11	21.09/ 11.85	5231. / 3589.	5710./ 4068.	5312./3872.	7036./ 5596.			
PV Cogeneration System; Two-Axis Concentrators With GaAs Cells (Med. Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electric Backup (Industrial owner)	500	49.3	17.80/	10.06	15.83/ 9.09	6608./ 4254.	6938./ 4584.	6340./4290.	7497. / 5448			
PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Low price), Low-Temp. Storage Coal Backup Boiler, and Utility Electric Backup (Industrial Owner)	501	51.9	11.43/	6.29	10.19/ 5.68	4802./ 3159.	51 14./ 3471.	471 7./3276.	5792./ 4350.			
<i>Reference system</i>												
Conv. Coal Boiler and Utility Electricity (Municipal Utility Owner)	M491	0.0	NA/	NA	NA/ NA	1538. / NA	2153. / NA	2153./ NA	4287. / NA			
<i>Systems compared to reference system</i>												
Solar Process Heat (180° F); 2-Cover Pond, Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M492	16,8	8.89/	2.39	8.13/ 11.47	2281. / 2644.	2806./ 3168.	2727 /3073	4588. / 4935.			
Solar Process Preheat (180 °F max.); 2-Cover Pond Collector, Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility owner)	M493	25.3	5.90/	8.22	5.40/ 7.62	2191 / 2554.	2670 / 3032	2591 ./2937	4314./ 4661.			

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service							
			No credits		200/0 ITC		Projection 1 No credits	Projection 2 No credits	Projection 2 20%ITC	Projection 3 20% ITC				
Systems compared to reference system—Continued														
Solar Process Heat (1800 F); 2-Cover Pond (Future Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M494	16.8	6.571	9.29	6.02/	8.63	2041./	2323.	2566./	2847.	2509./2779.	4370./	4640.	
Solar Process Preheat (180° F max.); 2-Cover Pond (Future Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M495	25.3	4.37/	6.17	4.00/	5.73	1951. /	2233.	2430./	2711.	2373./2643.	4096./	4366.	
Solar Process Heat (180° F); Flat-Plates (1977 Prices), Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M496	24.3	16.77/	24.33	14.86/	22.04	3794./	4926	4278./	5411.	3991./5066.	5731./	6806	
Solar Process Heat (180° F); Flat-Plates (Future Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M497	24.3	10.70/	15.72	9.47/	14.24	2884./	3635.	3368. /	4119.	3183./3898.	4923./	5637.	
Solar Process Heat (350° F); One-Axis Tracker (1977 Design), High-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M498	24.5	21.71/	30.34	19.50/	27.69	4553./	5854.	5036./	6337.	4703./5938.	6441 . /	7675.	
Solar Process Heat (350° F); One-Axis Tracker (Future Design), High-Temp. Storage, Coal Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M499	25.3	10.57/	14.88	9.53/	13.62	2918./	3589.	3397./	4068.	3234./3872.	4958.1	5596.	
PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Med. Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electric Backup (Municipal Utility Owner)	M500	49.3	7.75/	10.96	6.95/	10.00	3278./	4254.	3608./	4584.	3363./4290.	4521./	5448.	
<i>PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Low Price), Low-Temp. Storage, Coal Backup Boiler, and Utility Electric Backup (Municipal Utility Owner)</i>	M501	51.9	5.06/	7.15	4.56/	6.54	2491./	3159.	2803./	3471.	2641 ./3276.	3715./	4350.	
Reference system														
Conv. Engine Cogeneration; Coal-Burning Steam Turbine (Industrial Owner)	502	0.0	NA\	NA	NA/	NA	1786. /	NA	2269. /	NA	2269./	NA	3719. /	NA
<i>Systems compared to reference system</i>														
<i>Solar Engine Cogeneration; Heliostats, Steam Turbines, High- and Low-Temp. Storage, and Coal Backup (Industrial Owner)</i>	503	44.9	18.79/	10.03	16.76/	9.03	6015./	3845.	6281 /	4111	5779./3864	6578. /	4662.	
Reference system														
Conv. Engine Cogeneration; Coal-Burning Steam Turbine (Municipal Utility Owner)	M502	0.0	NA/	NA	NA/	NA	1315. /	NA	1799. /	NA	1799. /	NA	3249. /	NA

Systems compared to reference system

Solar Engine Cogeneration; Heliostats, Steam Turbines, High- and Low-Temp. Storage, and Coal Backup (Municipal Utility Owner).	M503	449	8.39/ 1193	7.56/ 10.93	2970 / 3845	3236 / 4111	3030 /3864	3829./ 4662
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Reference system

Conv. Oil Boiler and Utility Electricity (Industrial Owner)	504	00	NA/ NA	NA/ NA	2088. / NA	2840. / NA	2840. / NA	6167./ NA
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Systems compared to reference system

Solar Process Heat (180° F); 2-Cover Pond, Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	505	168	18.27/ 1142	16.41/ 10.50	3634. / 2924.	4260./ 3549.	4067./3454.	6810 / 6197
Solar Process Preheat (180° F max.); 2-Cover Pond, Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	506	25.3	1 2.13/ 7.58	10.90/ 6.98	3458./ 2748.	4020. / 3309	3827./3214	6274. / 5662.
Solar Process Heat (180° F); 2-Cover Pond (Future Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	507	16.8	13.36/ 8.32	12.02/ 7.66	3125./ 2602.	3750. / 3228.	3611 /3160	6354. / 5903
Solar Process Preheat (180° F max.); 2-Cover Pond (Future Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	508	25.3	8.87/ 5.53	7.98/ 5.09	2949./ 2427.	3510./ 2988.	3371 ./2920.	5819./ 5367
Solar Process Heat (180° F); Flat-Plates (1977 Prices), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	509	243	40.56/ 23.66	35.89/ 21.36	7662. / 5130.	8231./ 5699.	7531 ./5355	'****'/ 7838
Solar Process Heat (180° F); Flat-Plates (Future Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	510	243	26 08/ 15.05	23.07/ 13.57	5493./ 3841	6063. / 4410.	5612./4188.	8094./ 6671
Solar Process Heat (350° F); One-Axis Tracker (1977 Design), High-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	511	24.5	49.11/ 9.67	43.73/ 27.02	8987./ 6056,	9556. / 6624.	8744./6225.	● ****/ 8702,
Solar Process Heat (350° F); One-Axis Tracker (Future Design), High-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Industrial Owner)	512	25.3	23 63/ 4.23	21.07/ 12.97	5247. / 3782.	5809./ 4344.	5412./4148.	7860./ 6597.
PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Med. Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electric Backup (Industrial Owner)	513	49.3	17 79/ 10.63	15,82/ 9.66	6556. / 4379.	6955./ 4778	6357./4484	8114 / 6241
PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Low Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electric Backup (Industrial Owner)	514	51.9	11 .42/ 6.84	10,18/ 6.23	4765. / 3298	5149./ 3682	4752 /3487	6453./ 5188.

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service			
			No credits		20% ITC		Projection 1 No credits		Projection 2 20% ITC	
Reference system										
Conv. Boiler and Utility Electricity (Municipal Utility Owner)	M504	0.0	NA/ NA	NA/ NA	2047.1	NA	2799./ NA	2799./ NA	6127 / NA	
Systems compared to reference system										
Solar Process Heat (180° F); 2-Cover Pond, Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M505	16.8	8.89/ 11.81	8.13/ 10.89	2621 / 2924	3246. / 3549	3167 /3454	5910/ 6197		
Solar Process Preheat (180° F max.); 2-Cover Pond, Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M506	25.3	5.90/ 7.84	5.40/ 7.23	2445 / 2748.	3006./ 3309	2927 /3214	5375./ 5662		
Solar Process Heat (180° F); 2-Cover Pond (Future Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M507	16.8	6.57/ 8.71	6.02/ 8.05	2381./ 2602.	3007/ 3228.	2950./3160.	5692/ 5903		
Solar Process Preheat (180° F max.); 2-Cover Pond (Future Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M508	25.3	4.37/ 5.79	4.00/ 5.35	2205./ 2427.	2767/ 2988	2710 /2920.	5157. / 5367		
Solar Process Heat (180° F); Flat-Plates (1977 Prices), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M509	24.3	16.77/ 23.93	14.86/ 21.63	4057. / 5130.	4626. / 5699.	4340 /5355	6822/ 7838		
Solar Process Heat (180° F); Flat-Plates (Future Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M510	24.3	10.70/ 15.33	9.47/ 13.84	3148. / 3841.	3718. / 4410.	3533./4188.	6016 / 6671		
Solar Process Heat (350° F); One-Axis Tracker (1977 Design), High-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M511	24.5	21.70/ 29.94	19.50/ 27.29	4814. / 6056.	5382. / 6624	5050 /6225	7527/ 8702		
Solar Process Heat (350° F); One-Axis Tracker (Future Design), High-Temp. Storage, Oil Backup Boiler, and Utility Electricity (Municipal Utility Owner)	M512	25.3	10.57/ 14.49	9.52/ 13.23	3172. / 3782.	3733/ 4344	3571 /4148	6019 / 6597		
PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Med. Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electric Backup (Municipal Utility Owner).	M513	49.3	7.75/ 10.76	6.95/ 9.80	3463.1 / 4379.	3862. / 4778	3617./4484.	5374. / 6241.		
PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Low Price), Low-Temp. Storage, Oil Backup Boiler, and Utility Electric Backup (Municipal Utility Owner).	M514	51.9	5.06/ 6.96	4.55/ 6.35	2691 / 3298.	3075./ 3682.	2912./3487.	4613./ 5188.		
Conventional oil systems										
Conv. Engine Cogeneration; Oil-Burning Diesel Engine (Industrial Owner).	515	0.0	NA/ NA	NA/ NA	2072./ NA	2644. / NA	2644. / NA	5284. / NA		

Conv Engine Cogeneration; Oil-Burning Diesel Engine (Municipal Utility Owner)	M515	00	NA/	NA	NA/	NA/	1834./	NA	2406./	NA	2406./	NA	5046./	NA
Reference system														
Conv Engine Cogeneration; Oil-Burning Stirling (Industrial Owner)	516	00	NA/	NA	NA/	NA	2017 /	NA	2566 /	NA	2566 /	NA	5100 /	NA
SYSTEMS compared to reference system														
Solar Engine Cogeneration, Two-Axis Dish, Stirling Engines, High and Low-Temp Storage, and Oil Backup (Industrial Owner)	517	465	26331	1554	23 45/	1412	6821 /	4565	71 15, /	4859	6512 /	4562	7867 /	5917
Reference system														
Conv. Engine Cogeneration, Oil-Burning Stirling (Municipal Utility Owner)	M516	00	NA/	NA/	NA/	NA/	1898./	NA	2447./	NA	2447 /	NA	4980./	NA
Systems compared to reference system														
Solar Engine Cogeneration; Two-Axis Dish, Stirling Engines, High- and Low-Temp Storage, and Oil Backup (Municipal Utility Owner)	M517	465	46.5	1.59/	16.11	0.41/	14.69	3914/	4859	3667./	4562	5022 /	5917	
Reference system														
Conv Gas Boiler and Utility Electricity (Industrial Owner)	G504	00	NA/	NA	NA/	NA	1331 /	NA	2210. /	NA	2210 /	NA	3864 /	NA
Systems compared to reference system														
Solar Process Heat (180° F); 2-Cover Pond, Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner)	G505	168	78.27/	1142	16.41/	050	3075./	2365	3794./	3084.	3601 /	2989	5108. /	4496
Solar Process Preheat (180° F max.); 2-Cover Pond, Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner)	G506	253	12.13/	758	1090/	696	2999./	2289.	3637. /	2927	344412832,	4877 /	4264	
Solar Process Heat (180° F); 2-Cover Pond (Future Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner)	G507	168	13 36/	8.32	1 2.02/	766	2566. /	2044.	3285. /	2763.	3146./	2694.	4653 /	4201
Solar Process Preheat (180° F max.); 2-Cover Pond (Future Price), Low-Temp Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner)	G508	253	25.3	8.87/	5.53	0.98/	5.09	490./	1968.	128./	2606.	2989./	253;	
Solar Process Heat (180 °F), Flat-Plates (1977 Prices), Low-Temp Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner)	G509	243	24.3	0.56/	23.66	5.89/	21.36	191./	4659.	339./	5307.	7139./	496.	
Solar Process Preheat (180° F); Flat-Plates (Future Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner)	G510	243	24.3	3.08/	15.05	1.07/	13.57	122./	3370.	170./	4018.	5219./	3796	
Solar Process Heat (350° F); One-Axis Tracker (1977 Design), High-Temp, Storage, Gas Backup Boiler, and Utility Electricity (Industrial owner)	G511	245	24.5	9.11/	29.67	1.73/	27.02	118./	5586.	65./	6233.	8353./	583.	

Summary description of system	Table number	Percent solar	Effective cost of solar energy (¢/kWh)				Levelized monthly cost of energy service			
			No credits		20% ITC		Projection 1 No credits	Projection 2 No credits	Projection 2 20% ITC	Projection 3 20 ITC
Systems compared to reference system—Continued										
Solar Process Heat (350° F); One-Axis Tracker (Future Design), High-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Industrial Owner)	G512	25.3	23.63/1423	21.07/12.97	4788./3323	5427./3961.	5029./3766.	6461 / 5198.		
PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Med. Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electric Backup (Industrial Owner)	G513	49.3	17.79/1063	15.82/9.66	6176./3999	6639. / 4461	6040 /4167.	6957 / 5084.		
PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Low Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electric Backup (Industrial Owner)	G514	51.9	11.42/ 6.84	10.18/ 6.23	4368 / 2901.	4818 / 3352	4421/3156	5245. / 3979		
Reference system										
Conv. Gas Boiler and Utility Electricity (Municipal Utility Owner)	MG504	0.0	NA/ NA	NA/ NA	1291./ NA	2169./ NA	2169. / NA	3824. / NA		
Systems compared to reference system										
Solar Process Heat (180° F); 2-Cover Pond, Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG505	16.8	8.89/11.81	8.13/ 10.89	2062./ 2365.	2781./ 3084.	2702./2989.	4209./ 4496.		
Solar Process Preheat (180° F max.); 2-Cover Pond, Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG506	5.3	5.90/ 7.84	5.40/ 7.23	1986. / 2289.	2624./ 2927.	2545./2832.	3977. / 4264.		
Solar Process Heat (180° F); 2-Cover Pond (Future Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG507	6.8	6.57/ 8.71	6.02/ 8.05	1822./2044.	2541./ 2763.	2484./2694.	3991./ 4201.		
Solar Process Preheat (180° F max.); 2-Cover Pond (Future Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG508	25.3	4.37/ 5.79	4.00/ 5.35	1746. / 1968.	2384.1 2606.	2327./2537.	3760./ 3970.		
Solar Process Heat (180° F); Flat-Plates (1977 Prices), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG509	24.3	16.77/ 23.93	14.86/ 21.63	3586./ 4659.	4234./ 5307.	3947./4962.	5389./ 6404.		
Solar Process Heat (180° F); Flat-Plates (Future Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG510	24.3	10.70/ 15.33	9.47/ 13.84	2677./ 3370.	3325./ 4018.	3141./3796.	4582./ 5237.		
Solar Process Heat (350° F); One-Axis Tracker (1977 Design), High-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)	MG511	24.5	21.70/ 29.94	19.50/ 27.29	4345./ 5586.	4991. / 6233.	4659./5834.	6099./ 7274.		

<i>Solar Process Heat (350° F); One-Axis Tracker (Future Design), High-Temp. Storage, Gas Backup Boiler, and Utility Electricity (Municipal Utility Owner)</i>													
MG512	25.3	10.57/ 14.49	9.52/ 13.23	2712 / 3323.	3351 / 3961	3188./3766.	4620 / 5198						
<i>PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Med. Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electric Backup (Municipal Utility Owner)</i>													
MG513	493	7.75/ 10.76	6.95/ 9.80	3083 / 3999.	3545. / 4461.	3300 /4167.	4217 / 5084.						
<i>PV Cogeneration; Two-Axis Concentrators With GaAs Cells (Low Price), Low-Temp. Storage, Gas Backup Boiler, and Utility Electric Backup (Municipal Utility Owner)</i>													
MG514	51.9	5.06/ 6.96	4.55/ 6.35	2294. / 2901.	2744./ 3352.	2581 /3156.	3404. / 3979						
Conventional gas systems													
<i>Conv. Engine Cogeneration; Gas-Burning Diesel (Industrial Owner)</i>													
G515	0.0	NA/ NA	NA/ NA	1180. / NA	1901./ NA	1901 / NA	2568. / NA						
<i>Conv. Engine Cogeneration; Gas-Burning Diesel (Municipal Utility Owner)</i>													
MG515	0.0	NA/ NA	NA/ NA	942. / NA	1663./ NA	1663. / NA	2330. / NA						
Reference system													
<i>Conv. Engine Cogeneration; Gas-Burning Stirling (Industrial Owner).</i>													
G516	0.0	NA/ NA	NA/ NA	1161. / NA	1853./ NA	1853. / NA	2492. / NA						
Systems compared to reference system													
<i>Solar Engine Cogeneration; Two-Axis Dish, Stirling Engines, High- and Low-Temp. Storage, and Gas Backup (Industrial Owner).</i>													
G517	46.5	26.33/ 15.54	23.45/ 14.12	6363./ 4107.	6733.1 4477.	6131 /4181	6473. / 4523.						
Reference system													
<i>Conv. Heat Engine Cogeneration; Gas- Burning Stirling (Municipal Utility Owner)</i>													
MG516	0.0	NA/ NA	NA/ NA	1041. / NA	1734. / NA	1734. / NA	2373. / NA						
Systems compared to reference system													
<i>Solar Engine Cogeneration; Two-Axis Dish, Stirling Engines, High- and Low-Temp. Storage, and Gas Backup (Municipal Owner).</i>													
MG517	46.5	11.59/ 16.11	10.41 / 14.69	3162. / 4107.	3532./ 4477.	3285./4181.	3628.1 4523						