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## **Present Worth Factors for Life-Cycle Cost Studies in the Department of Defense (1995)**

Data for DoD compliance with the Federal Methodology for Life-Cycle Cost Analysis, Title 10, CFR, Part 436, Subpart A, and OMB Circular A-94

**Stephen R. Petersen**

U.S. DEPARTMENT OF COMMERCE  
Technology Administration  
National Institute of Standards  
and Technology  
Computing and Applied Mathematics Laboratory  
Office of Applied Economics  
Gaithersburg, MD 20899

Prepared for:

Office of the Assistant Secretary of Defense-  
Production and Logistics  
Energy Policy Directorate  
Washington, DC 20301

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October 1994



U.S. DEPARTMENT OF COMMERCE  
Ronald H. Brown, Secretary

TECHNOLOGY ADMINISTRATION  
Mary L. Good, Under Secretary for Technology

NATIONAL INSTITUTE OF STANDARDS  
AND TECHNOLOGY  
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## PREFACE

On March 18, 1991, and again in March 1994, the Army, Navy, and Air Force signed a Memorandum of Agreement (MOA) on Criteria/Standards for Economic Analysis/Life-Cycle Costing for MILCON Design. The stated purpose of these MOAs is to establish criteria and standards for performing economic analyses (EAs) and life-cycle cost (LCC) studies in support of design decisions for projects in the Military Construction (MILCON) Program; i.e., to support the selection from various alternatives of components/systems being considered as elements in facilities design. Since 1991 the criteria/standards package represented by the provisions of the MOA has been adopted and specified for use in conjunction with several other Department of Defense (DoD) applications. For example, the Office of the Secretary of Defense has specified that EAs conducted in support of project-justification decisions for ECIP (Energy Conservation Investment Program) projects be based on this same criteria/standards package.

The criteria and standards in the MOA are responsive to, and consistent with, the requirements of 10 CFR 436 governing the economic analysis of investments in energy conservation and renewable energy resources for Federal facilities. However, the governing order for non-energy-related investments, OMB Circular A-94, was significantly revised in October 1992. Circular A-94 no longer specifies a single discount rate for economic analysis of Federal investments. Instead, Circular A-94 specifies two basic types of discount rates: (1) a discount rate for cost-effectiveness, lease-purchase, and related analyses; and (2) a discount rate for public investment and regulatory analyses. Only discount rates for the first type of analyses are included in this NIST report, since its primary purpose is to support cost-effectiveness studies related to the design and operation of DoD facilities.

OMB discount rates for cost-effectiveness and lease-purchase studies are based on interest rates on Treasury Notes and Bonds with maturities ranging from 3 to 30 years. Currently (as of February 1994) five maturities have been specifically identified by OMB, and are shown here with the corresponding real interest rate to be used as the discount rate for studies subject to Circular A-94:

Maturity:	<u>3-year</u>	<u>5-year</u>	<u>7-year</u>	<u>10-year</u>	<u>30-year</u>
Rate:	2.1%	2.3%	2.5%	2.7%	2.8%

For total study periods corresponding to these five maturities, Circular A-94 requires that the discount rates correspond to the rates shown. The total study period is the time between the Beneficial Occupancy Date and the end of study (the service period), *plus* the time between the Date of Study and the Beneficial Occupancy Date (the planning and construction period). For total study periods different from the five maturities shown, Circular A-94 does not specify the discount rate to be used. Although Circular A-94 allows for interpolation between the rates shown, such an approach is not practical for the simplified tabular approach used in this document. Accordingly, the enclosed tables have been developed for use primarily for long-term studies, defined here as those with total study periods exceeding 10 years. These data are based on a discount rate of 2.8%, corresponding to OMB's 30-year rate.

The tables have also been designed for use in support of short-term studies, defined here as those with total study periods of 10 years or less. For these types of studies, the present worth factors are based on a discount rate of 2.5%, corresponding to OMB's 7-year rate. Accordingly, for short-term studies with total study periods not close to seven years, the discount factors provided in the tables should be considered approximations only. When more precise results are required, the present worth factors should be determined using a computer program specifically approved for DoD-construction design applications. The Life Cycle Cost in Design (LCCID) program, developed by the U.S. Army Corps of Engineers' Construction Engineering Research Laboratory (CERL) specifically for DoD-construction design applications, is recommended. The NIST Building Life Cycle Cost (BLCC) or DISCOUNT programs, developed for more general applications, are also acceptable. While the NIST programs produce accurate results, the formats of the reports provided do not correspond to the standard DoD report formats. Whichever computer program is used, it must be the most recent version of that program, which incorporates the latest DOE-projected energy price escalation rates and the discount rates for energy and non-energy studies.

The tables presented in this document are designed to be used in support of EAs/LCC studies conducted in accordance with the provisions of the MOA. These tables are considered to be valid and appropriate for all analyses/studies initiated during Fiscal Year 1995, and are authorized for use throughout that period. The present worth factors presented in the annually recurring cost tables are based on an assumed Date of Study (DOS) of April 1995. However, these factors should be sufficiently accurate for use at any time during that fiscal year.

The present worth factors in this report are consistent with those in NISTIR 85-3273-9, Energy Price Indices and Discount Factors for Life-Cycle Cost Analysis 1995, the Annual Supplement to NIST Handbook 135, Life-Cycle Costing Manual for the Federal Energy Management Program. However, the present worth factors for DoD studies are more specific as to the Date of Study and the Beneficial Occupancy Date than those in NISTIR 85-3273-9. The DoD factors for annually recurring costs assume that the Date of Study is April 1995 and that the Beneficial Occupancy Date occurs in October of the current year or in October of a future year (up to 2004). The DoD tables for annually recurring costs are based on a mid-year discounting convention for all annually-recurring costs, while the corresponding tables in NISTIR 85-3273-9 are based on an end-of-year discounting convention.

The same forecast of regional energy prices provided by the U.S. Department of Energy's Energy Information Administration (EIA) for NISTIR 85-3273-9 were used in computing the energy-type-specific tables in this report. However, with one exception, these tables are based on forecasts of energy prices for the industrial sector only, while the tables in NISTIR 85-3273-9 are based on residential, commercial, and industrial forecasts. Price forecasts for liquefied petroleum gas (LPG) in the residential sector were used for the DoD tables because industrial LPG price forecasts were not available from EIA.

For LCC analysis of Federal projects outside of the Department of Defense, especially those projects related to energy conservation and renewable energy resources, the present worth factors from NISTIR 85-3273-9 should be used.

Both the CERL LCCID Program and the NIST Building Life-Cycle Program (BLCC), version 4.0 or later, can be used for the economic evaluation of MILCON design projects, consistent with the Tri-Service MOAs of 1991 and 1994. Both use the DOE projections of energy price increases (which are on the LCCID and BLCC disks) to calculate the present value of future energy costs. In addition, the NIST ERATES program can be used to incorporate complex electricity rate schedules into an economic analysis of building energy use.

NISTIR 85-3273-9, as well as NIST Handbook 135, BLCC, and ERATES can be obtained from:

Advanced Sciences, Inc.  
1525 Wilson Blvd.  
Suite 1200  
Arlington, VA 22209  
(703) 243-4900

## ABSTRACT

This document provides 47 tables of present worth factors to be used in computing the present worth of future costs (or cost reductions) in economic analyses of design decisions for projects in the DoD Military Construction Program. These factors are especially useful for the life-cycle cost analysis of investments in buildings or building systems which are intended to reduce future operating, maintenance, repair, replacement, and energy costs over the life of the facility. The tables include present worth factors for both one-time costs and annually recurring costs, based on the FEMP discount rate of 3.0% (FY 1995) for energy-related studies and on the OMB discount rate of 2.5% and 2.8% for short-term and long-term non-energy studies, respectively. Forecasts of future energy prices used in the calculation of present worth factors for energy costs were provided by the Energy Information Administration.



## ACKNOWLEDGMENTS

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## Part I. Tables of Present Worth Factors for Energy Studies

Part I contains tables of present worth factors for use in computing the life-cycle costs of the competing alternatives in an energy-related study, in accordance with the provisions of governing DoD criteria (see Appendix A). These tables are all numbered in a sequence beginning with the letter "E" for energy. The discount rate used to compute these present worth factors is 3.0%. This is the discount rate specified for use in energy-related projects by the Federal Energy Management Program for Fiscal Year (FY) 1995.

Table E-1, "Present Worth Factors--One-Time Costs, Zero Differential Escalation," provides present worth factors for costs which occur one time or at irregular intervals throughout the study period. These costs include construction/acquisition costs, non-annually recurring maintenance costs, major repair and replacement costs, and retention/salvage value or disposal cost. These factors are called "single present worth" (SPW) factors. The present worth of each cost occurrence is found by multiplying that cost, in Date-of-Study (DOS) prices, by the SPW factor corresponding to the time of occurrence (years after DOS). Interpolation is encouraged for non-integer time periods.

Table E-2, "Present Worth Factors--Annually Recurring Non-Energy Costs, Zero Differential Escalation," provides present worth factors for all costs other than energy costs which are incurred annually throughout the study period in substantially the same amount each year (in constant dollar terms), such as routine maintenance and repair costs. These factors are called "uniform present worth" (UPW) factors. The factors in this table are based on the assumption that the DOS is in April 1995, the Beneficial Occupancy Date is in October of the same year or a future year, and that the annual cost occurs approximately at mid-year during each year of occupancy, or represents the sum of several costs distributed relatively uniformly throughout the year. The present worth of a cost recurring annually over the study period is found by multiplying the annual amount, in DOS prices, by the appropriate UPW factor. The number of payments generally corresponds to the number of years in the study period after the Beneficial Occupancy Date. Interpolation is encouraged for study periods and for beneficial occupancy dates other than those shown on the table.

Tables E-3-ET-R, where ET is the energy type code and R is the region number (R = 5 is for U.S. average), provide present worth factors for annually recurring energy costs. These factors are based on the assumption that annual energy usage/savings is constant from year to year, but that energy prices are changing over time, in accordance with the provisions of governing DoD criteria (see Appendix A). These factors are sometimes called "modified uniform present worth" (UPW\*) factors. The UPW\* factors in this table are based on the assumption that the DOS is in April 1995, the Beneficial Occupancy Date is in October of the same year or a future year, and that the annual energy cost occurs approximately at mid-year during each year of occupancy, or represents the sum of several costs distributed relatively uniformly throughout the year. The present worth of an annual energy cost over the study period is found by multiplying the annual amount, in DOS prices, by the appropriate UPW\* factor. The number of payments generally corresponds to the number of years in the study period after the Beneficial Occupancy Date. Interpolation is encouraged for study periods and for Beneficial Occupancy Dates other than those shown on the tables.

Table E-1. Present Worth Factors - One-Time Costs  
Zero Differential Escalation (e = 0%)

Time Cost Incurred (Years after DOS)	SPW Factor	Time Cost Incurred (Years after DOS)	SPW Factor
0.00	1.0000	16	0.6232
0.25	0.9926	17	0.6050
0.50	0.9853	18	0.5874
0.75	0.9781	19	0.5703
		20	0.5537
1	0.9709	21	0.5375
2	0.9426	22	0.5219
3	0.9151	23	0.5067
4	0.8885	24	0.4919
5	0.8626	25	0.4776
6	0.8375	26	0.4637
7	0.8131	27	0.4502
8	0.7894	28	0.4371
9	0.7664	29	0.4243
10	0.7441	30	0.4120
11	0.7224	35	0.3554
12	0.7014	40	0.3066
13	0.6810	45	0.2644
14	0.6611	50	0.2281
15	0.6419		

## Notes:

- <1> Authorized Period of Use of Table is Oct 1994 through Sep 1995.  
 <2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.  
 Data Based on Discount Rate of 3% (NIST Annual Supplement to Handbook 135, Oct 1994).  
 <3> Covers Costs such as Construction, Procurement, Replacement, Disposal.

Table E-2. Present Worth Factors--Annually Recurring Non-Energy Costs  
Zero Differential Escalation (e = 0%)

Number of Payments	Beneficial Occupancy Date													
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004				
1	0.9709	0.9426	0.9151	0.8885	0.8626	0.8375	0.8131	0.7894	0.7664	0.7441				
2	1.9135	1.8577	1.8036	1.7511	1.7001	1.6506	1.6025	1.5558	1.5105	1.4665				
3	2.8286	2.7462	2.6662	2.5886	2.5132	2.4400	2.3689	2.2999	2.2329	2.1679				
4	3.7171	3.6088	3.5037	3.4017	3.3026	3.2064	3.1130	3.0223	2.9343	2.8488				
5	4.5797	4.4463	4.3168	4.1911	4.0690	3.9505	3.8354	3.7237	3.6153	3.5100				
6	5.4172	5.2594	5.1062	4.9575	4.8131	4.6729	4.5368	4.4047	4.2764	4.1518				
7	6.2303	6.0488	5.8726	5.7016	5.5355	5.3743	5.2178	5.0658	4.9182	4.7750				
8	7.0197	6.8152	6.6167	6.4240	6.2369	6.0552	5.8789	5.7077	5.5414	5.3800				
9	7.7861	7.5593	7.3392	7.1254	6.9179	6.7164	6.5207	6.3308	6.1464	5.9674				
10	8.5302	8.2818	8.0405	7.8063	7.5790	7.3582	7.1439	6.9358	6.7338	6.5377				
11	9.2526	8.9831	8.7215	8.4675	8.2208	7.9814	7.7489	7.5232	7.3041	7.0914				
12	9.9540	9.6641	9.3826	9.1093	8.8440	8.5864	8.3363	8.0935	7.8578	7.6289				
13	10.6350	10.3252	10.0245	9.7325	9.4490	9.1738	8.9066	8.6472	8.3953	8.1508				
14	11.2961	10.9671	10.6476	10.3375	10.0364	9.7441	9.4603	9.1847	8.9172	8.6575				
15	11.9379	11.5902	11.2526	10.9249	10.6067	10.2978	9.9978	9.7066	9.4239	9.1494				
16	12.5611	12.1952	11.8400	11.4952	11.1604	10.8353	10.5197	10.2133	9.9158	9.6270				
17	13.1661	12.7826	12.4103	12.0489	11.6979	11.3572	11.0264	10.7053	10.3935	10.0907				
18	13.7535	13.3529	12.9640	12.5864	12.2198	11.8639	11.5183	11.1829	10.8572	10.5409				
19	14.3238	13.9066	13.5016	13.1083	12.7265	12.3558	11.9960	11.6466	11.3073	10.9780				
20	14.8775	14.4441	14.0234	13.6150	13.2184	12.8334	12.4597	12.0967	11.7444	11.4023				
21	15.4150	14.9660	14.5301	14.1069	13.6960	13.2971	12.9098	12.5338	12.1688	11.8143				
22	15.9369	15.4727	15.0221	14.5845	14.1597	13.7473	13.3469	12.9582	12.5808	12.2143				
23	16.4436	15.9647	15.4997	15.0482	14.6099	14.1844	13.7713	13.3702	12.9807	12.6027				
24	16.9355	16.4423	15.9634	15.4984	15.0470	14.6087	14.1833	13.7701	13.3691	12.9797				
25	17.4131	16.9060	16.4136	15.9355	15.4714	15.0207	14.5832	14.1585	13.7461	13.3457				
30	19.6004	19.0296	18.4753	17.9372	17.4147	16.9075	16.4151	15.9370	15.4728	15.0221				
35	21.4872	20.8614	20.2538	19.6638	19.0911	18.5351	17.9952	17.4711	16.9622	16.4682				
40	23.1148	22.4415	21.7879	21.1533	20.5372	19.9390	19.3583	18.7944	18.2470	17.7155				
45	24.5187	23.8046	23.1112	22.4381	21.7846	21.1501	20.5340	19.9360	19.3553	18.7916				
50	25.7298	24.9804	24.2528	23.5464	22.8606	22.1947	21.5483	20.9207	20.3113	19.7197				

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

&lt;2&gt; Authorized Period of Use of Table is Oct 1994 through Sep 1995.

&lt;3&gt; Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% (NIST Annual Supplement to Handbook 135, Oct 1994).  
<3> Covers Costs such as Routine Maintenance & Repair and Custodial.

Table E-3-EL-1. Present Worth Factors--Electricity

Number of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	0.9612	0.9264	0.8994	0.8769	0.8541	0.8327	0.8127	0.7919	0.7686	0.7460					
2	1.8876	1.8258	1.7763	1.7310	1.6867	1.6454	1.6046	1.5605	1.5147	1.4709					
3	2.7870	2.7027	2.6304	2.5637	2.4994	2.4372	2.3732	2.3065	2.2395	2.1763					
4	3.6639	3.5568	3.4631	3.3763	3.2913	3.2059	3.1192	3.0314	2.9449	2.8700					
5	4.5180	4.3894	4.2757	4.1682	4.0599	3.9519	3.8441	3.7368	3.6386	3.5486					
6	5.3507	5.2021	5.0676	4.9368	4.8060	4.6768	4.5495	4.4305	4.3172	4.2085					
7	6.1634	5.9940	5.8362	5.6829	5.5308	5.3822	5.2432	5.1090	4.9771	4.8524					
8	6.9552	6.7626	6.5823	6.4077	6.2362	6.0759	5.9217	5.7690	5.6211	5.4803					
9	7.7239	7.5086	7.3071	7.1131	6.9299	6.7544	6.5817	6.4129	6.2490	6.0925					
10	8.4699	8.2335	8.0125	7.8068	7.6085	7.4143	7.2256	7.0408	6.8612	6.6893					
11	9.1948	8.9389	8.7063	8.4854	8.2684	8.0583	7.8535	7.6530	7.4579	7.2711					
12	9.9002	9.6326	9.3848	9.1453	8.9124	8.6862	8.4657	8.2498	8.0397	7.8384					
13	10.5939	10.3112	10.0447	9.7893	9.5403	9.2984	9.0625	8.8316	8.6070	8.3914					
14	11.2724	10.9711	10.6887	10.4172	10.1525	9.8951	9.6443	9.3989	9.1600	8.9306					
15	11.9323	11.6151	11.3166	11.0294	10.7492	10.4770	10.2115	9.9519	9.6992	9.4563					
16	12.5763	12.2430	11.9288	11.6261	11.3310	11.0442	10.7646	10.4911	10.2249	9.9687					
17	13.2042	12.8552	12.5255	12.2079	11.8983	11.5973	11.3038	11.0168	10.7374	10.4683					
18	13.8164	13.4519	13.1073	12.7752	12.4513	12.1365	11.8294	11.5292	11.2370	10.9555					
19	14.4131	14.0337	13.6746	13.3283	12.9905	12.6621	12.3419	12.0288	11.7241	11.4304					
20	14.9950	14.6010	14.2277	13.8674	13.5162	13.1746	12.8415	12.5160	12.1990	11.8934					
21	15.5622	15.1540	14.7668	14.3931	14.0287	13.6742	13.3287	12.9909	12.6620	12.3448					
22	16.1153	15.6932	15.2925	14.9056	14.5283	14.1614	13.8036	13.4539	13.1134	12.7849					
23	16.6545	16.2189	15.8050	15.4052	15.0154	14.6363	14.2665	13.9053	13.5535	13.2139					
24	17.1801	16.7314	16.3046	15.8923	15.4903	15.0992	14.7179	14.3454	13.9826	13.6322					
25	17.6926	17.2310	16.7917	16.3672	15.9533	15.5506	15.1581	14.7744	14.4008	14.0399					
30	20.0686	19.5475	19.0502	18.5690	18.0998	17.6433	17.1982	16.7634	16.3399	15.9305					
35	22.1613	21.5876	21.0391	20.5082	19.9904	19.4866	18.9953	18.5155	18.0482	17.5960					
40	24.0046	23.3848	22.7913	22.2164	21.6560	21.1104	20.5785	20.0591	19.5531	19.0632					
45	25.6284	24.9679	24.3348	23.7213	23.1231	22.5409	21.9731	21.4188	20.8788	20.3557					
50	27.0589	26.3626	25.6945	25.0470	24.4156	23.8010	23.2017	22.6166	22.0466	21.4943					

Notes: <1> Data Based on Assumed DOS of Apr 1995.

Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<2> Tabulated Data Based on Criteria/Standards for EA/LCC for MILCON Design.  
of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<3> Region 1: ME, NH, VT, MA, CT, RI, NY, NJ, PA



Table E-3-DO-1. Present Worth Factors--Distillate Oil

Number Of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	0.9797	0.9653	0.9611	0.9582	0.9537	0.9571	0.9596	0.9579	0.9562	0.9509					
2	1.9450	1.9264	1.9193	1.9120	1.9108	1.9167	1.9174	1.9141	1.9071	1.8901					
3	2.9061	2.8847	2.8731	2.8690	2.8704	2.8745	2.8736	2.8649	2.8463	2.8174					
4	3.8643	3.8384	3.8301	3.8286	3.8282	3.8307	3.8245	3.8041	3.7736	3.7356					
5	4.8181	4.7955	4.7897	4.7865	4.7844	4.7816	4.7637	4.7315	4.6918	4.6444					
6	5.7751	5.7551	5.7476	5.7427	5.7353	5.7208	5.6911	5.6497	5.6006	5.5415					
7	6.7347	6.7129	6.7038	6.6935	6.6745	6.6481	6.6092	6.5584	6.4977	6.4264					
8	7.6926	7.6691	7.6546	7.6327	7.6019	7.5663	7.5180	7.4556	7.3826	7.3000					
9	8.6488	8.6200	8.5938	8.5601	8.5201	8.4751	8.4152	8.3404	8.2562	8.1625					
10	9.5996	9.5592	9.5212	9.4783	9.4288	9.3722	9.3000	9.2141	9.1187	9.0141					
11	10.5388	10.4865	10.4394	10.3870	10.3260	10.2571	10.1737	10.0765	9.9703	9.8549					
12	11.4662	11.4047	11.3481	11.2842	11.2108	11.1308	11.0361	10.9282	10.8111	10.6848					
13	12.3844	12.3135	12.2453	12.1690	12.0845	11.9932	11.8878	11.7690	11.6410	11.5041					
14	13.2931	13.2106	13.1301	13.0427	12.9469	12.8449	12.7286	12.5988	12.4603	12.3134					
15	14.1903	14.0955	14.0038	13.9051	13.7986	13.6857	13.5584	13.4182	13.2696	13.1124					
16	15.0751	14.9692	14.8662	14.7568	14.6394	14.5155	14.3778	14.2274	14.0686	13.9012					
17	15.9488	15.8316	15.7179	15.5976	15.4692	15.3349	15.1870	15.0265	14.8574	14.6801					
18	16.8112	16.6833	16.5587	16.4275	16.2886	16.1441	15.9861	15.8153	15.6363	15.4490					
19	17.6629	17.5241	17.3886	17.2468	17.0978	16.9432	16.7748	16.5941	16.4052	16.2082					
20	18.5037	18.3539	18.2079	18.0561	17.8969	17.7319	17.5537	17.3630	17.1644	16.9582					
21	19.3336	19.1732	19.0172	18.8551	18.6857	18.5108	18.3226	18.1223	17.9144	17.6987					
22	20.1529	19.9825	19.8162	19.6439	19.4645	19.2797	19.0818	18.8722	18.6549	18.4298					
23	20.9622	20.7816	20.6050	20.4228	20.2334	20.0389	19.8318	19.6128	19.3860	19.1513					
24	21.7612	21.5703	21.3839	21.1916	20.9927	20.7889	20.5724	20.3439	20.1075	19.8636					
25	22.5500	22.3492	22.1527	21.9509	21.7426	21.5294	21.3034	21.0654	20.8198	20.5669					
30	26.3475	26.0989	25.8551	25.6062	25.3513	25.0922	24.8212	24.5393	24.2506	23.9554					
35	29.9103	29.6167	29.3290	29.0371	28.7399	28.4390	28.1267	27.8039	27.4750	27.1400					
40	33.2570	32.9222	32.5936	32.2615	31.9245	31.5843	31.2332	30.8721	30.5054	30.1330					
45	36.4024	36.0287	35.6618	35.2918	34.9174	34.5403	34.1527	33.7556	33.3533	32.9458					
50	39.3584	38.9482	38.5454	38.1398	37.7302	37.3184	36.8966	36.4656	36.0299	35.5893					

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Tabulated Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<4> Region 1: ME, NH, VT, MA, CT, RI, NY, NJ, PA

Table E-3-RO-1. Present Worth Factors--Residual Oil

Number of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	1.0137	1.0259	1.0396	1.0378	1.0333	1.0432	1.0516	1.0682	1.0780	1.0703					
2	2.0396	2.0655	2.0774	2.0712	2.0765	2.0948	2.1198	2.1462	2.1483	2.1349					
3	3.0792	3.1033	3.1107	3.1144	3.1281	3.1630	3.1978	3.2166	3.2129	3.2080					
4	4.1171	4.1366	4.1540	4.1660	4.1964	4.2411	4.2682	4.2812	4.2860	4.2933					
5	5.1504	5.1799	5.2056	5.2342	5.2744	5.3114	5.3328	5.3543	5.3713	5.3552					
6	6.1936	6.2315	6.2738	6.3122	6.3447	6.3760	6.4059	6.4395	6.4332	6.3885					
7	7.2452	7.2997	7.3518	7.3825	7.4093	7.4491	7.4911	7.5015	7.4665	7.4181					
8	8.3134	8.3777	8.4221	8.4471	8.4824	8.5343	8.5531	8.5347	8.4961	8.4444					
9	9.3914	9.4480	9.4867	9.5202	9.5677	9.5963	9.5863	9.5643	9.5224	9.4678					
10	10.4618	10.5126	10.5598	10.6055	10.6296	10.6296	10.6159	10.5906	10.5458	10.4886					
11	11.5264	11.5857	11.6451	11.6674	11.6629	11.6591	11.6422	11.6140	11.5666	11.5061					
12	12.5995	12.6710	12.7070	12.7007	12.6924	12.6854	12.6656	12.6348	12.5841	12.5205					
13	13.6847	13.7329	13.7403	13.7303	13.7188	13.7088	13.6864	13.6523	13.5986	13.5322					
14	14.7467	14.7662	14.7699	14.7566	14.7422	14.7297	14.7039	14.6668	14.6102	14.5412					
15	15.7799	15.7958	15.7962	15.7800	15.7630	15.7472	15.7184	15.6784	15.6193	15.5478					
16	16.8095	16.8221	16.8196	16.8008	16.7805	16.7616	16.7300	16.6875	16.6258	16.5521					
17	17.8358	17.8455	17.8404	17.8183	17.7949	17.7733	17.7391	17.6941	17.6301	17.5534					
18	18.8592	18.8663	18.8579	18.8328	18.8066	18.7823	18.7457	18.6984	18.6314	18.5517					
19	19.8800	19.8838	19.8723	19.8444	19.8156	19.7889	19.7500	19.6996	19.6297	19.5473					
20	20.8975	20.8983	20.8840	20.8534	20.8222	20.7932	20.7512	20.6980	20.6253	20.5400					
21	21.9120	21.9099	21.8930	21.8600	21.8265	21.7944	21.7496	21.6935	21.6180	21.5301					
22	22.9236	22.9189	22.8996	22.8643	22.8278	22.7928	22.7451	22.6863	22.6081	22.5175					
23	23.9327	23.9255	23.9039	23.8656	23.8261	23.7883	23.7379	23.6763	23.5955	23.5022					
24	24.9393	24.9298	24.9052	24.8639	24.8216	24.7811	24.7279	24.6637	24.5802	24.4835					
25	25.9436	25.9311	25.9035	25.8595	25.8144	25.7712	25.7153	25.6484	25.5615	25.4621					
30	30.9215	30.8952	30.8540	30.7957	30.7365	30.6791	30.6090	30.5278	30.4272	30.3142					
35	35.8294	35.7888	35.7333	35.6614	35.5886	35.5175	35.4339	35.3392	35.2251	35.0987					
40	40.6679	40.6138	40.5447	40.4593	40.3730	40.2886	40.1916	40.0835	39.9562	39.8164					
45	45.4390	45.3714	45.2891	45.1904	45.0908	44.9931	44.8829	44.7617	44.6212	44.4684					
50	50.1435	50.0627	49.9672	49.8554	49.7428	49.6320	49.5088	49.3747	49.2213	49.0555					

Notes: <1> Data Based on Assumed DOS of Apr 1995.

Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<3> Region 1: ME, NH, VT, MA, CT, RI, NY, NJ, PA

Table E-3-NG-1. Present Worth Factors--Natural Gas

Number of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	0.9976	0.9877	0.9785	0.9654	0.9487	0.9355	0.9329	0.9243	0.9091	0.9097
2	1.9854	1.9662	1.9439	1.9140	1.8841	1.8684	1.8573	1.8334	1.8187	1.8106
3	2.9639	2.9316	2.8925	2.8495	2.8171	2.7927	2.7663	2.7431	2.7197	2.6995
4	3.9292	3.8803	3.8280	3.7824	3.7414	3.7018	3.6760	3.6440	3.6086	3.5970
5	4.8779	4.8157	4.7609	4.7068	4.6505	4.6115	4.5770	4.5329	4.5060	4.4947
6	5.8134	5.7487	5.6853	5.6158	5.5601	5.5124	5.4658	5.4304	5.4038	5.3813
7	6.7463	6.6730	6.5943	6.5255	6.4611	6.4013	6.3633	6.3281	6.2904	6.2592
8	7.6706	7.5821	7.5040	7.4265	7.3500	7.2988	7.2610	7.2147	7.1682	7.1287
9	8.5797	8.4917	8.4050	8.3153	8.2474	8.1965	8.1476	8.0926	8.0377	7.9902
10	9.4894	9.3927	9.2938	9.2128	9.1452	9.0831	9.0255	8.9621	8.8992	8.8439
11	10.3903	10.2816	10.1913	10.1106	10.0318	9.9610	9.8950	9.8235	9.7530	9.6897
12	11.2792	11.1790	11.0891	10.9971	10.9096	10.8305	10.7565	10.6773	10.5988	10.5268
13	12.1767	12.0768	11.9756	11.8750	11.7791	11.6920	11.6103	11.5231	11.4358	11.3537
14	13.0744	12.9634	12.8535	12.7445	12.6406	12.5457	12.4561	12.3602	12.2628	12.1705
15	13.9610	13.8412	13.7230	13.6060	13.4944	13.3915	13.2931	13.1871	13.0796	12.9770
16	14.8389	14.7107	14.5845	14.4598	14.3402	14.2286	14.1201	14.0039	13.8861	13.7731
17	15.7084	15.5722	15.4383	15.3056	15.1772	15.0555	14.9368	14.8104	14.6822	14.5593
18	16.5699	16.4260	16.2841	16.1426	16.0042	15.8723	15.7433	15.6065	15.4683	15.3353
19	17.4237	17.2718	17.1211	16.9696	16.8210	16.6788	16.5395	16.3927	16.2444	16.1016
20	18.2695	18.1088	17.9481	17.7864	17.6275	17.4749	17.3256	17.1687	17.0107	16.8585
21	19.1065	18.9358	18.7649	18.5929	18.4236	18.2611	18.1016	17.9350	17.7676	17.6060
22	19.9334	19.7526	19.5714	19.3890	19.2097	19.0371	18.8679	18.6919	18.5151	18.3439
23	20.7502	20.5591	20.3675	20.1751	19.9858	19.8034	19.6249	19.4394	19.2529	19.0721
24	21.5567	21.3552	21.1536	20.9511	20.7521	20.5603	20.3723	20.1773	19.9812	19.7910
25	22.3528	22.1413	21.9296	21.7175	21.5090	21.3078	21.1102	20.9055	20.7001	20.5009
30	26.1857	25.9259	25.6665	25.4068	25.1513	24.9038	24.6608	24.4117	24.1629	23.9210
35	29.7817	29.4765	29.1727	28.8697	28.5714	28.2817	27.9970	27.7068	27.4173	27.1352
40	33.1596	32.8127	32.4677	32.1241	31.7857	31.4563	31.1324	30.8035	30.4758	30.1560
45	36.3342	35.9482	35.5645	35.1826	34.8065	34.4398	34.0791	33.7139	33.3503	32.9950
50	39.3177	38.8949	38.4749	38.0571	37.6455	37.2438	36.8485	36.4491	36.0518	35.6632

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<3> Region 1: ME, NH, VT, MA, CT, RI, NY, NJ, PA

Table E-3-SC-1. Present Worth Factors--Steam Coal

Number of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	0.9502	0.9254	0.9069	0.9565	0.9485	0.8761	0.8481	0.8138	0.8017	0.7876					
2	1.8756	1.8323	1.8633	1.9049	1.8246	1.7242	1.6619	1.6155	1.5893	1.5434					
3	2.7824	2.7887	2.8118	2.7811	2.6727	2.5380	2.4636	2.4031	2.3451	2.2771					
4	3.7389	3.7372	3.6879	3.6292	3.4865	3.3397	3.2512	3.1588	3.0788	2.9979					
5	4.6874	4.6133	4.5360	4.4429	4.2882	4.1273	4.0069	3.8926	3.7996	3.7057					
6	5.5635	5.4614	5.3498	5.2447	5.0758	4.8831	4.7407	4.6133	4.5074	4.3989					
7	6.4116	6.2752	6.1515	6.0322	5.8315	5.6168	5.4614	5.3212	5.2006	5.0757					
8	7.2254	7.0769	6.9391	6.7880	6.5653	6.3376	6.1693	6.0144	5.8774	5.7402					
9	8.0271	7.8645	7.6949	7.5218	7.2860	7.0454	6.8625	6.6912	6.5419	6.3907					
10	8.8147	8.6203	8.4286	8.2425	7.9939	7.7386	7.5393	7.3557	7.1925	7.0276					
11	9.5704	9.3540	9.1494	8.9504	8.6871	8.4154	8.2038	8.0062	7.8293	7.6527					
12	10.3042	10.0748	9.8572	9.6435	9.3639	9.0799	8.8543	8.6431	8.4544	8.2662					
13	11.0249	10.7826	10.5504	10.3203	10.0284	9.7305	9.4912	9.2682	9.0679	8.8682					
14	11.7328	11.4758	11.2272	10.9848	10.6789	10.3673	10.1163	9.8817	9.6700	9.4590					
15	12.4260	12.1526	11.8917	11.6354	11.3158	10.9924	10.7298	10.4837	10.2607	10.0385					
16	13.1028	12.8171	12.5423	12.2723	11.9409	11.6059	11.3318	11.0744	10.8402	10.6070					
17	13.7673	13.4677	13.1791	12.8974	12.5544	12.2080	11.9225	11.6540	11.4088	11.1647					
18	14.4178	14.1045	13.8042	13.5109	13.1564	12.7987	12.5021	12.2225	11.9664	11.7116					
19	15.0547	14.7296	14.4177	14.1129	13.7471	13.3782	13.0706	12.7802	12.5134	12.2480					
20	15.6798	15.3431	15.0198	14.7036	14.3267	13.9467	13.6283	13.3271	13.0497	12.7740					
21	16.2933	15.9451	15.6105	15.2831	14.8952	14.5044	14.1752	13.8635	13.5757	13.2897					
22	16.8953	16.5359	16.1900	15.8517	15.4529	15.0513	14.7116	14.3895	14.0914	13.7952					
23	17.4860	17.1154	16.7585	16.4093	15.9998	15.5877	15.2375	14.9051	14.5970	14.2909					
24	18.0656	17.6839	17.3162	16.9563	16.5362	16.1137	15.7532	15.4107	15.0926	14.7767					
25	18.6341	18.2416	17.8631	17.4927	17.0621	16.6294	16.2588	15.9064	15.5784	15.2528					
30	21.3167	20.8721	20.4424	20.0213	19.5410	19.0592	18.6404	18.2405	17.8660	17.4948					
35	23.7466	23.2537	22.7765	22.3089	21.7829	21.2564	20.7937	20.3508	19.9342	19.5216					
40	25.9437	25.4070	24.8868	24.3771	23.8098	23.2428	22.7404	22.2587	21.8039	21.3540					
45	27.9301	27.3537	26.7947	26.2468	25.6422	25.0386	24.5004	23.9835	23.4943	23.0107					
50	29.7260	29.1137	28.5195	27.9373	27.2989	26.6622	26.0916	25.5429	25.0226	24.5084					

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<4> Region 1: ME, NH, VT, MA, CT, RI, NY, NJ, PA

Table E-3-LP-1. Present Worth Factors--Liquified Petroleum Gas (LPG)

Number of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	0.9845	0.9691	0.9545	0.9435	0.9323	0.9243	0.9154	0.9046	0.8933	0.8799					
2	1.9536	1.9236	1.8979	1.8757	1.8565	1.8396	1.8199	1.7979	1.7732	1.7443					
3	2.9081	2.8670	2.8302	2.8000	2.7719	2.7442	2.7132	2.6777	2.6376	2.5948					
4	3.8515	3.7993	3.7545	3.7154	3.6765	3.6375	3.5931	3.5421	3.4881	3.4320					
5	4.7838	4.7236	4.6698	4.6199	4.5698	4.5174	4.4575	4.3926	4.3253	4.2541					
6	5.7081	5.6389	5.5744	5.5132	5.4496	5.3818	5.3080	5.2299	5.1474	5.0626					
7	6.6234	6.5435	6.4677	6.3931	6.3140	6.2323	6.1452	6.0520	5.9560	5.8589					
8	7.5280	7.4368	7.3476	7.2575	7.1645	7.0695	6.9674	6.8605	6.7522	6.6428					
9	8.4213	8.3167	8.2120	8.1080	8.0018	7.8916	7.7759	7.6567	7.5362	7.4149					
10	9.3012	9.1811	9.0625	8.9452	8.8239	8.7001	8.5721	8.4407	8.3082	8.1752					
11	10.1656	10.0316	9.8997	9.7674	9.6324	9.4964	9.3561	9.2127	9.0685	8.9238					
12	11.0161	10.8688	10.7218	10.5759	10.4286	10.2804	10.1281	9.9730	9.8171	9.6609					
13	11.8533	11.6909	11.5303	11.3721	11.2126	11.0524	10.8884	10.7216	10.5543	10.3869					
14	12.6754	12.4995	12.3266	12.1561	11.9846	11.8127	11.6370	11.4588	11.2802	11.1017					
15	13.4840	13.2957	13.1106	12.9281	12.7449	12.5613	12.3742	12.1848	11.9951	11.8056					
16	14.2802	14.0797	13.8826	13.6884	13.4935	13.2984	13.1002	12.8996	12.6989	12.4988					
17	15.0642	14.8517	14.6429	14.4370	14.2307	14.0244	13.8150	13.6035	13.3921	13.1813					
18	15.8362	15.6120	15.3915	15.1742	14.9567	14.7392	14.5189	14.2967	14.0746	13.8535					
19	16.5965	16.3606	16.1286	15.9002	15.6715	15.4431	15.2120	14.9792	14.7468	14.5154					
20	17.3451	17.0978	16.8546	16.6150	16.3754	16.1363	15.8945	15.6514	15.4087	15.1671					
21	18.0823	17.8237	17.5694	17.3189	17.0686	16.8188	16.5667	16.3133	16.0604	15.8089					
22	18.8082	18.5386	18.2733	18.0120	17.7511	17.4910	17.2286	16.9650	16.7022	16.4410					
23	19.5231	19.2424	18.9665	18.6945	18.4233	18.1529	17.8803	17.6068	17.3344	17.0635					
24	20.2269	19.9356	19.6490	19.3667	19.0852	18.8046	18.5222	18.2389	17.9568	17.6765					
25	20.9201	20.6181	20.3212	20.0286	19.7369	19.4464	19.1543	18.8614	18.5698	18.2801					
30	24.2302	23.8779	23.5312	23.1897	22.8499	22.5120	22.1729	21.8337	21.4964	21.1617					
35	27.2958	26.8965	26.5035	26.1164	25.7315	25.3492	24.9664	24.5842	24.2046	23.8281					
40	30.1330	29.6900	29.2540	28.8245	28.3979	27.9745	27.5513	27.1293	26.7105	26.2954					
45	32.7583	32.2749	31.7991	31.3304	30.8652	30.4038	29.9432	29.4843	29.0293	28.5785					
50	35.1876	34.6668	34.1542	33.6492	33.1483	32.6518	32.1565	31.6636	31.1749	30.6911					

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Tabulated Data Based on Use of Table is Oct 1994 through Sep 1995.  
of Agreed Data Based on Criteria/Standards for EA/LCC for MILCON Design.

<3> Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Residential Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

Region 1: ME, NH, VT, MA, CT, RI, NY, NJ, PA

Table E-3-EL-2. Present Worth Factors--Electricity

Number of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	0.9763	0.9521	0.9260	0.9053	0.8873	0.8671	0.8464	0.8273	0.8075	0.7865					
2	1.9284	1.8781	1.8314	1.7927	1.7544	1.7135	1.6737	1.6348	1.5940	1.5543					
3	2.8544	2.7835	2.7187	2.6598	2.6008	2.5408	2.4812	2.4213	2.3619	2.3056					
4	3.7597	3.6708	3.5858	3.5062	3.4281	3.3483	3.2677	3.1892	3.1131	3.0388					
5	4.6471	4.5379	4.4322	4.3335	4.2356	4.1348	4.0356	3.9404	3.8463	3.7555					
6	5.5142	5.3843	5.2595	5.1410	5.0221	4.9027	4.7868	4.6736	4.5630	4.4738					
7	6.3606	6.2116	6.0670	5.9275	5.7900	5.6539	5.5200	5.3903	5.2813	5.1912					
8	7.1879	7.0191	6.8535	6.6953	6.5412	6.3871	6.2367	6.1087	5.9987	5.8906					
9	7.9954	7.8056	7.6214	7.4466	7.2744	7.1038	6.9550	6.8260	6.6981	6.5725					
10	8.7819	8.5735	8.3726	8.1798	7.9912	7.8221	7.6724	7.5254	7.3800	7.2372					
11	9.5497	9.3247	9.1058	8.8965	8.7095	8.5395	8.3718	8.2073	8.0447	7.8855					
12	10.3010	10.0579	9.8225	9.6148	9.4268	9.2389	9.0537	8.8720	8.6930	8.5175					
13	11.0342	10.7746	10.5409	10.3322	10.1262	9.9208	9.7184	9.5203	9.3250	9.1336					
14	11.7509	11.4929	11.2582	11.0316	10.8081	10.5855	10.3667	10.1523	9.9412	9.7343					
15	12.4692	12.2103	11.9576	11.7134	11.4729	11.2338	10.9987	10.7685	10.5418	10.3198					
16	13.1866	12.9097	12.6395	12.3782	12.1212	11.8658	11.6149	11.3691	11.1273	10.8908					
17	13.8860	13.5916	13.3043	13.0265	12.7532	12.4820	12.2155	11.9546	11.6983	11.4473					
18	14.5678	14.2563	13.9525	13.6585	13.3693	13.0826	12.8010	12.5256	12.2548	11.9899					
19	15.2326	14.9046	14.5846	14.2746	13.9699	13.6681	13.3720	13.0822	12.7974	12.5189					
20	15.8809	15.5366	15.2007	14.8753	14.5554	14.2391	13.9285	13.6247	13.3264	13.0347					
21	16.5129	16.1528	15.8013	15.4608	15.1264	14.7956	14.4711	14.1537	13.8422	13.5376					
22	17.1290	16.7534	16.3868	16.0317	15.6830	15.3382	15.0001	14.6695	14.3452	14.0280					
23	17.7297	17.3389	16.9578	16.5883	16.2255	15.8672	15.5159	15.1725	14.8355	14.5060					
24	18.3152	17.9099	17.5144	17.1309	16.7545	16.3830	16.0189	15.6628	15.3135	14.9719					
25	18.8862	18.4664	18.0569	17.6599	17.2704	16.8860	16.5092	16.1408	15.7794	15.4261					
30	21.5330	21.0471	20.5730	20.1129	19.6617	19.2172	18.7819	18.3564	17.9395	17.5321					
35	23.8643	23.3198	22.7886	22.2730	21.7678	21.2705	20.7837	20.3081	19.8423	19.3873					
40	25.9176	25.3216	24.7403	24.1758	23.6229	23.0792	22.5471	22.0273	21.5185	21.0214					
45	27.7263	27.0850	26.4595	25.8519	25.2571	24.6724	24.1004	23.5417	22.9949	22.4609					
50	29.3195	28.6383	27.9740	27.3284	26.6966	26.0759	25.4687	24.8758	24.2955	23.7289					

Notes: <1> Data Based on Assumed DOS of Apr 1995.

Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<3> Region 2: OH, IN, IL, MI, WI, MN, IA, MO, ND, SD, NE, KS

Table E-3-DO-2. Present Worth Factors--Distillate Oil

Number of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	0.9921	0.9914	0.9867	0.9854	0.9842	0.9869	0.9896	0.9895	0.9894	0.9852					
2	1.9835	1.9781	1.9721	1.9696	1.9712	1.9765	1.9791	1.9789	1.9746	1.9585					
3	2.9702	2.9635	2.9563	2.9565	2.9608	2.9660	2.9685	2.9641	2.9479	2.9212					
4	3.9556	3.9477	3.9432	3.9461	3.9502	3.9554	3.9537	3.9374	3.9106	3.8777					
5	4.9398	4.9346	4.9328	4.9356	4.9396	4.9406	4.9270	4.9001	4.8671	4.8259					
6	5.9267	5.9242	5.9223	5.9250	5.9249	5.9139	5.8897	5.8565	5.8153	5.7622					
7	6.9163	6.9137	6.9117	6.9103	6.8982	6.8766	6.8461	6.8048	6.7516	6.6849					
8	7.9058	7.9031	7.8969	7.8836	7.8609	7.8331	7.7944	7.7410	7.6743	7.5960					
9	8.8952	8.8883	8.8702	8.8462	8.8173	8.7813	8.7306	8.6637	8.5854	8.4956					
10	9.8805	9.8616	9.8329	9.8027	9.7656	9.7176	9.6533	9.5749	9.4850	9.3833					
11	10.8538	10.8243	10.7894	10.7509	10.7018	10.6403	10.5645	10.4744	10.3727	10.2599					
12	11.8164	11.7808	11.7376	11.6872	11.6245	11.5514	11.4640	11.3622	11.2493	11.1258					
13	12.7729	12.7290	12.6739	12.6099	12.5357	12.4510	12.3518	12.2388	12.1152	11.9808					
14	13.7211	13.6653	13.5966	13.5210	13.4352	13.3387	13.2284	13.1047	12.9702	12.8249					
15	14.6574	14.5880	14.5077	14.4206	14.3230	14.2153	14.0943	13.9597	13.8143	13.6585					
16	15.5801	15.4991	15.4073	15.3084	15.1996	15.0812	14.9493	14.8038	14.6479	14.4815					
17	16.4912	16.3986	16.2950	16.1849	16.0654	15.9362	15.7934	15.6374	15.4709	15.2938					
18	17.3908	17.2864	17.1716	17.0508	16.9204	16.7803	16.6270	16.4604	16.2832	16.0959					
19	18.2786	18.1630	18.0375	17.9058	17.7645	17.6139	17.4500	17.2727	17.0853	16.8881					
20	19.1551	19.0289	18.8925	18.7499	18.5981	18.4369	18.2623	18.0748	17.8775	17.6704					
21	20.0210	19.8839	19.7366	19.5835	19.4212	19.2492	19.0644	18.8670	18.6598	18.4425					
22	20.8760	20.7280	20.5702	20.4065	20.2335	20.0513	19.8566	19.6492	19.4319	19.2050					
23	21.7201	21.5616	21.3932	21.2189	21.0356	20.8435	20.6388	20.4214	20.1944	19.9581					
24	22.5537	22.3846	22.2055	22.0209	21.8278	21.6258	21.4110	21.1839	20.9475	20.7017					
25	23.3767	23.1969	23.0076	22.8131	22.6100	22.3979	22.1735	21.9370	21.6911	21.4358					
30	27.3377	27.1081	26.8698	26.6268	26.3755	26.1157	25.8437	25.5597	25.2666	24.9644					
35	31.0555	30.7783	30.4925	30.2022	29.9040	29.5980	29.2803	28.9513	28.6136	28.2676					
40	34.5378	34.2150	33.8841	33.5493	33.2072	32.8578	32.4975	32.1262	31.7470	31.3598					
45	37.7976	37.4321	37.0590	36.6826	36.2994	35.9095	35.5091	35.0984	34.6801	34.2545					
50	40.8493	40.4437	40.0312	39.6158	39.1942	38.7663	38.3284	37.8807	37.4260	36.9644					

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum

of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<3> Region 2: OH, IN, IL, MI, WI, MN, IA, MO, ND, SD, NE, KS

Table E-3-RO-2. Present Worth Factors--Residual Oil

Number Of Payments	Beneficial Occupancy Date													
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004				
1	1.0225	1.0247	1.0336	1.0444	1.0520	1.0696	1.0883	1.0995	1.1117	1.1186				
2	2.0472	2.0584	2.0780	2.0964	2.1216	2.1578	2.1878	2.2112	2.2303	2.2281				
3	3.0808	3.1027	3.1300	3.1659	3.2098	3.2573	3.2995	3.3298	3.3398	3.3290				
4	4.1252	4.1547	4.1995	4.2542	4.3093	4.3690	4.4181	4.4393	4.4407	4.4302				
5	5.1772	5.2243	5.2878	5.3537	5.4210	5.4876	5.5276	5.5402	5.5419	5.5207				
6	6.2468	6.3125	6.3873	6.4654	6.5396	6.5971	6.6284	6.6414	6.6324	6.5937				
7	7.3350	7.4120	7.4990	7.5840	7.6491	7.6980	7.7296	7.7319	7.7054	7.6576				
8	8.4345	8.5237	8.6176	8.6935	8.7500	8.7992	8.8202	8.8049	8.7693	8.7182				
9	9.5462	9.6424	9.7271	9.7943	9.8512	9.8897	9.8932	9.8688	9.8299	9.7759				
10	10.6649	10.7518	10.8280	10.8955	10.9417	10.9627	10.9570	10.9294	10.8876	10.8309				
11	11.7743	11.8527	11.9292	11.9861	12.0147	12.0266	12.0177	11.9871	11.9426	11.8833				
12	12.8752	12.9539	13.0197	13.0591	13.0786	13.0872	13.0754	13.0421	12.9950	12.9325				
13	13.9764	14.0445	14.0927	14.1230	14.1392	14.1449	14.1303	14.0945	14.0442	13.9787				
14	15.0670	15.1174	15.1566	15.1836	15.1969	15.1999	15.1828	15.1437	15.0904	15.0219				
15	16.1399	16.1813	16.2172	16.2413	16.2519	16.2524	16.2320	16.1899	16.1336	16.0623				
16	17.2038	17.2420	17.2749	17.2963	17.3044	17.3016	17.2781	17.2331	17.1740	17.0999				
17	18.2644	18.2997	18.3299	18.3487	18.3536	18.3477	18.3213	18.2735	18.2116	18.1350				
18	19.3221	19.3546	19.3823	19.3979	19.3997	19.3909	19.3617	19.3111	19.2467	19.1674				
19	20.3771	20.4071	20.4316	20.4441	20.4429	20.4313	20.3994	20.3462	20.2791	20.1964				
20	21.4296	21.4563	21.4777	21.4873	21.4833	21.4690	21.4344	21.3786	21.3081	21.2229				
21	22.4788	22.5024	22.5209	22.5277	22.5210	22.5040	22.4668	22.4076	22.3346	22.2468				
22	23.5249	23.5456	23.5613	23.5653	23.5560	23.5364	23.4959	23.4341	23.3585	23.2674				
23	24.5681	24.5860	24.5990	24.6004	24.5884	24.5655	24.5224	24.4580	24.3791	24.2852				
24	25.6085	25.6237	25.6340	25.6328	25.6175	25.5919	25.5463	25.4786	25.3969	25.3004				
25	26.6462	26.6587	26.6664	26.6618	26.6439	26.6158	26.5668	26.4964	26.4121	26.3127				
30	31.7930	31.7911	31.7842	31.7658	31.7337	31.6911	31.6280	31.5433	31.4445	31.3306				
35	36.8683	36.8523	36.8311	36.7982	36.7516	36.6945	36.6171	36.5180	36.4048	36.2766				
40	41.8718	41.8413	41.8058	41.7585	41.6977	41.6263	41.5346	41.4214	41.2941	41.1518				
45	46.8035	46.7589	46.7092	46.6478	46.5728	46.4875	46.3817	46.2545	46.1133	45.9572				
50	51.6647	51.6060	51.5423	51.4670	51.3782	51.2789	51.1594	51.0184	50.8635	50.6937				

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<3> Region 2: OH, IN, IL, MI, WI, MN, IA, MO, ND, SD, NE, KS



Table E-3-NG-2. Present Worth Factors--Natural Gas

Number Of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	0.9973	0.9916	0.9854	0.9721	0.9544	0.9401	0.9307	0.9241	0.9181	0.9134
2	1.9889	1.9769	1.9574	1.9265	1.8945	1.8708	1.8549	1.8422	1.8314	1.8216
3	2.9743	2.9490	2.9118	2.8665	2.8252	2.7949	2.7729	2.7556	2.7397	2.7267
4	3.9463	3.9034	3.8519	3.7973	3.7493	3.7130	3.6863	3.6638	3.6448	3.6299
5	4.9008	4.8435	4.7826	4.7214	4.6674	4.6264	4.5945	4.5689	4.5480	4.5241
6	5.8408	5.7742	5.7068	5.6395	5.5808	5.5346	5.4997	5.4721	5.4421	5.4056
7	6.7716	6.6983	6.6248	6.5528	6.4890	6.4397	6.4029	6.3662	6.3237	6.2769
8	7.6957	7.6164	7.5382	7.4611	7.3941	7.3429	7.2970	7.2478	7.1949	7.1400
9	8.6137	8.5298	8.4464	8.3662	8.2973	8.2370	8.1785	8.1191	8.0580	7.9954
10	9.5271	9.4380	9.3515	9.2694	9.1915	9.1186	9.0498	8.9822	8.9134	8.8427
11	10.4353	10.3431	10.2548	10.1635	10.0730	9.9899	9.9129	9.8375	9.7608	9.6826
12	11.3405	11.2463	11.1489	11.0451	10.9443	10.8530	10.7683	10.6849	10.6006	10.5145
13	12.2437	12.1404	12.0304	11.9163	11.8074	11.7083	11.6157	11.5247	11.4326	11.3384
14	13.1378	13.0220	12.9017	12.7794	12.6628	12.5557	12.4555	12.3567	12.2565	12.1546
15	14.0193	13.8933	13.7648	13.6348	13.5101	13.3955	13.2875	13.1806	13.0726	12.9634
16	14.8906	14.7564	14.6202	14.4822	14.3500	14.2275	14.1113	13.9967	13.8814	13.7651
17	15.7537	15.6117	15.4676	15.3220	15.1819	15.0514	14.9275	14.8055	14.6832	14.5596
18	16.6091	16.4591	16.3074	16.1540	16.0058	15.8675	15.7363	15.6073	15.4777	15.3465
19	17.4565	17.2990	17.1394	16.9779	16.8220	16.6763	16.5381	16.4018	16.2646	16.1257
20	18.2963	18.1309	17.9632	17.7940	17.6308	17.4781	17.3325	17.1887	17.0437	16.8973
21	19.1283	18.9548	18.7794	18.6028	18.4325	18.2726	18.1195	17.9678	17.8154	17.6618
22	19.9521	19.7710	19.5882	19.4046	19.2270	19.0595	18.8986	18.7395	18.5798	18.4193
23	20.7683	20.5798	20.3900	20.1991	20.0139	19.8387	19.6702	19.5039	19.3373	19.1701
24	21.5771	21.3815	21.1844	20.9860	20.7931	20.6103	20.4347	20.2615	20.0881	19.9139
25	22.3789	22.1760	21.9714	21.7651	21.5647	21.3748	21.1922	21.0123	20.8320	20.6506
30	26.2755	26.0357	25.7949	25.5534	25.3180	25.0933	24.8761	24.6613	24.4464	24.2309
35	29.9941	29.7195	29.4439	29.1678	28.8983	28.6397	28.3890	28.1410	27.8932	27.6451
40	33.5405	33.2324	32.9237	32.6146	32.3125	32.0217	31.7390	31.4594	31.1802	30.9011
45	36.9225	36.5825	36.2420	35.9016	35.5685	35.2469	34.9337	34.6239	34.3148	34.0060
50	40.1476	39.7772	39.4065	39.0362	38.6734	38.3225	37.9803	37.6417	37.3041	36.9670

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.  
 Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

<3> Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).  
 for Region 2: OH, IN, IL, MI, WI, MN, IA, MO, ND, SD, NE, KS

Table E-3-SC-2. Present Worth Factors--Steam Coal

Number Of Payments	Beneficial Occupancy Date													
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004				
1	0.9743	0.9594	0.9347	0.9201	0.9117	0.9001	0.8680	0.8400	0.8237	0.8155				
2	1.9337	1.8942	1.8548	1.8318	1.8118	1.7681	1.7080	1.6637	1.6392	1.6228				
3	2.8684	2.8143	2.7666	2.7319	2.6799	2.6081	2.5318	2.4792	2.4465	2.4066				
4	3.7885	3.7260	3.6667	3.6000	3.5199	3.4319	3.3472	3.2865	3.2303	3.1820				
5	4.7003	4.6261	4.5347	4.4400	4.3436	4.2473	4.1546	4.0703	4.0057	3.9676				
6	5.6004	5.4941	5.3747	5.2637	5.1591	5.0547	4.9383	4.8457	4.7913	4.7556				
7	6.4684	6.3341	6.1984	6.0792	5.9664	5.8384	5.7137	5.6313	5.5794	5.5319				
8	7.3084	7.1579	7.0139	6.8865	6.7502	6.6138	6.4993	6.4194	6.3556	6.2941				
9	8.1321	7.9733	7.8212	7.6703	7.5255	7.3995	7.2874	7.1956	7.1178	7.0404				
10	8.9476	8.7806	8.6050	8.4457	8.3112	8.1875	8.0636	7.9578	7.8641	7.7710				
11	9.7549	9.5644	9.3804	9.2313	9.0992	8.9637	8.8259	8.7041	8.5948	8.4883				
12	10.5387	10.3398	10.1660	10.0194	9.8755	9.7260	9.5722	9.4348	9.3120	9.1923				
13	11.3141	11.1254	10.9541	10.7956	10.6377	10.4723	10.3028	10.1520	10.0160	9.8832				
14	12.0997	11.9135	11.7303	11.5578	11.3840	11.2029	11.0201	10.8560	10.7070	10.5613				
15	12.8878	12.6897	12.4925	12.3041	12.1146	11.9202	11.7241	11.5470	11.3850	11.2265				
16	13.6640	13.4520	13.2388	13.0347	12.8319	12.6242	12.4150	12.2250	12.0503	11.8792				
17	14.4262	14.1983	13.9695	13.7520	13.5359	13.3151	13.0930	12.8903	12.7030	12.5179				
18	15.1725	14.9289	14.6867	14.4560	14.2268	13.9931	13.7583	13.5430	13.3416	13.1427				
19	15.9032	15.6461	15.3907	15.1469	14.9049	14.6584	14.4110	14.1816	13.9665	13.7556				
20	16.6204	16.3502	16.0817	15.8250	15.5701	15.3111	15.0496	14.8064	14.5793	14.3566				
21	17.3244	17.0411	16.7597	16.4902	16.2228	15.9497	15.6745	15.4193	15.1804	14.9475				
22	18.0154	17.7191	17.4250	17.1429	16.8615	16.5746	16.2874	16.0204	15.7713	15.5283				
23	18.6934	18.3844	18.0777	17.7816	17.4863	17.1875	16.8884	16.6112	16.3521	16.0977				
24	19.3587	19.0371	18.7163	18.4064	18.0992	17.7885	17.4793	17.1920	16.9215	16.6559				
25	20.0114	19.6757	19.3412	19.0193	18.7002	18.3794	18.0601	17.7614	17.4796	17.2030				
30	23.0797	22.6862	22.2962	21.9196	21.5466	21.1712	20.7967	20.4438	20.1087	19.7798				
35	25.8714	25.4228	24.9785	24.5487	24.1234	23.6967	23.2720	22.8699	22.4866	22.1105				
40	28.3970	27.8981	27.4046	26.9266	26.4541	25.9811	25.5109	25.0643	24.6374	24.2185				
45	30.6813	30.1370	29.5990	29.0774	28.5621	28.0472	27.5360	27.0491	26.5827	26.1252				
50	32.7475	32.1621	31.5838	31.0227	30.4688	29.9159	29.3676	28.8443	28.3422	27.8497				

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<4> Region 2: OH, IN, IL, MI, WI, MN, IA, MO, ND, SD, NE, KS

Table E-3-LP-2. Present Worth Factors--Liquified Petroleum Gas (LPG)

Number of Payments	Beneficial Occupancy Date													
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004				
1	0.9818	0.9687	0.9632	0.9589	0.9515	0.9508	0.9476	0.9436	0.9396	0.9300				
2	1.9506	1.9320	1.9222	1.9104	1.9023	1.8983	1.8912	1.8832	1.8696	1.8488				
3	2.9138	2.8909	2.8736	2.8612	2.8498	2.8420	2.8308	2.8132	2.7884	2.7576				
4	3.8727	3.8424	3.8244	3.8087	3.7934	3.7816	3.7608	3.7321	3.6972	3.6550				
5	4.8242	4.7931	4.7720	4.7524	4.7330	4.7116	4.6796	4.6408	4.5946	4.5404				
6	5.7750	5.7407	5.7156	5.6920	5.6630	5.6304	5.5884	5.5382	5.4800	5.4143				
7	6.7225	6.6843	6.6552	6.6220	6.5819	6.5392	6.4858	6.4237	6.3539	6.2754				
8	7.6662	7.6239	7.5852	7.5408	7.4906	7.4365	7.3712	7.2975	7.2150	7.1234				
9	8.6058	8.5539	8.5040	8.4496	8.3880	8.3220	8.2451	8.1586	8.0630	7.9587				
10	9.5358	9.4728	9.4128	9.3469	9.2735	9.1958	9.1062	9.0067	8.8984	8.7813				
11	10.4546	10.3815	10.3102	10.2324	10.1473	10.0570	9.9542	9.8420	9.7210	9.5913				
12	11.3634	11.2789	11.1956	11.1062	11.0084	10.9050	10.7895	10.6646	10.5309	10.3886				
13	12.2607	12.1644	12.0695	11.9674	11.8565	11.7403	11.6121	11.4745	11.3282	11.1737				
14	13.1462	13.0382	12.9306	12.8154	12.6918	12.5629	12.4221	12.2719	12.1133	11.9467				
15	14.0200	13.8993	13.7786	13.6507	13.5144	13.3729	13.2194	13.0569	12.8864	12.7082				
16	14.8812	14.7474	14.6139	14.4733	14.3243	14.1702	14.0044	13.8300	13.6478	13.4580				
17	15.7292	15.5827	15.4365	15.2833	15.1217	14.9552	14.7775	14.5914	14.3976	14.1962				
18	16.5645	16.4053	16.2465	16.0806	15.9067	15.7283	15.5390	15.3412	15.1358	14.9234				
19	17.3871	17.2152	17.0438	16.8656	16.6798	16.4897	16.2888	16.0794	15.8630	15.6395				
20	18.1971	18.0126	17.8288	17.6387	17.4412	17.2396	17.0270	16.8066	16.5791	16.3447				
21	18.9944	18.7976	18.6019	18.4001	18.1910	17.9778	17.7542	17.5228	17.2843	17.0391				
22	19.7794	19.5707	19.3634	19.1500	18.9292	18.7049	18.4703	18.2279	17.9787	17.7228				
23	20.5525	20.3321	20.1132	19.8882	19.6564	19.4211	19.1754	18.9223	18.6624	18.3960				
24	21.3139	21.0819	20.8514	20.6153	20.3726	20.1262	19.8699	19.6060	19.3356	19.0591				
25	22.0637	21.8201	21.5786	21.3315	21.0777	20.8206	20.5536	20.2793	19.9987	19.7119				
30	25.6448	25.3467	25.0512	24.7510	24.4449	24.1364	23.8187	23.4946	23.1649	22.8298				
35	28.9606	28.6118	28.2665	27.9172	27.5629	27.2068	26.8422	26.4720	26.0969	25.7172				
40	32.0310	31.6354	31.2440	30.8493	30.4502	30.0501	29.6422	29.2293	28.8121	28.3910				
45	34.8743	34.4353	34.0012	33.5645	33.1240	32.6831	32.2351	31.7826	31.3265	30.8670				
50	37.5073	37.0282	36.5546	36.0789	35.6001	35.1214	34.6362	34.1471	33.6550	33.1600				

Notes: <1> Data Based on Assumed DOS of Apr 1995.

Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Residential Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<3> Region 2: OH, IN, IL, MI, WI, MN, IA, MO, ND, SD, NE, KS

Table E-3-EL-3. Present Worth Factors--Electricity

Number Of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	0.9750	0.9445	0.9118	0.8829	0.8620	0.8449	0.8244	0.7998	0.7770	0.7534
2	1.9195	1.8563	1.7948	1.7450	1.7070	1.6693	1.6242	1.5769	1.5305	1.4813
3	2.8313	2.7392	2.6568	2.5899	2.5313	2.4691	2.4012	2.3303	2.2584	2.1857
4	3.7143	3.6013	3.5017	3.4143	3.3312	3.2462	3.1547	3.0582	2.9628	2.8718
5	4.5763	4.4462	4.3261	4.2141	4.1082	3.9996	3.8826	3.7626	3.6489	3.5419
6	5.4213	5.2706	5.1259	4.9911	4.8616	4.7275	4.5870	4.4487	4.3189	4.1981
7	6.2456	6.0704	5.9030	5.7446	5.5895	5.4319	5.2731	5.1188	4.9752	4.8410
8	7.0454	6.8474	6.6564	6.4725	6.2939	6.1180	5.9431	5.7750	5.6181	5.4678
9	7.8225	7.6009	7.3843	7.1769	6.9801	6.7881	6.5994	6.4179	6.2449	6.0788
10	8.5759	8.3288	8.0887	7.8630	7.6501	7.4443	7.2423	7.0447	6.8559	6.6745
11	9.3038	9.0332	8.7748	8.5330	8.3064	8.0872	7.8690	7.6557	7.4516	7.2552
12	10.0082	9.7193	9.4449	9.1893	8.9493	8.7140	8.4801	8.2514	8.0323	7.8215
13	10.6943	10.3893	10.1011	9.8322	9.5760	9.3250	9.0757	8.8321	8.5985	8.3735
14	11.3644	11.0456	10.7440	10.4590	10.1871	9.9207	9.6564	9.3984	9.1505	8.9116
15	12.0206	11.6885	11.3708	11.0700	10.7827	10.5014	10.2227	9.9504	9.6886	9.4363
16	12.6635	12.3153	11.9818	11.6657	11.3634	11.0677	10.7747	10.4885	10.2133	9.9479
17	13.2903	12.9263	12.5775	12.2464	11.9297	11.6197	11.3128	11.0132	10.7250	10.4466
18	13.9013	13.5220	13.1582	12.8126	12.4817	12.1578	11.8375	11.5248	11.2237	10.9327
19	14.4970	14.1027	13.7245	13.3646	13.0198	12.6825	12.3492	12.0235	11.7098	11.4067
20	15.0777	14.6689	14.2765	13.9027	13.5445	13.1941	12.8479	12.5096	12.1838	11.8688
21	15.6440	15.2209	14.8146	14.4274	14.0561	13.6928	13.3340	12.9836	12.6459	12.3194
22	16.1960	15.7590	15.3393	14.9391	14.5548	14.1789	13.8080	13.4457	13.0965	12.7587
23	16.7341	16.2837	15.8509	15.4378	15.0410	14.6529	14.2701	13.8963	13.5357	13.1870
24	17.2588	16.7954	16.3496	15.9239	15.5149	15.1150	14.7206	14.3356	13.9640	13.6046
25	17.7704	17.2941	16.8357	16.3979	15.9771	15.5656	15.1599	14.7639	14.3816	14.0116
30	20.1419	19.6061	19.0900	18.5957	18.1198	17.6547	17.1966	16.7495	16.3174	15.8988
35	22.2310	21.6428	21.0756	20.5315	20.0070	19.4945	18.9903	18.4981	18.0221	17.5608
40	24.0708	23.4365	22.8242	22.2362	21.6690	21.1148	20.5699	20.0381	19.5235	19.0245
45	25.6911	25.0161	24.3642	23.7376	23.1327	22.5417	21.9610	21.3943	20.8456	20.3134
50	27.1180	26.4072	25.7204	25.0597	24.4216	23.7983	23.1861	22.5886	22.0100	21.4486

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<3> Region 3: DE, MD, DC, VA, WV, NC, SC, GA, FL, KY, TN, AL, MS, AR, LA, OK, TX

Table E-3-DO-3. Present Worth Factors--Distillate Oil

Number of Payments	Beneficial Occupancy Date											
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004		
1	0.9797	0.9655	0.9615	0.9597	0.9579	0.9615	0.9624	0.9600	0.9585	0.9533		
2	1.9453	1.9270	1.9212	1.9176	1.9194	1.9239	1.9224	1.9185	1.9118	1.8943		
3	2.9067	2.8867	2.8791	2.8791	2.8818	2.8839	2.8810	2.8718	2.8528	2.8249		
4	3.8664	3.8446	3.8406	3.8415	3.8419	3.8424	3.8343	3.8128	3.7834	3.7478		
5	4.8244	4.8061	4.8030	4.8016	4.8004	4.7958	4.7752	4.7434	4.7063	4.6619		
6	5.7858	5.7685	5.7630	5.7601	5.7537	5.7367	5.7058	5.6663	5.6204	5.5650		
7	6.7483	6.7286	6.7215	6.7134	6.6947	6.6673	6.6287	6.5804	6.5235	6.4558		
8	7.7083	7.6871	7.6749	7.6543	7.6253	7.5902	7.5428	7.4835	7.4143	7.3353		
9	8.6668	8.6404	8.6158	8.5849	8.5481	8.5043	8.4460	8.3743	8.2938	8.2036		
10	9.6201	9.5813	9.5464	9.5078	9.4622	9.4075	9.3367	9.2539	9.1621	9.0610		
11	10.5611	10.5119	10.4693	10.4219	10.3654	10.2982	10.2163	10.1221	10.0195	9.9075		
12	11.4917	11.4348	11.3834	11.3251	11.2561	11.1778	11.0845	10.9795	10.8660	10.7430		
13	12.4146	12.3489	12.2866	12.2158	12.1357	12.0460	11.9419	11.8260	11.7015	11.5679		
14	13.3287	13.2521	13.1773	13.0954	13.0039	12.9034	12.7885	12.6615	12.5264	12.3827		
15	14.2318	14.1428	14.0569	13.9636	13.8614	13.7499	13.6239	13.4865	13.3412	13.1873		
16	15.1226	15.0224	14.9251	14.8211	14.7079	14.5854	14.4489	14.3013	14.1458	13.9815		
17	16.0021	15.8906	15.7825	15.6676	15.5434	15.4104	15.2637	15.1058	14.9400	14.7657		
18	16.8704	16.7481	16.6290	16.5031	16.3683	16.2252	16.0682	15.9000	15.7242	15.5399		
19	17.7278	17.5946	17.4645	17.3280	17.1831	17.0297	16.8624	16.6843	16.4985	16.3045		
20	18.5743	18.4301	18.2895	18.1428	17.9877	17.8239	17.6467	17.4585	17.2630	17.0592		
21	19.4098	19.2550	19.1043	18.9473	18.7819	18.6082	18.4209	18.2230	18.0177	17.8041		
22	20.2347	20.0698	19.9088	19.7416	19.5661	19.3824	19.1854	18.9778	18.7626	18.5399		
23	21.0495	20.8743	20.7030	20.5258	20.3403	20.1469	19.9402	19.7227	19.4984	19.2665		
24	21.8541	21.6686	21.4873	21.3000	21.1049	20.9017	20.6851	20.4585	20.2250	19.9838		
25	22.6483	22.4528	22.2615	22.0645	21.8596	21.6466	21.4209	21.1850	20.9423	20.6921		
30	26.4709	26.2270	25.9880	25.7439	25.4924	25.2337	24.9625	24.6814	24.3940	24.0995		
35	30.0581	29.7686	29.4844	29.1956	28.8999	28.5975	28.2831	27.9595	27.6300	27.2940		
40	33.4218	33.0892	32.7625	32.4316	32.0944	31.7510	31.3962	31.0326	30.6638	30.2889		
45	36.5754	36.2023	35.8356	35.4653	35.0893	34.7074	34.3147	33.9137	33.5079	33.0965		
50	39.5318	39.1208	38.7167	38.3095	37.8969	37.4791	37.0508	36.6147	36.1743	35.7287		

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

&lt;2&gt; Authorized Period of Use of Table is Oct 1994 through Sep 1995.

&lt;3&gt; Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

&lt;3&gt; Region 3: DE, MD, DC, VA, WV, NC, SC, GA, FL, KY, TN, AL, MS, AR, LA, OK, TX

Table E-3-RO-3. Present Worth Factors--Residual Oil

Number of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	1.0205	1.0207	1.0256	1.0338	1.0405	1.0551	1.0708	1.0797	1.0894	1.0943
2	2.0412	2.0463	2.0594	2.0743	2.0956	2.1260	2.1505	2.1691	2.1838	2.1786
3	3.0668	3.0800	3.0999	3.1294	3.1665	3.2056	3.2399	3.2634	3.2680	3.2534
4	4.1006	4.1205	4.1550	4.2002	4.2461	4.2951	4.3343	4.3477	4.3428	4.3271
5	5.1411	5.1756	5.2258	5.2799	5.3356	5.3894	5.4185	5.4225	5.4165	5.3895
6	6.1962	6.2465	6.3055	6.3693	6.4299	6.4737	6.4933	6.4962	6.4789	6.4341
7	7.2670	7.3261	7.3949	7.4636	7.5142	7.5485	7.5670	7.5586	7.5236	7.4700
8	8.3467	8.4156	8.4892	8.5479	8.5890	8.6221	8.6294	8.6032	8.5594	8.5025
9	9.4361	9.5099	9.5735	9.6227	9.6626	9.6845	9.6741	9.6391	9.5919	9.5319
10	10.5304	10.5942	10.6483	10.6964	10.7250	10.7292	10.7099	10.6716	10.6213	10.5593
11	11.6147	11.6690	11.7220	11.7588	11.7697	11.7650	11.7424	11.7010	11.6487	11.5840
12	12.6895	12.7427	12.7844	12.8034	12.8055	12.7976	12.7718	12.7284	12.6734	12.6051
13	13.7632	13.8051	13.8290	13.8393	13.8381	13.8270	13.7992	13.7531	13.6946	13.6239
14	14.8256	14.8497	14.8649	14.8718	14.8675	14.8544	14.8239	14.7742	14.7133	14.6402
15	15.8702	15.8856	15.8974	15.9012	15.8949	15.8790	15.8451	15.7929	15.7296	15.6534
16	16.9061	16.9181	16.9268	16.9286	16.9195	16.9002	16.8638	16.8093	16.7428	16.6635
17	17.9386	17.9475	17.9542	17.9533	17.9407	17.9189	17.8801	17.8225	17.7529	17.6707
18	18.9680	18.9749	18.9789	18.9745	18.9594	18.9352	18.8933	18.8326	18.7601	18.6748
19	19.9954	19.9995	20.0001	19.9932	19.9757	19.9484	19.9035	19.8398	19.7643	19.6768
20	21.0201	21.0207	21.0188	21.0095	20.9889	20.9586	20.9106	20.8439	20.7662	20.6764
21	22.0413	22.0394	22.0351	22.0227	21.9991	21.9657	21.9148	21.8459	21.7658	21.6730
22	23.0600	23.0557	23.0483	23.0328	23.0062	22.9699	22.9167	22.8455	22.7624	22.6665
23	24.0763	24.0689	24.0584	24.0400	24.0104	23.9718	23.9163	23.8420	23.7559	23.6575
24	25.0895	25.0791	25.0656	25.0442	25.0123	24.9714	24.9129	24.8356	24.7469	24.6459
25	26.0996	26.0862	26.0698	26.0461	26.0119	25.9680	25.9064	25.8266	25.7353	25.6310
30	31.1091	31.0821	31.0524	31.0152	30.9666	30.9084	30.8328	30.7386	30.6328	30.5145
35	36.0495	36.0084	35.9644	35.9127	35.8500	35.7778	35.6883	35.5802	35.4605	35.3284
40	40.9189	40.8639	40.8060	40.7404	40.6639	40.5779	40.4746	40.3528	40.2194	40.0736
45	45.7190	45.6502	45.5786	45.4993	45.4092	45.3096	45.1927	45.0574	44.9105	44.7513
50	50.4507	50.3683	50.2832	50.1904	50.0868	49.9738	49.8436	49.6949	49.5348	49.3623

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<4> Region 3: DE, MD, DC, VA, WV, NC, SC, GA, FL, KY, TN, AL, MS, AR, LA, OK, TX

Table E-3-NG-3. Present Worth Factors--Natural Gas

Number of Payments	Beneficial Occupancy Date													
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004				
1	1.0013	0.9933	0.9860	0.9751	0.9596	0.9483	0.9460	0.9382	0.9252	0.9268				
2	1.9946	1.9793	1.9611	1.9346	1.9079	1.8943	1.8842	1.8634	1.8520	1.8467				
3	2.9806	2.9544	2.9207	2.8830	2.8539	2.8325	2.8094	2.7792	2.7719	2.7563				
4	3.9556	3.9139	3.8690	3.8289	3.7921	3.7577	3.7362	3.7101	3.6815	3.6749				
5	4.9152	4.8622	4.8149	4.7671	4.7173	4.6845	4.6561	4.6197	4.6001	4.5934				
6	5.8635	5.8082	5.7532	5.6923	5.6441	5.6044	5.5657	5.5383	5.5186	5.5003				
7	6.8095	6.7464	6.6783	6.6192	6.5640	6.5140	6.4843	6.4568	6.4255	6.3987				
8	7.7477	7.6716	7.6052	7.5390	7.4735	7.4326	7.4028	7.3637	7.3239	7.2890				
9	8.6729	8.5985	8.5251	8.4486	8.3922	8.3511	8.3097	8.2621	8.2142	8.1709				
10	9.5997	9.5183	9.4346	9.3673	9.3107	9.2580	9.2080	9.1524	9.0961	9.0443				
11	10.5196	10.4279	10.3533	10.2857	10.2176	10.1563	10.0983	10.0343	9.9695	9.9094				
12	11.4292	11.3466	11.2717	11.1926	11.1159	11.0467	10.9803	10.9077	10.8346	10.7668				
13	12.3478	12.2650	12.1787	12.0910	12.0062	11.9286	11.8536	11.7728	11.6920	11.6162				
14	13.2663	13.1719	13.0770	12.9813	12.8882	12.8019	12.7188	12.6302	12.5413	12.4572				
15	14.1732	14.0703	13.9673	13.8633	13.7615	13.6671	13.5762	13.4796	13.3824	13.2903				
16	15.0716	14.9606	14.8493	14.7366	14.6267	14.5245	14.4255	14.3206	14.2155	14.1158				
17	15.9619	15.8426	15.7226	15.6018	15.4841	15.3738	15.2666	15.1537	15.0410	14.9340				
18	16.8438	16.7159	16.5878	16.4591	16.3334	16.2149	16.0997	15.9792	15.8592	15.7447				
19	17.7172	17.5810	17.4452	17.3085	17.1744	17.0480	16.9252	16.7974	16.6699	16.5476				
20	18.5823	18.4384	18.2945	18.1495	18.0075	17.8735	17.7434	17.6081	17.4728	17.3430				
21	19.4397	19.2878	19.1355	18.9826	18.8331	18.6917	18.5541	18.4110	18.2682	18.1311				
22	20.2891	20.1288	19.9686	19.8081	19.6513	19.5024	19.3570	19.2064	19.0563	18.9122				
23	21.1301	20.9619	20.7941	20.6264	20.4620	20.3053	20.1523	19.9945	19.8374	19.6861				
24	21.9632	21.7874	21.6124	21.4370	21.2649	21.1006	20.9405	20.7756	20.6113	20.4525				
25	22.7887	22.6056	22.4231	22.2399	22.0602	21.8888	21.7216	21.5495	21.3777	21.2116				
30	26.8040	26.5839	26.3645	26.1448	25.9289	25.7214	25.5182	25.3104	25.1036	24.9030				
35	30.6366	30.3805	30.1254	29.8707	29.6202	29.3785	29.1414	28.9000	28.6599	28.4263				
40	34.2937	34.0036	33.7150	33.4270	33.1435	32.8691	32.5996	32.3262	32.0543	31.7892				
45	37.7843	37.4619	37.1411	36.8214	36.5064	36.2008	35.9005	35.5964	35.2941	34.9990				
50	41.1161	40.7627	40.4113	40.0613	39.7163	39.3809	39.0510	38.7177	38.3865	38.0627				

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Tabulated Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<4> Region 3: DE, MD, DC, VA, WV, NC, SC, GA, FL, KY, TN, AL, MS, AR, LA, OK, TX

Table E-3-SC-3. Present Worth Factors--Steam Coal

Number of Payments	Beneficial Occupancy Date															
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004						
1	1.0226	1.0135	0.9766	0.9458	0.9113	0.8982	0.8917	0.8847	0.8775	0.8599						
2	2.0360	1.9901	1.9224	1.8571	1.8095	1.7899	1.7764	1.7622	1.7375	1.6987						
3	3.0126	2.9359	2.8338	2.7553	2.7012	2.6746	2.6539	2.6222	2.5762	2.5168						
4	3.9584	3.8472	3.7319	3.6470	3.5859	3.5521	3.5139	3.4609	3.3943	3.3129						
5	4.8698	4.7454	4.6236	4.5317	4.4634	4.4120	4.3526	4.2790	4.1904	4.0929						
6	5.7679	5.6371	5.5083	5.4092	5.3234	5.2508	5.1707	5.0751	4.9704	4.8536						
7	6.6596	6.5218	6.3858	6.2692	6.1621	6.0689	5.9668	5.8551	5.7311	5.5922						
8	7.5443	7.3993	7.2458	7.1079	6.9802	6.8650	6.7468	6.6158	6.4697	6.3157						
9	8.4219	8.2592	8.0846	7.9260	7.7763	7.6450	7.5075	7.3544	7.1932	7.0261						
10	9.2818	9.0980	8.9027	8.7221	8.5563	8.4057	8.2461	8.0780	7.9036	7.7234						
11	10.1206	9.9161	9.6988	9.5021	9.3170	9.1443	8.9697	8.7883	8.6009	8.4063						
12	10.9387	10.7122	10.4788	10.2628	10.0556	9.8678	9.6800	9.4856	9.2838	9.0766						
13	11.7348	11.4922	11.2395	11.0014	10.7792	10.5782	10.3773	10.1685	9.9541	9.7343						
14	12.5148	12.2529	11.9780	11.7249	11.4895	11.2755	11.0602	10.8388	10.6118	10.3796						
15	13.2755	12.9915	12.7016	12.4353	12.1868	11.9584	11.7305	11.4965	11.2571	11.0128						
16	14.0140	13.7150	13.4119	13.1326	12.8697	12.6286	12.3882	12.1418	11.8903	11.6326						
17	14.7376	14.4254	14.1092	13.8155	13.5400	13.2864	13.0335	12.7750	12.5101	12.2406						
18	15.4479	15.1227	14.7922	14.4858	14.1977	13.9317	13.6667	13.3948	13.1181	12.8369						
19	16.1452	15.8056	15.4624	15.1435	14.8430	14.5649	14.2865	14.0028	13.7145	13.4218						
20	16.8282	16.4758	16.1201	15.7888	15.4762	15.1847	14.8945	14.5992	14.2993	13.9952						
21	17.4984	17.1336	16.7655	16.4220	16.0960	15.7927	15.4909	15.1840	14.8727	14.5575						
22	18.1561	17.7789	17.3986	17.0418	16.7040	16.3890	16.0757	15.7575	15.4350	15.1099						
23	18.8015	18.4121	18.0185	17.6498	17.3004	16.9738	16.6492	16.3197	15.9874	15.6513						
24	19.4346	19.0319	18.6265	18.2462	17.8852	17.5473	17.2114	16.8721	16.5289	16.1821						
25	20.0545	19.6399	19.2228	18.8310	18.4587	18.1096	17.7638	17.4136	17.0596	16.7033						
30	22.9794	22.5092	22.0372	21.5913	21.1667	20.7661	20.3685	19.9674	19.5635	19.1571						
35	25.6359	25.1139	24.5910	24.0952	23.6205	23.1710	22.7253	22.2771	21.8270	21.3755						
40	28.0407	27.4707	26.9008	26.3587	25.8389	25.3450	24.8560	24.3652	23.8734	23.3810						
45	30.2148	29.6013	28.9888	28.4051	27.8444	27.3104	26.7821	26.2529	25.7234	25.1940						
50	32.1802	31.5275	30.8765	30.2551	29.6574	29.0872	28.5234	27.9594	27.3958	26.8330						

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<3> Region 3: DE, MD, DC, VA, WV, NC, SC, GA, FL, KY, TN, AL, MS, AR, LA, OK, TX



Table E-3-LP-3. Present Worth Factors--Liquified Petroleum Gas (LPG)

Number of Payments	Beneficial Occupancy Date											
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004		
1	0.9787	0.9606	0.9501	0.9403	0.9279	0.9212	0.9127	0.9043	0.8962	0.8835		
2	1.9394	1.9108	1.8904	1.8682	1.8491	1.8340	1.8170	1.8005	1.7797	1.7532		
3	2.8895	2.8511	2.8183	2.7894	2.7619	2.7382	2.7133	2.6840	2.6494	2.6104		
4	3.8298	3.7790	3.7395	3.7022	3.6662	3.6345	3.5967	3.5537	3.5066	3.4540		
5	4.7577	4.7002	4.6523	4.6065	4.5624	4.5179	4.4664	4.4109	4.3502	4.2828		
6	5.6789	5.6129	5.5566	5.5027	5.4459	5.3876	5.3237	5.2545	5.1790	5.0976		
7	6.5916	6.5172	6.4528	6.3862	6.3156	6.2449	6.1672	6.0833	5.9939	5.8996		
8	7.4959	7.4135	7.3363	7.2559	7.1728	7.0884	6.9961	6.8981	6.7958	6.6892		
9	8.3922	8.2969	8.2060	8.1131	8.0164	7.9173	7.8109	7.7001	7.5855	7.4669		
10	9.2756	9.1666	9.0632	8.9567	8.8452	8.7321	8.6128	8.4898	8.3632	8.2329		
11	10.1453	10.0238	9.9068	9.7855	9.6600	9.5340	9.4025	9.2674	9.1291	8.9871		
12	11.0026	10.8674	10.7356	10.6003	10.4620	10.3237	10.1802	10.0334	9.8833	9.7297		
13	11.8461	11.6963	11.5504	11.4023	11.2516	11.1014	10.9461	10.7876	10.6259	10.4611		
14	12.6750	12.5111	12.3524	12.1919	12.0293	11.8673	11.7004	11.5302	11.3573	11.1813		
15	13.4898	13.3130	13.1421	12.9696	12.7953	12.6216	12.4430	12.2616	12.0775	11.8904		
16	14.2917	14.1027	13.9197	13.7356	13.5495	13.3642	13.1743	12.9818	12.7866	12.5888		
17	15.0814	14.8804	14.6857	14.4898	14.2921	14.0955	13.8946	13.6909	13.4850	13.2765		
18	15.8591	15.6463	15.4399	15.2324	15.0235	14.8158	14.6037	14.3893	14.1727	13.9536		
19	16.6250	16.4006	16.1825	15.9638	15.7437	15.5249	15.3021	15.0770	14.8498	14.6205		
20	17.3793	17.1431	16.9139	16.6840	16.4528	16.2233	15.9898	15.7541	15.5167	15.2771		
21	18.1219	17.8745	17.6341	17.3931	17.1512	16.9110	16.6669	16.4210	16.1733	15.9237		
22	18.8532	18.5948	18.3432	18.0915	17.8389	17.5881	17.3337	17.0776	16.8200	16.5606		
23	19.5735	19.3038	19.0416	18.7792	18.5160	18.2549	17.9904	17.7243	17.4568	17.1876		
24	20.2826	20.0022	19.7293	19.4563	19.1829	18.9116	18.6370	18.3611	18.0839	17.8051		
25	20.9810	20.6900	20.4064	20.1232	19.8395	19.5582	19.2739	18.9881	18.7013	18.4131		
30	24.3159	23.9740	23.6404	23.3078	22.9755	22.6464	22.3149	21.9829	21.6505	21.3175		
35	27.4041	27.0151	26.6352	26.2570	25.8799	25.5067	25.1317	24.7569	24.3824	24.0079		
40	30.2643	29.8319	29.4092	28.9888	28.5703	28.1562	27.7409	27.3265	26.9130	26.5000		
45	32.9138	32.4411	31.9788	31.5194	31.0624	30.6104	30.1579	29.7068	29.2571	28.8085		
50	35.3681	34.8581	34.3591	33.8635	33.3709	32.8839	32.3968	31.9116	31.4284	30.9469		

Notes: <1> Data Based on Assumed DOS of Apr 1995.

Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Residential Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<3> Region 3: DE, MD, DC, VA, WV, NC, SC, GA, FL, KY, TN, AL, MS, AR, LA, OK, TX

Table E-3-EL-4. Present Worth Factors--Electricity

Number of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	0.9750	0.9445	0.9118	0.8829	0.8620	0.8449	0.8244	0.7998	0.7770	0.7534					
2	1.9195	1.8563	1.7948	1.7450	1.7070	1.6693	1.6242	1.5769	1.5305	1.4813					
3	2.8313	2.7392	2.6568	2.5899	2.5313	2.4691	2.4012	2.3303	2.2584	2.1857					
4	3.7143	3.6013	3.5017	3.4143	3.3312	3.2462	3.1547	3.0582	2.9628	2.8718					
5	4.5763	4.4462	4.3261	4.2141	4.1082	3.9996	3.8826	3.7626	3.6489	3.5419					
6	5.4213	5.2706	5.1259	4.9911	4.8616	4.7275	4.5870	4.4487	4.3189	4.1981					
7	6.2456	6.0704	5.9030	5.7446	5.5895	5.4319	5.2731	5.1188	4.9752	4.8410					
8	7.0454	6.8474	6.6564	6.4725	6.2939	6.1180	5.9431	5.7750	5.6181	5.4678					
9	7.8225	7.6009	7.3843	7.1769	6.9801	6.7881	6.5994	6.4179	6.2449	6.0788					
10	8.5759	8.3288	8.0887	7.8630	7.6501	7.4443	7.2423	7.0447	6.8559	6.6745					
11	9.3038	9.0332	8.7748	8.5330	8.3064	8.0872	7.8690	7.6557	7.4516	7.2552					
12	10.0082	9.7193	9.4449	9.1893	8.9493	8.7140	8.4801	8.2514	8.0323	7.8215					
13	10.6943	10.3893	10.1011	9.8322	9.5760	9.3250	9.0757	8.8321	8.5985	8.3735					
14	11.3644	11.0456	10.7440	10.4590	10.1871	9.9207	9.6564	9.3984	9.1505	8.9116					
15	12.0206	11.6885	11.3708	11.0700	10.7827	10.5014	10.2227	9.9504	9.6886	9.4363					
16	12.6635	12.3153	11.9818	11.6657	11.3634	11.0677	10.7747	10.4885	10.2133	9.9479					
17	13.2903	12.9263	12.5775	12.2464	11.9297	11.6197	11.3128	11.0132	10.7250	10.4466					
18	13.9013	13.5220	13.1582	12.8126	12.4817	12.1578	11.8375	11.5248	11.2237	10.9327					
19	14.4970	14.1027	13.7245	13.3646	13.0198	12.6825	12.3492	12.0235	11.7098	11.4067					
20	15.0777	14.6689	14.2765	13.9027	13.5445	13.1941	12.8479	12.5096	12.1838	11.8688					
21	15.6440	15.2209	14.8146	14.4274	14.0561	13.6928	13.3340	12.9836	12.6459	12.3194					
22	16.1960	15.7590	15.3393	14.9391	14.5548	14.1789	13.8080	13.4457	13.0965	12.7587					
23	16.7341	16.2837	15.8509	15.4378	15.0410	14.6529	14.2701	13.8963	13.5357	13.1870					
24	17.2588	16.7954	16.3496	15.9239	15.5149	15.1150	14.7206	14.3356	13.9640	13.6046					
25	17.7704	17.2941	16.8357	16.3979	15.9771	15.5656	15.1599	14.7639	14.3816	14.0116					
30	20.1419	19.6061	19.0900	18.5957	18.1198	17.6547	17.1966	16.7495	16.3174	15.8988					
35	22.2310	21.6428	21.0756	20.5315	20.0070	19.4945	18.9903	18.4981	18.0221	17.5608					
40	24.0708	23.4365	22.8242	22.2362	21.6690	21.1148	20.5699	20.0381	19.5235	19.0245					
45	25.6911	25.0161	24.3642	23.7376	23.1327	22.5417	21.9610	21.3943	20.8456	20.3134					
50	27.1180	26.4072	25.7204	25.0597	24.4216	23.7983	23.1861	22.5886	22.0100	21.4486					

Notes: <1> Data Based on Assumed DOS of Apr 1995.  
 Authorized Period of Use of Table is Oct 1994 through Sep 1995.  
 <2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.  
 Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).  
 <3> Region 4: MT, ID, WY, CO, NM, AZ, UT, NV, WA, OR, CA, AK, HI

Table E-3-DO-4. Present Worth Factors--Distillate Oil

Number Of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	0.9797	0.9655	0.9615	0.9597	0.9579	0.9615	0.9624	0.9600	0.9585	0.9533
2	1.9453	1.9270	1.9212	1.9176	1.9194	1.9239	1.9224	1.9185	1.9118	1.8943
3	2.9067	2.8867	2.8791	2.8791	2.8818	2.8839	2.8810	2.8718	2.8528	2.8249
4	3.8664	3.8446	3.8406	3.8415	3.8419	3.8424	3.8343	3.8128	3.7834	3.7478
5	4.8244	4.8061	4.8030	4.8016	4.8004	4.7958	4.7752	4.7434	4.7063	4.6619
6	5.7858	5.7685	5.7630	5.7601	5.7537	5.7367	5.7058	5.6663	5.6204	5.5650
7	6.7483	6.7286	6.7215	6.7134	6.6947	6.6673	6.6287	6.5804	6.5235	6.4558
8	7.7083	7.6871	7.6749	7.6543	7.6253	7.5902	7.5428	7.4835	7.4143	7.3353
9	8.6668	8.6404	8.6158	8.5849	8.5481	8.5043	8.4460	8.3743	8.2938	8.2036
10	9.6201	9.5813	9.5464	9.5078	9.4622	9.4075	9.3367	9.2539	9.1621	9.0610
11	10.5611	10.5119	10.4693	10.4219	10.3654	10.2982	10.2163	10.1221	10.0195	9.9075
12	11.4917	11.4348	11.3834	11.3251	11.2561	11.1778	11.0845	10.9795	10.8660	10.7430
13	12.4146	12.3489	12.2866	12.2158	12.1357	12.0460	11.9419	11.8260	11.7015	11.5679
14	13.3287	13.2521	13.1773	13.0954	13.0039	12.9034	12.7885	12.6615	12.5264	12.3827
15	14.2318	14.1428	14.0569	13.9636	13.8614	13.7499	13.6239	13.4865	13.3412	13.1873
16	15.1226	15.0224	14.9251	14.8211	14.7079	14.5854	14.4489	14.3013	14.1458	13.9815
17	16.0021	15.8906	15.7825	15.6676	15.5434	15.4104	15.2637	15.1058	14.9400	14.7657
18	16.8704	16.7481	16.6290	16.5031	16.3683	16.2252	16.0682	15.9000	15.7242	15.5399
19	17.7278	17.5946	17.4645	17.3280	17.1831	17.0297	16.8624	16.6843	16.4985	16.3045
20	18.5743	18.4301	18.2895	18.1428	17.9877	17.8239	17.6467	17.4585	17.2630	17.0592
21	19.4098	19.2550	19.1043	18.9473	18.7819	18.6082	18.4209	18.2230	18.0177	17.8041
22	20.2347	20.0698	19.9088	19.7416	19.5661	19.3824	19.1854	18.9778	18.7626	18.5399
23	21.0495	20.8743	20.7030	20.5258	20.3403	20.1469	19.9402	19.7227	19.4984	19.2665
24	21.8541	21.6686	21.4873	21.3000	21.1049	20.9017	20.6851	20.4585	20.2250	19.9838
25	22.6483	22.4528	22.2615	22.0645	21.8596	21.6466	21.4209	21.1850	20.9423	20.6921
30	26.4709	26.2270	25.9880	25.7439	25.4924	25.2337	24.9625	24.6814	24.3940	24.0995
35	30.0581	29.7686	29.4844	29.1956	28.8999	28.5975	28.2831	27.9595	27.6300	27.2940
40	33.4218	33.0892	32.7625	32.4316	32.0944	31.7510	31.3962	31.0326	30.6638	30.2889
45	36.5754	36.2023	35.8356	35.4653	35.0893	34.7074	34.3147	33.9137	33.5079	33.0965
50	39.5318	39.1208	38.7167	38.3095	37.8969	37.4791	37.0508	36.6147	36.1743	35.7287

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<4> Region 4: MT, ID, WY, CO, NM, AZ, UT, NV, WA, OR, CA, AK, HI

Table E-3-RO-4. Present Worth Factors--Residual Oil

Number of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	1.0205	1.0207	1.0256	1.0338	1.0405	1.0551	1.0708	1.0797	1.0894	1.0943
2	2.0412	2.0463	2.0594	2.0743	2.0956	2.1260	2.1505	2.1691	2.1838	2.1786
3	3.0668	3.0800	3.0999	3.1294	3.1665	3.2056	3.2399	3.2634	3.2680	3.2534
4	4.1006	4.1205	4.1550	4.2002	4.2461	4.2951	4.3343	4.3477	4.3428	4.3271
5	5.1411	5.1756	5.2258	5.2799	5.3356	5.3894	5.4185	5.4225	5.4165	5.3895
6	6.1962	6.2465	6.3055	6.3693	6.4299	6.4737	6.4933	6.4962	6.4789	6.4341
7	7.2670	7.3261	7.3949	7.4636	7.5142	7.5485	7.5670	7.5586	7.5236	7.4700
8	8.3467	8.4156	8.4892	8.5479	8.5890	8.6221	8.6294	8.6032	8.5594	8.5025
9	9.4361	9.5099	9.5735	9.6227	9.6626	9.6845	9.6741	9.6391	9.5919	9.5319
10	10.5304	10.5942	10.6483	10.6964	10.7250	10.7292	10.7099	10.6716	10.6213	10.5593
11	11.6147	11.6690	11.7220	11.7588	11.7697	11.7650	11.7424	11.7010	11.6487	11.5840
12	12.6895	12.7427	12.7844	12.8034	12.8055	12.7976	12.7718	12.7284	12.6734	12.6051
13	13.7632	13.8051	13.8290	13.8393	13.8381	13.8270	13.7992	13.7531	13.6946	13.6239
14	14.8256	14.8497	14.8649	14.8718	14.8675	14.8544	14.8239	14.7742	14.7133	14.6402
15	15.8702	15.8856	15.8974	15.9012	15.8949	15.8790	15.8451	15.7929	15.7296	15.6534
16	16.9061	16.9181	16.9268	16.9286	16.9195	16.9002	16.8638	16.8093	16.7428	16.6635
17	17.9386	17.9475	17.9542	17.9533	17.9407	17.9189	17.8801	17.8225	17.7529	17.6707
18	18.9680	18.9749	18.9789	18.9745	18.9594	18.9352	18.8933	18.8326	18.7601	18.6748
19	19.9954	19.9995	20.0001	19.9932	19.9757	19.9484	19.9035	19.8398	19.7643	19.6768
20	21.0201	21.0207	21.0188	21.0095	20.9889	20.9586	20.9106	20.8439	20.7662	20.6764
21	22.0413	22.0394	22.0351	22.0227	21.9991	21.9657	21.9148	21.8459	21.7658	21.6730
22	23.0600	23.0557	23.0483	23.0328	23.0062	22.9699	22.9167	22.8455	22.7624	22.6665
23	24.0763	24.0689	24.0584	24.0400	24.0104	23.9718	23.9163	23.8420	23.7559	23.6575
24	25.0895	25.0791	25.0656	25.0442	25.0123	24.9714	24.9129	24.8356	24.7469	24.6459
25	26.0996	26.0862	26.0698	26.0461	26.0119	25.9680	25.9064	25.8266	25.7353	25.6310
30	31.1091	31.0821	31.0524	31.0152	30.9666	30.9084	30.8328	30.7386	30.6328	30.5145
35	36.0495	36.0084	35.9644	35.9127	35.8500	35.7778	35.6883	35.5802	35.4605	35.3284
40	40.9189	40.8639	40.8060	40.7404	40.6639	40.5779	40.4746	40.3528	40.2194	40.0736
45	45.7190	45.6502	45.5786	45.4993	45.4092	45.3096	45.1927	45.0574	44.9105	44.7513
50	50.4507	50.3683	50.2832	50.1904	50.0868	49.9738	49.8436	49.6949	49.5348	49.3623

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<3> Region 4: MT, ID, WY, CO, NM, AZ, UT, NV, WA, OR, CA, AK, HI

Table E-3-NG-4. Present Worth Factors--Natural Gas

Number of Payments	Beneficial Occupancy Date											
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004		
1	1.0013	0.9933	0.9860	0.9751	0.9596	0.9483	0.9460	0.9382	0.9252	0.9268		
2	1.9946	1.9793	1.9611	1.9346	1.9079	1.8943	1.8842	1.8634	1.8520	1.8467		
3	2.9806	2.9544	2.9207	2.8830	2.8539	2.8325	2.8094	2.7902	2.7719	2.7563		
4	3.9556	3.9139	3.8690	3.8289	3.7921	3.7577	3.7362	3.7101	3.6815	3.6749		
5	4.9152	4.8622	4.8149	4.7671	4.7173	4.6845	4.6561	4.6197	4.6001	4.5934		
6	5.8635	5.8082	5.7532	5.6923	5.6441	5.6044	5.5657	5.5383	5.5186	5.5003		
7	6.8095	6.7464	6.6783	6.6192	6.5640	6.5140	6.4843	6.4568	6.4255	6.3987		
8	7.7477	7.6716	7.6052	7.5390	7.4735	7.4326	7.4028	7.3637	7.3239	7.2890		
9	8.6729	8.5985	8.5251	8.4486	8.3922	8.3511	8.3097	8.2621	8.2142	8.1709		
10	9.5997	9.5183	9.4346	9.3673	9.3107	9.2580	9.2080	9.1524	9.0961	9.0443		
11	10.5196	10.4279	10.3533	10.2857	10.2176	10.1563	10.0983	10.0343	9.9695	9.9094		
12	11.4292	11.3466	11.2717	11.1926	11.1159	11.0467	10.9803	10.9077	10.8346	10.7668		
13	12.3478	12.2650	12.1787	12.0910	12.0062	11.9286	11.8536	11.7728	11.6920	11.6162		
14	13.2663	13.1719	13.0770	12.9813	12.8882	12.8019	12.7188	12.6302	12.5413	12.4572		
15	14.1732	14.0703	13.9673	13.8633	13.7615	13.6671	13.5762	13.4796	13.3824	13.2903		
16	15.0716	14.9606	14.8493	14.7366	14.6267	14.5245	14.4255	14.3206	14.2155	14.1158		
17	15.9619	15.8426	15.7226	15.6018	15.4841	15.3738	15.2666	15.1537	15.0410	14.9340		
18	16.8438	16.7159	16.5878	16.4591	16.3334	16.2149	16.0997	15.9792	15.8592	15.7447		
19	17.7172	17.5810	17.4452	17.3085	17.1744	17.0480	16.9252	16.7974	16.6699	16.5476		
20	18.5823	18.4384	18.2945	18.1495	18.0075	17.8735	17.7434	17.6081	17.4728	17.3430		
21	19.4397	19.2878	19.1355	18.9826	18.8331	18.6917	18.5541	18.4110	18.2682	18.1311		
22	20.2891	20.1288	19.9686	19.8081	19.6513	19.5024	19.3570	19.2064	19.0563	18.9122		
23	21.1301	20.9619	20.7941	20.6264	20.4620	20.3053	20.1523	19.9945	19.8374	19.6861		
24	21.9632	21.7874	21.6124	21.4370	21.2649	21.1006	20.9405	20.7756	20.6113	20.4525		
25	22.7887	22.6056	22.4231	22.2399	22.0602	21.8888	21.7216	21.5495	21.3777	21.2116		
30	26.8040	26.5839	26.3645	26.1448	25.9289	25.7214	25.5182	25.3104	25.1036	24.9030		
35	30.6366	30.3805	30.1254	29.8707	29.6202	29.3785	29.1414	28.9000	28.6599	28.4263		
40	34.2937	34.0036	33.7150	33.4270	33.1435	32.8691	32.5996	32.3262	32.0543	31.7892		
45	37.7843	37.4619	37.1411	36.8214	36.5064	36.2008	35.9005	35.5964	35.2941	34.9990		
50	41.1161	40.7627	40.4113	40.0613	39.7163	39.3809	39.0510	38.7177	38.3865	38.0627		

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

<4> Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<5> Region 4: MT, ID, WY, CO, NM, AZ, UT, NV, WA, OR, CA, AK, HI

Table E-3-SC-4. Present Worth Factors--Steam Coal

Number Of Payments	Beneficial Occupancy Date													
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004				
1	1.0226	1.0135	0.9766	0.9458	0.9113	0.8982	0.8917	0.8847	0.8775	0.8599				
2	2.0360	1.9901	1.9224	1.8571	1.8095	1.7899	1.7764	1.7622	1.7375	1.6987				
3	3.0126	2.9359	2.8338	2.7553	2.7012	2.6746	2.6539	2.6222	2.5762	2.5168				
4	3.9584	3.8472	3.7319	3.6470	3.5859	3.5521	3.5139	3.4609	3.3943	3.3129				
5	4.8698	4.7454	4.6236	4.5317	4.4634	4.4120	4.3526	4.2790	4.1904	4.0929				
6	5.7679	5.6371	5.5083	5.4092	5.3234	5.2508	5.1707	5.0751	4.9704	4.8536				
7	6.6596	6.5218	6.3858	6.2692	6.1621	6.0689	5.9668	5.8551	5.7311	5.5922				
8	7.5443	7.3993	7.2458	7.1079	6.9802	6.8650	6.7468	6.6158	6.4697	6.3157				
9	8.4219	8.2592	8.0846	7.9260	7.7763	7.6450	7.5075	7.3544	7.1932	7.0261				
10	9.2818	9.0980	8.9027	8.7221	8.5563	8.4057	8.2461	8.0780	7.9036	7.7234				
11	10.1206	9.9161	9.6988	9.5021	9.3170	9.1443	8.9697	8.7883	8.6009	8.4063				
12	10.9387	10.7122	10.4788	10.2628	10.0556	9.8678	9.6800	9.4856	9.2831	9.0766				
13	11.7348	11.4922	11.2395	11.0014	10.7792	10.5782	10.3773	10.1685	9.9541	9.7343				
14	12.5148	12.2529	11.9780	11.7249	11.4895	11.2755	11.0602	10.8388	10.6118	10.3796				
15	13.2755	12.9915	12.7016	12.4353	12.1868	11.9584	11.7305	11.4965	11.2571	11.0128				
16	14.0140	13.7150	13.4119	13.1326	12.8697	12.6286	12.3882	12.1418	11.8903	11.6326				
17	14.7376	14.4254	14.1092	13.8155	13.5400	13.2864	13.0335	12.7750	12.5101	12.2406				
18	15.4479	15.1227	14.7922	14.4858	14.1977	13.9317	13.6667	13.3948	13.1181	12.8369				
19	16.1452	15.8056	15.4624	15.1435	14.8430	14.5649	14.2865	14.0028	13.7145	13.4218				
20	16.8282	16.4758	16.1201	15.7888	15.4762	15.1847	14.8945	14.5992	14.2993	13.9952				
21	17.4984	17.1336	16.7655	16.4220	16.0960	15.7927	15.4909	15.1840	14.8727	14.5575				
22	18.1561	17.7789	17.3986	17.0418	16.7040	16.3890	16.0757	15.7575	15.4350	15.1099				
23	18.8015	18.4121	18.0185	17.6498	17.3004	16.9738	16.6492	16.3197	15.9874	15.6513				
24	19.4346	19.0319	18.6265	18.2462	17.8852	17.5473	17.2114	16.8721	16.5289	16.1821				
25	20.0545	19.6399	19.2228	18.8310	18.4587	18.1096	17.7638	17.4136	17.0596	16.7033				
30	22.9794	22.5092	22.0372	21.5913	21.1667	20.7661	20.3685	19.9674	19.5635	19.1571				
35	25.6359	25.1139	24.5910	24.0952	23.6205	23.1710	22.7253	22.2771	21.8270	21.3755				
40	28.0407	27.4707	26.9008	26.3587	25.8389	25.3450	24.8560	24.3652	23.8734	23.3810				
45	30.2148	29.6013	28.9888	28.4051	27.8444	27.3104	26.7821	26.2529	25.7234	25.1940				
50	32.1802	31.5275	30.8765	30.2551	29.6574	29.0872	28.5234	27.9594	27.3958	26.8330				

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

<4> Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<5> Region 4: MT, ID, WY, CO, NM, AZ, UT, NV, WA, OR, CA, AK, HI

Table E-3-LP-4. Present Worth Factors--Liquified Petroleum Gas (LPG)

Number of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	0.9739	0.9475	0.9368	0.9265	0.9151	0.9058	0.8957	0.8859	0.8764	0.8650					
2	1.9214	1.8843	1.8634	1.8417	1.8209	1.8015	1.7817	1.7623	1.7414	1.7337					
3	2.8582	2.8109	2.7785	2.7474	2.7166	2.6874	2.6580	2.6273	2.6100	2.6113					
4	3.7848	3.7260	3.6843	3.6432	3.6025	3.5638	3.5231	3.4960	3.4876	3.4844					
5	4.6999	4.6317	4.5800	4.5291	4.4789	4.4288	4.3917	4.3736	4.3608	4.3539					
6	5.6056	5.5275	5.4659	5.4054	5.3439	5.2975	5.2693	5.2467	5.2302	5.2180					
7	6.5014	6.4134	6.3423	6.2705	6.2126	6.1750	6.1424	6.1162	6.0943	6.0704					
8	7.3873	7.2897	7.2073	7.1391	7.0902	7.0482	7.0119	6.9803	6.9468	6.9099					
9	8.2636	8.1548	8.0760	8.0167	7.9633	7.9177	7.8760	7.8327	7.7862	7.7364					
10	9.1287	9.0234	8.9536	8.8898	8.8328	8.7818	8.7284	8.6722	8.6128	8.5504					
11	9.9973	9.9010	9.8267	9.7593	9.6969	9.6342	9.5679	9.4987	9.4267	9.3521					
12	10.8749	10.7741	10.6962	10.6234	10.5493	10.4737	10.3945	10.3127	10.2284	10.1415					
13	11.7480	11.6436	11.5603	11.4759	11.3888	11.3002	11.2084	11.1143	11.0178	10.9187					
14	12.6175	12.5077	12.4127	12.3153	12.2153	12.1142	12.0101	11.9037	11.7950	11.6839					
15	13.4816	13.3602	13.2522	13.1419	13.0293	12.9158	12.7995	12.6809	12.5603	12.4376					
16	14.3341	14.1996	14.0787	13.9558	13.8309	13.7052	13.5767	13.4462	13.3139	13.1796					
17	15.1735	15.0262	14.8927	14.7575	14.6204	14.4824	14.3420	14.1999	14.0560	13.9103					
18	16.0001	15.8401	15.6943	15.5469	15.3976	15.2477	15.0956	14.9419	14.7867	14.6300					
19	16.8140	16.6418	16.4837	16.3241	16.1628	16.0014	15.8376	15.6726	15.5063	15.3386					
20	17.6157	17.4312	17.2609	17.0894	16.9165	16.7434	16.5684	16.3923	16.2150	16.0365					
21	18.4051	18.2084	18.0262	17.8430	17.6585	17.4741	17.2880	17.1009	16.9128	16.7237					
22	19.1823	18.9737	18.7799	18.5851	18.3892	18.1938	17.9966	17.7987	17.6001	17.4005					
23	19.9476	19.7273	19.5219	19.3158	19.1089	18.9024	18.6945	18.4860	18.2769	18.0670					
24	20.7012	20.4694	20.2526	20.0354	19.8175	19.6002	19.3818	19.1628	18.9433	18.7232					
25	21.4433	21.2001	20.9723	20.7441	20.5154	20.2875	20.0585	19.8293	19.5995	19.3693					
30	24.9874	24.6903	24.4093	24.1286	23.8482	23.5694	23.2903	23.0117	22.7335	22.4556					
35	28.2693	27.9220	27.5917	27.2626	26.9345	26.6087	26.2834	25.9592	25.6361	25.3140					
40	31.3086	30.9151	30.5392	30.1652	29.7929	29.4237	29.0555	28.6891	28.3245	27.9615					
45	34.1235	33.6872	33.2691	32.8536	32.4404	32.0309	31.6230	31.2176	30.8145	30.4136					
50	36.7307	36.2547	35.7976	35.3436	34.8925	34.4457	34.0010	33.5594	33.1207	32.6847					

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<3> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Residential Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

<3> Region 4: MT, ID, WY, CO, NM, AZ, UT, NV, WA, OR, CA, AK, HI

Table E-3-EL-5. Present Worth Factors--Electricity

Number of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	0.9705	0.9416	0.9189	0.8984	0.8773	0.8587	0.8396	0.8228	0.8055	0.7834
2	1.9122	1.8606	1.8173	1.7756	1.7360	1.6983	1.6624	1.6283	1.5889	1.5519
3	2.8311	2.7589	2.6946	2.6343	2.5756	2.5211	2.4680	2.4117	2.3574	2.3088
4	3.7294	3.6362	3.5533	3.4739	3.3984	3.3267	3.2513	3.1802	3.1143	3.0500
5	4.6067	4.4949	4.3929	4.2968	4.2039	4.1100	4.0198	3.9371	3.8555	3.7778
6	5.4654	5.3345	5.2157	5.1023	4.9873	4.8785	4.7767	4.6783	4.5834	4.4932
7	6.3050	6.1573	6.0212	5.8856	5.7558	5.6354	5.5179	5.4062	5.2987	5.1930
8	7.1279	6.9628	6.8046	6.6542	6.5127	6.3766	6.2458	6.1216	5.9985	5.8753
9	7.9334	7.7462	7.5731	7.4110	7.2539	7.1045	6.9612	6.8213	6.6808	6.5403
10	8.7167	8.5147	8.3300	8.1523	7.9818	7.8199	7.6609	7.5036	7.3458	7.1886
11	9.4853	9.2716	9.0712	8.8801	8.6971	8.5196	8.3432	8.1687	7.9941	7.8207
12	10.2421	10.0128	9.7991	9.5955	9.3969	9.2019	9.0083	8.8169	8.6262	8.4370
13	10.9833	10.7407	10.5144	10.2952	10.0792	9.8670	9.6566	9.4490	9.2425	9.0378
14	11.7112	11.4561	11.2142	10.9775	10.7443	10.5153	10.2886	10.0653	9.8434	9.6237
15	12.4266	12.1558	11.8965	11.6426	11.3925	11.1473	10.9049	10.6662	10.4292	10.1948
16	13.1263	12.8381	12.5616	12.2909	12.0246	11.7636	11.5058	11.2520	11.0004	10.7517
17	13.8086	13.5032	13.2098	12.9230	12.6409	12.3645	12.0916	11.8232	11.5572	11.2946
18	14.4737	14.1514	13.8419	13.5393	13.2418	12.9503	12.6628	12.3800	12.1001	11.8238
19	15.1220	14.7835	14.4582	14.1401	13.8276	13.5215	13.2196	12.9229	12.6293	12.3398
20	15.7541	15.3998	15.0591	14.7260	14.3988	14.0783	13.7625	13.4522	13.1453	12.8428
21	16.3704	16.0007	15.6449	15.2971	14.9556	14.6212	14.2918	13.9681	13.6483	13.3331
22	16.9712	16.5865	16.2161	15.8540	15.4985	15.1505	14.8078	14.4711	14.1387	13.8112
23	17.5571	17.1577	16.7729	16.3969	16.0278	15.6664	15.3108	14.9615	14.6167	14.2773
24	18.1282	17.7145	17.3158	16.9261	16.5437	16.1694	15.8011	15.4395	15.0828	14.7318
25	18.6851	18.2574	17.8451	17.4421	17.0467	16.6598	16.2791	15.9056	15.5373	15.1748
30	21.2665	20.7740	20.2985	19.8340	19.3787	18.9333	18.4956	18.0663	17.6435	17.2279
35	23.5400	22.9905	22.4592	21.9403	21.4318	20.9346	20.4464	19.9679	19.4971	19.0347
40	25.5413	24.9413	24.3608	23.7939	23.2387	22.6959	22.1632	21.6414	21.1284	20.6249
45	27.3026	26.6581	26.0343	25.4252	24.8288	24.2459	23.6741	23.1142	22.5640	22.0243
50	28.8526	28.1690	27.5071	26.8608	26.2282	25.6100	25.0038	24.4104	23.8275	23.2559

Notes: <1> Data Based on Assumed DOS of Apr 1995.

Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.  
Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).



Table E-3-DO-5. Present Worth Factors--Distillate Oil

Number of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	0.9796	0.9678	0.9632	0.9619	0.9610	0.9628	0.9667	0.9668	0.9678	0.9613
2	1.9474	1.9310	1.9251	1.9229	1.9238	1.9296	1.9335	1.9346	1.9291	1.9124
3	2.9106	2.8929	2.8861	2.8857	2.8905	2.8963	2.9013	2.8959	2.8801	2.8577
4	3.8725	3.8539	3.8489	3.8524	3.8573	3.8641	3.8626	3.8469	3.8255	3.7968
5	4.8335	4.8167	4.8156	4.8192	4.8251	4.8254	4.8136	4.7922	4.7646	4.7285
6	5.7963	5.7835	5.7824	5.7870	5.7864	5.7765	5.7590	5.7314	5.6963	5.6532
7	6.7630	6.7502	6.7502	6.7483	6.7375	6.7218	6.6981	6.6631	6.6210	6.5684
8	7.7298	7.7180	7.7115	7.6994	7.6828	7.6609	7.6298	7.5878	7.5362	7.4719
9	8.6976	8.6793	8.6626	8.6447	8.6219	8.5926	8.5545	8.5030	8.4397	8.3641
10	9.6589	9.6304	9.6079	9.5838	9.5536	9.5173	9.4697	9.4064	9.3319	9.2450
11	10.6099	10.5757	10.5470	10.5155	10.4783	10.4325	10.3731	10.2987	10.2128	10.1145
12	11.5553	11.5148	11.4787	11.4402	11.3935	11.3360	11.2654	11.1796	11.0823	10.9732
13	12.4944	12.4465	12.4034	12.3554	12.2970	12.2282	12.1463	12.0491	11.9409	11.8208
14	13.4261	13.3712	13.3186	13.2589	13.1892	13.1092	13.0158	12.9077	12.7886	12.6579
15	14.3508	14.2864	14.2221	14.1511	14.0701	13.9787	13.8744	13.7553	13.6256	13.4843
16	15.2660	15.1899	15.1143	15.0320	14.9396	14.8373	14.7220	14.5924	14.4521	14.3001
17	16.1695	16.0821	15.9952	15.9015	15.7982	15.6849	15.5591	15.4189	15.2679	15.1056
18	17.0617	16.9631	16.8647	16.7602	16.6459	16.5220	16.3856	16.2347	16.0734	15.9012
19	17.9426	17.8326	17.7233	17.6078	17.4830	17.3485	17.2014	17.0401	16.8690	16.6868
20	18.8121	18.6912	18.5710	18.4449	18.3094	18.1642	18.0069	17.8358	17.6546	17.4624
21	19.6707	19.5388	19.4081	19.2713	19.1252	18.9697	18.8025	18.6214	18.4302	18.2283
22	20.5184	20.3759	20.2345	20.0871	19.9307	19.7653	19.5881	19.3970	19.1961	18.9844
23	21.3554	21.2024	21.0503	20.8926	20.7263	20.5510	20.3637	20.1629	19.9522	19.7311
24	22.1819	22.0181	21.8558	21.6882	21.5119	21.3265	21.1296	20.9190	20.6989	20.4683
25	22.9977	22.8236	22.6514	22.4738	22.2875	22.0924	21.8857	21.6657	21.4360	21.1958
30	26.9259	26.7024	26.4813	26.2552	26.0209	25.7782	25.5246	25.2580	24.9824	24.6970
35	30.6117	30.3413	30.0736	29.8016	29.5221	29.2349	28.9371	28.6271	28.3086	27.9809
40	34.0683	33.7539	33.4427	33.1278	32.8060	32.4769	32.1379	31.7871	31.4284	31.0609
45	37.3104	36.9547	36.6027	36.2476	35.8860	35.5177	35.1400	34.7510	34.3545	33.9498
50	40.3512	39.9567	39.5666	39.1737	38.7749	38.3698	37.9558	37.5309	37.0990	36.6593

Notes: <1> Data Based on Assumed DOS of Apr 1995.

Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

Table E-3-RO-5. Present Worth Factors--Residual Oil

Number of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	0.9926	0.9988	1.0108	1.0228	1.0366	1.0440	1.0515	1.0593	1.0699	1.0751
2	1.9914	2.0096	2.0336	2.0594	2.0806	2.0955	2.1109	2.1292	2.1450	2.1511
3	3.0022	3.0323	3.0702	3.1034	3.1321	3.1549	3.1807	3.2043	3.2210	3.2300
4	4.0250	4.0689	4.1142	4.1549	4.1915	4.2248	4.2558	4.2804	4.2999	4.3068
5	5.0615	5.1129	5.1657	5.2142	5.2613	5.2999	5.3319	5.3593	5.3767	5.3806
6	6.1056	6.1645	6.2250	6.2841	6.3364	6.3759	6.4108	6.4360	6.4505	6.4507
7	7.1571	7.2238	7.2949	7.3592	7.4125	7.4548	7.4875	7.5098	7.5206	7.5176
8	8.2164	8.2937	8.3700	8.4353	8.4914	8.5315	8.5613	8.5799	8.5875	8.5817
9	9.2863	9.3688	9.4461	9.5142	9.5681	9.6054	9.6315	9.6468	9.6516	9.6434
10	10.3614	10.4448	10.5250	10.5909	10.6419	10.6755	10.6984	10.7109	10.7133	10.7018
11	11.4374	11.5237	11.6017	11.6647	11.7121	11.7424	11.7625	11.7726	11.7717	11.7574
12	12.5163	12.6005	12.6755	12.7348	12.7790	12.8065	12.8241	12.8310	12.8273	12.8103
13	13.5931	13.6743	13.7456	13.8017	13.8431	13.8681	13.8826	13.8866	13.8802	13.8599
14	14.6669	14.7444	14.8125	14.8658	14.9047	14.9266	14.9381	14.9395	14.9298	14.9064
15	15.7370	15.8113	15.8766	15.9275	15.9632	15.9821	15.9911	15.9891	15.9763	15.9500
16	16.8039	16.8754	16.9383	16.9859	17.0187	17.0351	17.0407	17.0356	17.0199	16.9908
17	17.8680	17.9371	17.9967	18.0415	18.0717	18.0847	18.0871	18.0792	18.0607	18.0291
18	18.9297	18.9955	19.0523	19.0944	19.1213	19.1312	19.1307	19.1201	19.0990	19.0641
19	19.9881	20.0511	20.1052	20.1440	20.1677	20.1747	20.1716	20.1583	20.1340	20.0959
20	21.0437	21.1040	21.1548	21.1905	21.2113	21.2156	21.2099	21.1933	21.1658	21.1254
21	22.0966	22.1536	22.2013	22.2341	22.2522	22.2539	22.2448	22.2251	22.1952	22.1518
22	23.1462	23.2001	23.2449	23.2750	23.2905	23.2889	23.2766	23.2546	23.2217	23.1753
23	24.1927	24.2437	24.2858	24.3132	24.3254	24.3206	24.3061	24.2810	24.2452	24.1965
24	25.2363	25.2845	25.3241	25.3482	25.3572	25.3501	25.3326	25.3045	25.2664	25.2148
25	26.2771	26.3228	26.3590	26.3800	26.3867	26.3766	26.3560	26.3257	26.2847	26.2301
30	31.4381	31.4690	31.4915	31.4989	31.4914	31.4672	31.4325	31.3873	31.3313	31.2618
35	36.5287	36.5454	36.5530	36.5455	36.5232	36.4840	36.4345	36.3745	36.3038	36.2197
40	41.5456	41.5474	41.5403	41.5181	41.4810	41.4272	41.3631	41.2886	41.2034	41.1048
45	46.4888	46.4761	46.4543	46.4177	46.3661	46.2979	46.2194	46.1306	46.0311	45.9182
50	51.3595	51.3324	51.2963	51.2453	51.1795	51.0971	51.0045	50.9015	50.7879	50.6610

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.

Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

Table E-3-NG-5. Present Worth Factors--Natural Gas

Number of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	1.0049	1.0105	1.0069	0.9963	0.9840	0.9759	0.9718	0.9698	0.9712	0.9704
2	2.0155	2.0174	2.0032	1.9803	1.9599	1.9476	1.9415	1.9409	1.9415	1.9404
3	3.0224	3.0137	2.9872	2.9562	2.9316	2.9174	2.9127	2.9113	2.9115	2.9141
4	4.0187	3.9977	3.9631	3.9279	3.9014	3.8886	3.8831	3.8813	3.8853	3.8883
5	5.0026	4.9736	4.9348	4.8977	4.8725	4.8589	4.8531	4.8551	4.8595	4.8540
6	5.9785	5.9453	5.9046	5.8689	5.8429	5.8289	5.8268	5.8293	5.8251	5.8117
7	6.9503	6.9151	6.8758	6.8392	6.8129	6.8027	6.8010	6.7949	6.7829	6.7635
8	7.9200	7.8863	7.8461	7.8092	7.7867	7.7769	7.7666	7.7526	7.7347	7.7067
9	8.8912	8.8566	8.8161	8.7830	8.7609	8.7425	8.7244	8.7044	8.6779	8.6410
10	9.8616	9.8266	9.7899	9.7572	9.7265	9.7003	9.6762	9.6476	9.6122	9.5662
11	10.8316	10.8004	10.7641	10.7228	10.6843	10.6521	10.6194	10.5820	10.5374	10.4829
12	11.8053	11.7746	11.7297	11.6806	11.6360	11.5953	11.5537	11.5071	11.4541	11.3909
13	12.7795	12.7402	12.6875	12.6324	12.5793	12.5296	12.4789	12.4238	12.3620	12.2898
14	13.7452	13.6980	13.6393	13.5756	13.5136	13.4548	13.3956	13.3318	13.2609	13.1812
15	14.7029	14.6498	14.5825	14.5099	14.4387	14.3715	14.3035	14.2307	14.1524	14.0649
16	15.6547	15.5930	15.5168	15.4351	15.3554	15.2794	15.2025	15.1222	15.0360	14.9396
17	16.5979	16.5273	16.4420	16.3518	16.2634	16.1783	16.0939	16.0058	15.9107	15.8059
18	17.5323	17.4525	17.3587	17.2597	17.1623	17.0698	16.9776	16.8805	16.7771	16.6644
19	18.4574	18.3692	18.2666	18.1586	18.0538	17.9534	17.8523	17.7468	17.6356	17.5148
20	19.3741	19.2771	19.1655	19.0501	18.9374	18.8281	18.7186	18.6053	18.4860	18.3576
21	20.2821	20.1760	20.0570	19.9337	19.8121	19.6945	19.5771	19.4557	19.3288	19.1925
22	21.1810	21.0675	20.9406	20.8084	20.6784	20.5530	20.4275	20.2985	20.1637	20.0192
23	22.0724	21.9511	21.8153	21.6748	21.5370	21.4034	21.2703	21.1334	20.9904	20.8383
24	22.9561	22.8258	22.6817	22.5333	22.3874	22.2462	22.1052	21.9602	21.8095	21.6501
25	23.8308	23.6922	23.5402	23.3837	23.2301	23.0811	22.9319	22.7792	22.6212	22.4543
30	28.0837	27.9055	27.7141	27.5189	27.3268	27.1392	26.9520	26.7612	26.5649	26.3596
35	32.1419	31.9256	31.6961	31.4626	31.2321	31.0066	30.7818	30.5539	30.3207	30.0789
40	36.0093	35.7554	35.4887	35.2183	34.9514	34.6898	34.4292	34.1658	33.8975	33.6210
45	39.6924	39.4028	39.1006	38.7952	38.4936	38.1975	37.9028	37.6057	37.3040	36.9944
50	43.2001	42.8764	42.5405	42.2017	41.8669	41.5381	41.2110	40.8817	40.5482	40.2071

Notes: <1> Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.  
 of Agreed Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum  
 of Agreement on Criteria/Standards for EA/LCC for MILCON Design.  
 Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes  
 for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

Table E-3-SC-5. Present Worth Factors--Steam Coal

Number Of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	0.9990	0.9844	0.9491	0.9737	0.9813	0.9682	0.9582	0.9274	0.9004	0.8657
2	1.9834	1.9335	1.9228	1.9551	1.9495	1.9264	1.8856	1.8277	1.7661	1.7601
3	2.9325	2.9072	2.9041	2.9232	2.9077	2.8538	2.7860	2.6935	2.6604	2.6962
4	3.9062	3.8885	3.8723	3.8815	3.8351	3.7542	3.6517	3.5878	3.5965	3.5742
5	4.8876	4.8567	4.8305	4.8089	4.7355	4.6199	4.5460	4.5239	4.4745	4.4170
6	5.8557	5.8149	5.7579	5.7092	5.6012	5.5142	5.4821	5.4019	5.3174	5.2426
7	6.8140	6.7423	6.6583	6.5750	6.4955	6.4503	6.3602	6.2448	6.1430	6.0396
8	7.7413	7.6427	7.5240	7.4693	7.4316	7.3283	7.2030	7.0704	6.9399	6.8201
9	8.6417	8.5084	8.4184	8.4054	8.3096	8.1712	8.0286	7.8673	7.7204	7.5844
10	9.5075	9.4028	9.3544	9.2834	9.1525	8.9968	8.8256	8.6478	8.4847	8.3349
11	10.4018	10.3388	10.2325	10.1263	9.9781	9.7937	9.6060	9.4121	9.2353	9.0718
12	11.3379	11.2169	11.0753	10.9518	10.7750	10.5742	10.3703	10.1626	9.9722	9.7952
13	12.2159	12.0597	11.9009	11.7488	11.5555	11.3385	11.1209	10.8995	10.6956	10.5053
14	13.0587	12.8853	12.6979	12.5293	12.3198	12.0891	11.8578	11.6230	11.4057	11.2004
15	13.8843	13.6823	13.4784	13.2936	13.0704	12.8259	12.5812	12.3331	12.1008	11.8808
16	14.6813	14.4628	14.2427	14.0441	13.8073	13.5494	13.2913	13.0282	12.7811	12.5484
17	15.4618	15.2271	14.9932	14.7810	14.5307	14.2595	13.9864	13.7085	13.4487	13.2034
18	16.2261	15.9776	15.7301	15.5044	15.2408	14.9546	14.6667	14.3761	14.1038	13.8461
19	16.9766	16.7145	16.4535	16.2146	15.9359	15.6349	15.3343	15.0312	14.7465	14.4766
20	17.7135	17.4379	17.1636	16.9096	16.6162	16.3025	15.9894	15.6739	15.3769	15.0950
21	18.4369	18.1480	17.8587	17.5900	17.2838	16.9576	16.6321	16.3043	15.9954	15.7015
22	19.1470	18.8431	18.5390	18.2576	17.9389	17.6003	17.2626	16.9227	16.6019	16.2963
23	19.8421	19.5234	19.2067	18.9127	18.5816	18.2307	17.8810	17.5293	17.1967	16.8796
24	20.5225	20.1911	19.8617	19.5553	19.2121	18.8491	18.4875	18.1241	17.7799	17.4515
25	21.1901	20.8461	20.5044	20.1858	19.8305	19.4557	19.0823	18.7073	18.3518	18.0121
30	24.3432	23.9390	23.5379	23.1607	22.7476	22.3159	21.8865	21.4564	21.0468	20.6540
35	27.2034	26.7432	26.2870	25.8557	25.3895	24.9058	24.4254	23.9453	23.4866	23.0458
40	29.7933	29.2821	28.7758	28.2955	27.7813	27.2504	26.7238	26.1984	25.6954	25.2111
45	32.1379	31.5805	31.0290	30.5043	29.9465	29.3730	28.8046	28.2382	27.6950	27.1713
50	34.2606	33.6613	33.0688	32.5039	31.9067	31.2946	30.6883	30.0849	29.5053	28.9459

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

&lt;2&gt; Authorized Period of Use of Table is Oct 1994 through Sep 1995.

Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Industrial Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

Table E-3-LP-5. Present Worth Factors--Liquified Petroleum Gas (LPG)

Number Of Payments	Beneficial Occupancy Date																			
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	0.9795	0.9616	0.9519	0.9435	0.9329	0.9275	0.9201	0.9119	0.9042	0.8929	0.9795	0.9616	0.9519	0.9435	0.9329	0.9275	0.9201	0.9119	0.9042	0.8929
2	1.9410	1.9135	1.8954	1.8764	1.8605	1.8477	1.8321	1.8162	1.7971	1.7768	1.9410	1.9135	1.8954	1.8764	1.8605	1.8477	1.8321	1.8162	1.7971	1.7768
3	2.8930	2.8570	2.8283	2.8039	2.7806	2.7596	2.7363	2.7091	2.6810	2.6536	2.8930	2.8570	2.8283	2.8039	2.7806	2.7596	2.7363	2.7091	2.6810	2.6536
4	3.8364	3.7899	3.7559	3.7241	3.6925	3.6638	3.6292	3.5929	3.5578	3.5195	3.8364	3.7899	3.7559	3.7241	3.6925	3.6638	3.6292	3.5929	3.5578	3.5195
5	4.7694	4.7175	4.6760	4.6360	4.5968	4.5567	4.5131	4.4697	4.4238	4.3746	4.7694	4.7175	4.6760	4.6360	4.5968	4.5567	4.5131	4.4697	4.4238	4.3746
6	5.6969	5.6376	5.5880	5.5402	5.4897	5.4406	5.3899	5.3357	5.2788	5.2189	5.6969	5.6376	5.5880	5.5402	5.4897	5.4406	5.3899	5.3357	5.2788	5.2189
7	6.6170	6.5495	6.4922	6.4331	6.3735	6.3174	6.2558	6.1907	6.1231	6.0509	6.6170	6.5495	6.4922	6.4331	6.3735	6.3174	6.2558	6.1907	6.1231	6.0509
8	7.5290	7.4538	7.3851	7.3170	7.2503	7.1834	7.1109	7.0351	6.9551	6.8703	7.5290	7.4538	7.3851	7.3170	7.2503	7.1834	7.1109	7.0351	6.9551	6.8703
9	8.4332	8.3466	8.2690	8.1938	8.1163	8.0384	7.9552	7.8671	7.7745	7.6773	8.4332	8.3466	8.2690	8.1938	8.1163	8.0384	7.9552	7.8671	7.7745	7.6773
10	9.3261	9.2305	9.1457	9.0598	8.9713	8.8827	8.7872	8.6864	8.5815	8.4720	9.3261	9.2305	9.1457	9.0598	8.9713	8.8827	8.7872	8.6864	8.5815	8.4720
11	10.2100	10.1073	10.0117	9.9148	9.8157	9.7147	9.6066	9.4935	9.3763	9.2545	10.2100	10.1073	10.0117	9.9148	9.8157	9.7147	9.6066	9.4935	9.3763	9.2545
12	11.0868	10.9733	10.8667	10.7591	10.6477	10.5341	10.4136	10.2882	10.1587	10.0250	11.0868	10.9733	10.8667	10.7591	10.6477	10.5341	10.4136	10.2882	10.1587	10.0250
13	11.9527	11.8283	11.7111	11.5911	11.4670	11.3411	11.2083	11.0707	10.9293	10.7839	11.9527	11.8283	11.7111	11.5911	11.4670	11.3411	11.2083	11.0707	10.9293	10.7839
14	12.8078	12.6727	12.5431	12.4105	12.2741	12.1359	11.9908	11.8412	11.6881	11.5311	12.8078	12.6727	12.5431	12.4105	12.2741	12.1359	11.9908	11.8412	11.6881	11.5311
15	13.6521	13.5047	13.3624	13.2175	13.0688	12.9184	12.7613	12.6000	12.4353	12.2669	13.6521	13.5047	13.3624	13.2175	13.0688	12.9184	12.7613	12.6000	12.4353	12.2669
16	14.4841	14.3240	14.1695	14.0123	13.8513	13.6889	13.5202	13.3472	13.1711	12.9914	14.4841	14.3240	14.1695	14.0123	13.8513	13.6889	13.5202	13.3472	13.1711	12.9914
17	15.3035	15.1310	14.9642	14.7948	14.6218	14.4477	14.2674	14.0831	13.8956	13.7048	15.3035	15.1310	14.9642	14.7948	14.6218	14.4477	14.2674	14.0831	13.8956	13.7048
18	16.1105	15.9258	15.7467	15.5653	15.3806	15.1949	15.0032	14.8076	14.6090	14.4074	16.1105	15.9258	15.7467	15.5653	15.3806	15.1949	15.0032	14.8076	14.6090	14.4074
19	16.9052	16.7083	16.5172	16.3241	16.1278	15.9307	15.7277	15.5210	15.3116	15.0992	16.9052	16.7083	16.5172	16.3241	16.1278	15.9307	15.7277	15.5210	15.3116	15.0992
20	17.6877	17.4788	17.2761	17.0713	16.8637	16.6552	16.4411	16.2236	16.0034	15.7804	17.6877	17.4788	17.2761	17.0713	16.8637	16.6552	16.4411	16.2236	16.0034	15.7804
21	18.4582	18.2376	18.0233	17.8071	17.5882	17.3687	17.1437	16.9154	16.6847	16.4513	18.4582	18.2376	18.0233	17.8071	17.5882	17.3687	17.1437	16.9154	16.6847	16.4513
22	19.2171	18.9848	18.7591	18.5316	18.3016	18.0712	17.8355	17.5966	17.3556	17.1119	19.2171	18.9848	18.7591	18.5316	18.3016	18.0712	17.8355	17.5966	17.3556	17.1119
23	19.9643	19.7207	19.4836	19.2451	19.0042	18.7630	18.5167	18.2675	18.0162	17.7625	19.9643	19.7207	19.4836	19.2451	19.0042	18.7630	18.5167	18.2675	18.0162	17.7625
24	20.7001	20.4452	20.1970	19.9476	19.6960	19.4443	19.1876	18.9281	18.6667	18.4031	20.7001	20.4452	20.1970	19.9476	19.6960	19.4443	19.1876	18.9281	18.6667	18.4031
25	21.4246	21.1586	20.8996	20.6394	20.3772	20.1152	19.8482	19.5786	19.3073	19.0339	21.4246	21.1586	20.8996	20.6394	20.3772	20.1152	19.8482	19.5786	19.3073	19.0339
30	24.8845	24.5657	24.2546	23.9434	23.6307	23.3189	23.0031	22.6852	22.3664	22.0463	24.8845	24.5657	24.2546	23.9434	23.6307	23.3189	23.0031	22.6852	22.3664	22.0463
35	28.0883	27.7205	27.3613	27.0025	26.6430	26.2852	25.9240	25.5616	25.1988	24.8353	28.0883	27.7205	27.3613	27.0025	26.6430	26.2852	25.9240	25.5616	25.1988	24.8353
40	31.0546	30.6415	30.2376	29.8348	29.4321	29.0317	28.6285	28.2247	27.8212	27.4177	31.0546	30.6415	30.2376	29.8348	29.4321	29.0317	28.6285	28.2247	27.8212	27.4177
45	33.8010	33.3460	32.9007	32.4573	32.0145	31.5746	31.1325	30.6905	30.2493	29.8087	33.8010	33.3460	32.9007	32.4573	32.0145	31.5746	31.1325	30.6905	30.2493	29.8087
50	36.3439	35.8500	35.3665	34.8853	34.4054	33.9290	33.4510	32.9735	32.4974	32.0224	36.3439	35.8500	35.3665	34.8853	34.4054	33.9290	33.4510	32.9735	32.4974	32.0224

Notes: <1> Data Based on Assumed DOS of Apr 1995.

Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum

of Agreement on Criteria/Standards for EA/LCC for MILCON Design.

Data Based on Discount Rate of 3.0% and DOE Projections of Future Price Level Changes for Residential Sector (NIST Annual Supplement to Handbook 135, Oct 1994).

## Part II. Tables of Present Worth Factors for Non-Energy Studies

Part II contains tables of present worth factors for use in computing the life-cycle costs of the competing alternatives in a non-energy study, where energy costs are either nonexistent or equal among all alternatives, in accordance with the provisions of governing DoD criteria (see Appendix A). The discount rates used to compute these present worth factors were taken from Appendix C of OMB Circular A-94 (March 1994). See the Preface of this report for the rationale for using a 2.5% discount rate for studies with short-term total study periods (10 years or less) and a 2.8% discount rate for studies with long-term total study periods (longer than 10 years).

Tables NE-1-1-ST, "Present Worth Factors--One-Time Costs, Zero Differential Escalation (Short Term Studies)" and NE-1-1-LT, "Present Worth Factors--One-Time Costs, Zero Differential Escalation (Long-Term Studies)" provide factors for costs which occur one time or at irregular time intervals throughout the study period and which increase at approximately the rate of general inflation (hence the term "zero differential escalation"). These costs may include construction/acquisition costs, non-annually recurring maintenance costs, major repair and replacement costs, and retention/salvage value or disposal cost. These factors are called "single present worth" (SPW) factors. The present worth of each cost occurrence is found by multiplying that cost, in Date-of-Study (DOS) prices, by the SPW factor corresponding to the time of occurrence (years after DOS). Interpolation is encouraged for non-integer time periods.

Table NE-1-1-ST should be used for short-term LCC studies, i.e., studies with a total study period of 10 years or less. This table is based on a 2.5% (real) discount rate. Table NE-1-1-LT should be used for long-term LCC studies, i.e., studies with a total study period longer than 10 years. This table is based on a 2.8% (real) discount rate. Note that the total length of the study period determines which table to use, not the time that a one-time cost is incurred. Thus, for a non-routine maintenance cost that occurs in the fifth year after the Beneficial Occupancy Date (BOD), in a LCC analysis with 30 years of beneficial occupancy (i.e., occupancy or usage), use the 5-year factor from table NE-1-1-LT (0.8710).

Tables NE-1-2-ST, "Present Worth Factors--One-Time Costs, Non-Zero Differential Escalation (Short-Term Studies)" and NE-1-2-LT, "Present Worth Factors--One-Time Costs, Non-Zero Differential Escalation (Long-Term Studies)" provide present worth factors for costs which occur one time or at irregular intervals throughout the study period and which change faster or more slowly than general price inflation. The "differential escalation rate" is the difference between the rate of increase in the particular type of cost under consideration and general price inflation<sup>1</sup>. Present worth factors are shown for differential escalation rates ranging from -5% to +5% in 1% increments. These factors are sometimes called "modified single present worth" (SPW\*) factors. The present worth of each cost occurrence is found by multiplying that cost, in DOS prices, by the SPW\* factor corresponding to the time of occurrence (years after DOS) and the differential

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<sup>1</sup> A more accurate way of calculating the differential escalation rate for a project-related cost is:

$$e = (1+E)/(1+I) - 1$$

where    e = the differential escalation rate,  
          E = the actual escalation rate, and  
          I = the rate of general inflation.

escalation rate. Interpolation is encouraged for time periods and escalation rates other than those shown on the table.

Table NE-1-2-ST should be used for short-term LCC studies, i.e., studies with a total study period of 10 years or less. This table is based on a 2.5% (real) discount rate. Table NE-1-2-LT should be used for long-term LCC studies, i.e., studies with a total study period longer than 10 years. This table is based on a 2.8% (real) discount rate. Note that the total length of the study period determines which table to use, not the time that a one-time cost is incurred. Thus, for a non-routine maintenance cost that is expected to occur in the fifth year after BOD and is expected to increase at an average annual rate of 2% above inflation, in a LCC analysis with a 30 year beneficial occupancy period, use the 5-year factor from table NE-1-2-LT (0.9617).

Table NE-2-1 provides present worth factors for costs which are incurred annually throughout the study period, such as routine maintenance and repair costs, and which are not expected to change faster or more slowly than the rate of general inflation. These factors are called "uniform present worth" (UPW) factors. The factors in this table are based on the assumption that the DOS is in April 1995, the BOD is in October of the same year or a future year, and that the annual cost occurs approximately at mid-year during each year of occupancy, or represents the sum of several costs distributed relatively uniformly throughout the year. The present worth of a cost recurring annually over the study period is found by multiplying the annual amount, in DOS prices, by the appropriate UPW factor. The number of payments generally corresponds to the number of years in the study period after BOD. Interpolation is encouraged for study periods and for BODs other than those shown on the tables.

Tables NE-2-2 through NE-2-11 provide present worth factors for costs which are incurred annually throughout the study period and which are expected to change faster or more slowly than the rate of general inflation. The differential rate of escalation is included in the table title; these differential rates range from -5% to +5% in 1% increments. Present worth factors which include escalation are sometimes called "modified uniform present worth" (UPW\*) factors. The UPW\* factors in this table are based on the assumption that the DOS is in April 1995, the BOD is in October of the same year or a future year, and that the annual cost occurs approximately at mid-year during each year of occupancy, or represents the sum of several costs distributed relatively uniformly throughout the year. The present worth of a cost recurring annually over the study period is found by multiplying the annual amount, in DOS prices, by the appropriate UPW\* factor. The number of payments generally corresponds to the number of years in the study period after BOD. Interpolation is encouraged for study periods and escalation rates and BODs other than those shown on the tables.

As noted in the Preface, the tables for annually recurring costs (NE-2-1 through NE-2-11) are based on the assumption that the Date of Study is April, 1995, and that the BOD occurs in October of 1995 (or October of a subsequent year, through 2004). Therefore, for an LCC analysis covering a 10-year beneficial occupancy period beginning in October 1995, the total study period would be 10.5 years (April 1995 through October 2005). Accordingly, the present worth factor for beneficial occupancy periods of 10 years or longer are computed using the 2.8% discount rate for a long-term project.

NON-ENERGY STUDIES

NON-ENERGY STUDIES

Table NE-1-1-ST. Present Worth Factors - One-Time Costs - Study Period 1-10 Years  
Zero Differential Escalation Rate

Time Cost Incurred (Years after DOS)	SPW Factor
0.00	1.0000
0.25	0.9938
0.50	0.9877
0.75	0.9817
1	0.9756
2	0.9518
3	0.9286
4	0.9060
5	0.8839
6	0.8623
7	0.8413
8	0.8207
9	0.8007
10	0.7812

- Notes: <1> Authorized Period of Use of Table is Oct 1994 through Sep 1995.  
 <2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum  
 of Agreement on Criteria/Standards for EA/LCC for MILCON Design. (Discount Rate = 2.5%)  
 <3> Covers Costs such as Construction, Procurement, Replacement, Disposal.



NON-ENERGY STUDIES

NON-ENERGY STUDIES

Table NE-1-1-LT. Present Worth Factors - One-Time Costs - Study Period 11-50 Years  
Zero Differential Escalation Rate

Time Cost Incurred (Years after DOS)	SPW Factor	Time Cost Incurred (Years after DOS)	SPW Factor
0.00	1.0000	16	0.6429
0.25	0.9931	17	0.6253
0.50	0.9863	18	0.6083
0.75	0.9795	19	0.5917
		20	0.5756
1	0.9728	21	0.5599
2	0.9463	22	0.5447
3	0.9205	23	0.5299
4	0.8954	24	0.5154
5	0.8710	25	0.5014
6	0.8473	26	0.4877
7	0.8242	27	0.4744
8	0.8018	28	0.4615
9	0.7799	29	0.4490
10	0.7587	30	0.4367
11	0.7380	35	0.3804
12	0.7179	40	0.3313
13	0.6984	45	0.2886
14	0.6794	50	0.2514
15	0.6609		

Notes: <1> Authorized Period of Use of Table is Oct 1994 through Sep 1995.  
 <2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum  
 of Agreement on Criteria/Standards for EA/LCC for MILCON Design. (Discount Rate = 2.8%)  
 <3> Covers Costs such as Construction, Procurement, Replacement, Disposal.

Table NE-1-2-ST. Present Worth Factors--One-Time Costs - Study Period 1-10 Years  
Non-Zero Differential Escalation

Time Cost Incurred (Years after DOS)	Differential Escalation Rate													
	-5%	-4%	-3%	-2%	-1%	1%	2%	3%	4%	5%				
0.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.25	0.9812	0.9838	0.9863	0.9888	0.9914	0.9963	0.9988	1.0012	1.0036	1.0060	1.0084	1.0108	1.0132	1.0156
0.50	0.9627	0.9678	0.9728	0.9778	0.9828	0.9927	0.9976	1.0024	1.0073	1.0121	1.0169	1.0217	1.0265	1.0313
0.75	0.9446	0.9521	0.9595	0.9669	0.9743	0.9890	0.9963	1.0037	1.0110	1.0182	1.0255	1.0327	1.0400	1.0472
1	0.9268	0.9366	0.9463	0.9561	0.9659	0.9854	0.9951	1.0049	1.0146	1.0244	1.0341	1.0438	1.0535	1.0632
2	0.8590	0.8772	0.8956	0.9141	0.9329	0.9709	0.9903	1.0098	1.0295	1.0494	1.0691	1.0888	1.1085	1.1282
3	0.7962	0.8216	0.8475	0.8740	0.9010	0.9567	0.9854	1.0147	1.0445	1.0750	1.1052	1.1354	1.1656	1.1958
4	0.7379	0.7695	0.8020	0.8356	0.8703	0.9427	0.9806	1.0197	1.0598	1.1012	1.1426	1.1840	1.2254	1.2668
5	0.6839	0.7207	0.7590	0.7989	0.8405	0.9289	0.9758	1.0246	1.0753	1.1280	1.1807	1.2334	1.2861	1.3388
6	0.6339	0.6750	0.7183	0.7639	0.8118	0.9153	0.9711	1.0296	1.0911	1.1556	1.2181	1.2806	1.3431	1.4056
7	0.5875	0.6322	0.6797	0.7303	0.7841	0.9020	0.9663	1.0347	1.1070	1.1837	1.2604	1.3371	1.4138	1.4905
8	0.5445	0.5921	0.6433	0.6983	0.7573	0.8888	0.9616	1.0397	1.1232	1.2126	1.3020	1.3914	1.4808	1.5702
9	0.5047	0.5545	0.6087	0.6676	0.7315	0.8757	0.9569	1.0448	1.1397	1.2422	1.3447	1.4472	1.5497	1.6522
10	0.4677	0.5194	0.5761	0.6383	0.7065	0.8629	0.9523	1.0499	1.1564	1.2725	1.3886	1.5047	1.6208	1.7369

Notes: <1> Authorized Period of Use of Table is Oct 1994 through Sep 1995.  
 <2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum  
 of Agreement on Criteria/Standards for EA/LCC for MILCON Design (Discount Rate = 2.5%).  
 <3> Covers Costs such as Construction, Procurement, Replacement, Disposal.

Table NE-1-2-LT. Present Worth Factors--One-Time Costs, Non-Zero Differential Escalation (Long-Term Studies)

Time Cost Incurred (Years after DOS)	Differential Escalation Rate										
	-5%	-4%	-3%	-2%	-1%	1%	2%	3%	4%	5%	
0.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.25	0.9805	0.9830	0.9856	0.9881	0.9906	0.9956	0.9980	1.0005	1.0029	1.0053	1.0077
0.50	0.9613	0.9664	0.9714	0.9764	0.9813	0.9912	0.9961	1.0010	1.0058	1.0106	1.0154
0.75	0.9425	0.9500	0.9574	0.9648	0.9721	0.9868	0.9942	1.0015	1.0087	1.0160	1.0233
1	0.9241	0.9339	0.9436	0.9533	0.9630	0.9825	0.9922	1.0019	1.0117	1.0214	1.0311
2	0.8540	0.8721	0.8903	0.9088	0.9274	0.9653	0.9845	1.0039	1.0235	1.0433	1.0631
3	0.7892	0.8144	0.8401	0.8664	0.8932	0.9484	0.9768	1.0058	1.0354	1.0656	1.0958
4	0.7293	0.7605	0.7927	0.8259	0.8601	0.9318	0.9692	1.0078	1.0475	1.0884	1.1292
5	0.6740	0.7102	0.7480	0.7873	0.8283	0.9155	0.9617	1.0098	1.0597	1.1117	1.1646
6	0.6228	0.6632	0.7058	0.7506	0.7977	0.8994	0.9542	1.0117	1.0721	1.1355	1.1999
7	0.5756	0.6194	0.6660	0.7155	0.7682	0.8837	0.9468	1.0137	1.0846	1.1598	1.2358
8	0.5319	0.5784	0.6284	0.6821	0.7398	0.8682	0.9394	1.0157	1.0973	1.1846	1.2729
9	0.4916	0.5401	0.5929	0.6503	0.7125	0.8530	0.9321	1.0176	1.1101	1.2099	1.3111
10	0.4543	0.5044	0.5595	0.6199	0.6862	0.8381	0.9248	1.0196	1.1231	1.2358	1.3511
11	0.4198	0.4710	0.5279	0.5910	0.6608	0.8234	0.9177	1.0216	1.1362	1.2623	1.3933
12	0.3879	0.4399	0.4981	0.5634	0.6364	0.8090	0.9105	1.0236	1.1494	1.2893	1.4377
13	0.3585	0.4108	0.4700	0.5371	0.6128	0.7948	0.9034	1.0256	1.1628	1.3169	1.4791
14	0.3313	0.3836	0.4435	0.5120	0.5902	0.7809	0.8964	1.0276	1.1764	1.3451	1.5233
15	0.3062	0.3582	0.4185	0.4881	0.5684	0.7672	0.8894	1.0296	1.1902	1.3739	1.5733
16	0.2829	0.3345	0.3949	0.4653	0.5474	0.7538	0.8825	1.0316	1.2040	1.4033	1.6311
17	0.2615	0.3124	0.3726	0.4436	0.5271	0.7406	0.8756	1.0336	1.2181	1.4333	1.6977
18	0.2416	0.2917	0.3516	0.4229	0.5076	0.7276	0.8688	1.0356	1.2323	1.4640	1.7733
19	0.2233	0.2724	0.3317	0.4031	0.4889	0.7149	0.8621	1.0376	1.2467	1.4953	1.8599
20	0.2064	0.2544	0.3130	0.3843	0.4708	0.7024	0.8553	1.0396	1.2613	1.5273	1.9577
21	0.1907	0.2376	0.2954	0.3663	0.4534	0.6901	0.8487	1.0417	1.2760	1.5600	2.0577
22	0.1762	0.2219	0.2787	0.3492	0.4366	0.6780	0.8421	1.0437	1.2909	1.5934	2.1611
23	0.1629	0.2072	0.2630	0.3329	0.4205	0.6661	0.8355	1.0457	1.3059	1.6275	2.2701
24	0.1505	0.1935	0.2481	0.3174	0.4050	0.6545	0.8290	1.0478	1.3212	1.6623	2.3847
25	0.1391	0.1807	0.2341	0.3026	0.3900	0.6430	0.8226	1.0498	1.3366	1.6979	2.5051
26	0.1285	0.1687	0.2209	0.2884	0.3756	0.6317	0.8162	1.0518	1.3522	1.7342	2.6311
27	0.1188	0.1576	0.2085	0.2750	0.3617	0.6207	0.8098	1.0539	1.3680	1.7713	2.7633
28	0.1098	0.1472	0.1967	0.2621	0.3483	0.6098	0.8035	1.0559	1.3840	1.8092	2.9027
29	0.1014	0.1374	0.1856	0.2499	0.3354	0.5991	0.7973	1.0580	1.4001	1.8479	3.0491
30	0.0937	0.1283	0.1751	0.2382	0.3230	0.5886	0.7911	1.0600	1.4165	1.8875	3.2027
35	0.0632	0.0911	0.1310	0.1876	0.2676	0.5389	0.7608	1.0704	1.5011	2.0983	3.5811
40	0.0426	0.0647	0.0980	0.1477	0.2217	0.4933	0.7316	1.0808	1.5908	2.3326	4.0111
45	0.0287	0.0460	0.0733	0.1163	0.1836	0.4516	0.7036	1.0914	1.6858	2.5932	4.5011
50	0.0193	0.0327	0.0548	0.0915	0.1521	0.4134	0.6766	1.1021	1.7865	2.8828	5.0511

Notes: <1> Authorized Period of Use of Table is Oct 1994 through Sep 1995.  
 <2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design (Discount Rate = 2.8%).  
 <3> Covers Costs such as Construction, Procurement, Replacement, Disposal.

Table NE-2-1. Present Worth Factors--Annually Recurring Costs  
Zero Differential Escalation (e = 0%)

Number of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	0.9756	0.9518	0.9286	0.9060	0.8839	0.8623	0.8413	0.8207	0.8007	0.7587					
2	1.9274	1.8804	1.8346	1.7898	1.7462	1.7036	1.6620	1.6215	1.5386	1.4967					
3	2.8560	2.7864	2.7184	2.6521	2.5874	2.5243	2.4627	2.3404	2.2767	2.2147					
4	3.7620	3.6702	3.5807	3.4934	3.4082	3.3250	3.1646	3.0785	2.9946	2.9130					
5	4.6458	4.5325	4.4220	4.3141	4.2089	4.0120	3.9027	3.7964	3.6930	3.5924					
6	5.5081	5.3738	5.2427	5.1148	4.8830	4.7500	4.6206	4.4948	4.3723	4.2532					
7	6.3494	6.1945	6.0434	5.7784	5.6210	5.4679	5.3190	5.1741	5.0332	4.8961					
8	7.1701	6.9953	6.6989	6.5164	6.3390	6.1663	5.9983	5.8350	5.6760	5.5214					
9	7.9709	7.6452	7.4369	7.2344	7.0373	6.8457	6.6592	6.4778	6.3014	6.1297					
10	8.6179	8.3832	8.1549	7.9328	7.7167	7.5065	7.3020	7.1032	6.9097	6.7215					
11	9.3560	9.1011	8.8532	8.6121	8.3775	8.1494	7.9274	7.7115	7.5014	7.2971					
12	10.0739	9.7995	9.5326	9.2730	9.0204	8.7747	8.5357	8.3032	8.0770	7.8570					
13	10.7723	10.4789	10.1934	9.9158	9.6457	9.3830	9.1274	8.8788	8.6370	8.4017					
14	11.4516	11.1397	10.8363	10.5411	10.2540	9.9747	9.7031	9.4388	9.1817	8.9316					
15	12.1125	11.7826	11.4616	11.1495	10.8458	10.5504	10.2630	9.9835	9.7115	9.4470					
16	12.7553	12.4079	12.0700	11.7412	11.4214	11.1103	10.8077	10.5133	10.2270	9.9484					
17	13.3807	13.0162	12.6617	12.3168	11.9813	11.6550	11.3375	11.0287	10.7284	10.4361					
18	13.9890	13.6080	13.2373	12.8768	12.5260	12.1849	11.8530	11.5301	11.2161	10.9106					
19	14.5807	14.1836	13.7973	13.4215	13.0559	12.7003	12.3544	12.0179	11.6905	11.3721					
20	15.1563	14.7435	14.3419	13.9513	13.5713	13.2017	12.8421	12.4923	12.1520	11.8211					
21	15.7163	15.2882	14.8718	14.4667	14.0727	13.6894	13.3165	12.9538	12.6010	12.2578					
22	16.2610	15.8181	15.3872	14.9681	14.5604	14.1638	13.7781	13.4028	13.0377	12.6826					
23	16.7908	16.3335	15.8886	15.4559	15.0349	14.6254	14.2270	13.8395	13.4626	13.0959					
24	17.3063	16.8349	16.3763	15.9303	15.4964	15.0743	14.6637	14.2643	13.8758	13.4979					
25	17.8076	17.3226	16.8508	16.3918	15.9453	15.5110	15.0886	14.6776	14.2778	13.8889					
30	20.1170	19.5691	19.0361	18.5176	18.0132	17.5226	17.0453	16.5810	16.1294	15.6901					
35	22.1286	21.5258	20.9395	20.3692	19.8144	19.2747	18.7497	18.2390	17.7422	17.2590					
40	23.8807	23.2302	22.5975	21.9820	21.3833	20.8008	20.2343	19.6832	19.1470	18.6255					
45	25.4068	24.7148	24.0416	23.3868	22.7498	22.1302	21.5274	20.9411	20.3707	19.8158					
50	26.7361	26.0079	25.2995	24.6104	23.9401	23.2881	22.6538	22.0367	21.4365	20.8526					

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

&lt;2&gt; Authorized Period of Use of Table is Oct 1994 through Sep 1995.

&lt;3&gt; Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design

(Discount Rate: study periods of 1 to 10 years = 2.5%; study periods greater than 10 years = 2.8%).  
<3> Covers Costs such as Routine Maintenance & Repair and Custodial.

Table NE-2-2. Present Worth Factors--Annually Recurring Costs  
Non-Zero Differential Escalation (e = -5%)

Number Of Payments	Beneficial Occupancy Date													
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004				
1	0.9268	0.8590	0.7962	0.7379	0.6839	0.6339	0.5875	0.5445	0.5047	0.4543				
2	1.7858	1.6552	1.5341	1.4218	1.3178	1.2214	1.1320	1.0492	0.9458	0.8741				
3	2.5820	2.3931	2.2180	2.0557	1.9053	1.7659	1.6366	1.4777	1.3656	1.2620				
4	3.3199	3.0770	2.8518	2.6432	2.4498	2.2705	2.0533	1.8975	1.7536	1.6205				
5	4.0038	3.7109	3.4393	3.1877	2.9544	2.6762	2.4731	2.2855	2.1121	1.9518				
6	4.6377	4.2983	3.9838	3.6923	3.3502	3.0960	2.8611	2.6440	2.4434	2.2580				
7	5.2252	4.8428	4.4885	4.0795	3.7700	3.4839	3.2196	2.9753	2.7495	2.5409				
8	5.7697	5.3475	4.8687	4.4993	4.1579	3.8424	3.5509	3.2814	3.0325	2.8024				
9	6.2743	5.7227	5.2885	4.8872	4.5164	4.1737	3.8570	3.5644	3.2939	3.0440				
10	6.6468	6.1425	5.6764	5.2457	4.8477	4.4799	4.1400	3.8258	3.5356	3.2673				
11	7.0666	6.5304	6.0349	5.5770	5.1539	4.7628	4.4014	4.0675	3.7589	3.4737				
12	7.4546	6.8889	6.3662	5.8832	5.4368	5.0243	4.6431	4.2908	3.9652	3.6643				
13	7.8131	7.2202	6.6724	6.1661	5.6983	5.2659	4.8664	4.4971	4.1559	3.8406				
14	8.1444	7.5264	6.9553	6.4276	5.9399	5.4892	5.0727	4.6878	4.3321	4.0034				
15	8.4505	7.8094	7.2168	6.6692	6.1632	5.6956	5.2634	4.8640	4.4950	4.1539				
16	8.7335	8.0708	7.4584	6.8925	6.3696	5.8863	5.4396	5.0269	4.6455	4.2930				
17	8.9949	8.3124	7.6817	7.0989	6.5602	6.0625	5.6025	5.1774	4.7846	4.4215				
18	9.2366	8.5357	7.8881	7.2896	6.7365	6.2253	5.7530	5.3165	4.9131	4.5403				
19	9.4599	8.7421	8.0788	7.4658	6.8993	6.3758	5.8921	5.4450	5.0319	4.6501				
20	9.6662	8.9328	8.2550	7.6287	7.0498	6.5149	6.0206	5.5638	5.1416	4.7515				
21	9.8569	9.1090	8.4179	7.7792	7.1889	6.6434	6.1394	5.6735	5.2431	4.8452				
22	10.0331	9.2719	8.5684	7.9182	7.3174	6.7622	6.2491	5.7750	5.3368	4.9319				
23	10.1960	9.4224	8.7074	8.0468	7.4362	6.8720	6.3506	5.8687	5.4234	5.0119				
24	10.3465	9.5614	8.8360	8.1655	7.5460	6.9734	6.4443	5.9553	5.5035	5.0859				
25	10.4856	9.6900	8.9547	8.2753	7.6474	7.0672	6.5309	6.0354	5.5775	5.1543				
30	11.0378	10.2003	9.4264	8.7111	8.0502	7.4394	6.8749	6.3533	5.8712	5.4257				
35	11.4100	10.5443	9.7442	9.0049	8.3216	7.6902	7.1067	6.5675	6.0692	5.6087				
40	11.6609	10.7761	9.9585	9.2029	8.5046	7.8593	7.2630	6.7119	6.2026	5.7320				
45	11.8299	10.9323	10.1028	9.3363	8.6279	7.9732	7.3683	6.8092	6.2925	5.8151				
50	11.9439	11.0377	10.2002	9.4262	8.7110	8.0500	7.4392	6.8748	6.3532	5.8711				

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

<2> Authorized Period of Use of Table is Oct 1994 through Sep 1995.  
of Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum  
of Agreement on Criteria/Standards for EM/LCC for MILCON Design<3> (Discount Rate: study periods of 1 to 10 years = 2.5%; study periods greater than 10 years = 2.8%).  
Covers Costs such as Routine Maintenance & Repair and Custodial.

Table NE-2-3. Present Worth Factors--Annually Recurring Costs  
Non-Zero Differential Escalation (e = -4%)

Number of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	0.9366	0.8772	0.8216	0.7695	0.7207	0.6750	0.6322	0.5921	0.5545	0.5044					
2	1.8138	1.6988	1.5910	1.4901	1.3956	1.3071	1.2242	1.1466	1.0445	0.9754					
3	2.6353	2.4682	2.3117	2.1651	2.0278	1.8992	1.7788	1.6229	1.5156	1.4153					
4	3.4048	3.1889	2.9867	2.7973	2.6199	2.4537	2.2423	2.0940	1.9555	1.8261					
5	4.1255	3.8639	3.6188	3.3894	3.1744	2.9055	2.7133	2.5339	2.3663	2.2097					
6	4.8004	4.4960	4.2109	3.9439	3.6158	3.3766	3.1532	2.9446	2.7499	2.5680					
7	5.4326	5.0881	4.7654	4.4763	4.0868	3.8165	3.5640	3.3283	3.1081	2.9025					
8	6.0247	5.6426	5.1907	4.8473	4.5267	4.2273	3.9476	3.6865	3.4426	3.2149					
9	6.5792	6.0628	5.6617	5.2872	4.9375	4.6109	4.3059	4.0210	3.7551	3.5067					
10	6.9966	6.5338	6.1016	5.6980	5.3211	4.9691	4.6404	4.3335	4.0468	3.7791					
11	7.4676	6.9737	6.5124	6.0816	5.6793	5.3036	4.9528	4.6252	4.3193	4.0335					
12	7.9075	7.3845	6.8960	6.4398	6.0139	5.6161	5.2446	4.8976	4.5737	4.2711					
13	8.3183	7.7681	7.2542	6.7744	6.3263	5.9078	5.5170	5.1521	4.8113	4.4930					
14	8.7019	8.1263	7.5888	7.0868	6.6180	6.1803	5.7714	5.3897	5.0332	4.7002					
15	9.0602	8.4609	7.9012	7.3785	6.8905	6.4347	6.0090	5.6116	5.2404	4.8937					
16	9.3947	8.7733	8.1929	7.6510	7.1449	6.6723	6.2309	5.8188	5.4339	5.0744					
17	9.7071	9.0650	8.4654	7.9054	7.3825	6.8942	6.4381	6.0123	5.6146	5.2432					
18	9.9989	9.3375	8.7198	8.1430	7.6044	7.1014	6.6316	6.1930	5.7833	5.4007					
19	10.2713	9.5919	8.9574	8.3649	7.8116	7.2949	6.8123	6.3617	5.9409	5.5479					
20	10.5257	9.8295	9.1793	8.5721	8.0051	7.4756	6.9811	6.5193	6.0880	5.6853					
21	10.7633	10.0514	9.3865	8.7656	8.1858	7.6443	7.1386	6.6664	6.2255	5.8137					
22	10.9852	10.2586	9.5800	8.9463	8.3545	7.8019	7.2858	6.8039	6.3538	5.9335					
23	11.1924	10.4521	9.7607	9.1150	8.5121	7.9490	7.4232	6.9322	6.4736	6.0454					
24	11.3859	10.6328	9.9294	9.2726	8.6593	8.0865	7.5516	7.0520	6.5856	6.1499					
25	11.5666	10.8015	10.0870	9.4198	8.7967	8.2148	7.6714	7.1640	6.6901	6.2475					
30	12.3059	11.4919	10.7317	10.0218	9.3589	8.7398	8.1617	7.6218	7.1177	6.6468					
35	12.8309	11.9822	11.1896	10.4494	9.7582	9.1127	8.5099	7.9470	7.4213	6.9304					
40	13.2038	12.3304	11.5147	10.7531	10.0418	9.3775	8.7572	8.1780	7.6370	7.1318					
45	13.4686	12.5777	11.7457	10.9687	10.2432	9.5656	8.9329	8.3420	7.7902	7.2749					
50	13.6567	12.7533	11.9097	11.1219	10.3862	9.6992	9.0576	8.4585	7.8990	7.3765					

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

&lt;2&gt; Authorized Period of Use of Table is Oct 1994 through Sep 1995.

&lt;3&gt; Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design

(Discount Rate: study periods of 1 to 10 years = 2.5%; study periods greater than 10 years = 2.8%).  
<3> Covers Costs such as Routine Maintenance & Repair and Custodial.

Table NE-2-4. Present Worth Factors--Annually Recurring Costs  
Non-Zero Differential Escalation (e = -3%)

Number of Payments	Beneficial Occupancy Date																			
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	0.9463	0.8956	0.8475	0.8020	0.7590	0.7183	0.6797	0.6433	0.6087	0.5595	0.9463	0.8956	0.8475	0.8020	0.7590	0.7183	0.6797	0.6433	0.6087	0.5595
2	1.8419	1.7431	1.6495	1.5610	1.4773	1.3980	1.3230	1.2520	1.1524	1.0874	1.8419	1.7431	1.6495	1.5610	1.4773	1.3980	1.3230	1.2520	1.1524	1.0874
3	2.6894	2.5451	2.4085	2.2793	2.1570	2.0413	1.9317	1.7808	1.6803	1.5855	2.6894	2.5451	2.4085	2.2793	2.1570	2.0413	1.9317	1.7808	1.6803	1.5855
4	3.4914	3.3041	3.1268	2.9590	2.8002	2.6500	2.4468	2.3087	2.1785	2.0556	3.4914	3.3041	3.1268	2.9590	2.8002	2.6500	2.4468	2.3087	2.1785	2.0556
5	4.2504	4.0224	3.8065	3.6023	3.4090	3.1526	2.9747	2.8069	2.6485	2.4991	4.2504	4.0224	3.8065	3.6023	3.4090	3.1526	2.9747	2.8069	2.6485	2.4991
6	4.9687	4.7021	4.4498	4.2110	3.9005	3.6805	3.4728	3.2769	3.0920	2.9175	4.9687	4.7021	4.4498	4.2110	3.9005	3.6805	3.4728	3.2769	3.0920	2.9175
7	5.6484	5.3453	5.0585	4.6933	4.4285	4.1786	3.9428	3.7204	3.5105	3.3124	5.6484	5.3453	5.0585	4.6933	4.4285	4.1786	3.9428	3.7204	3.5105	3.3124
8	6.2917	5.9541	5.5334	5.2212	4.9266	4.6486	4.3864	4.1389	3.9054	3.6850	6.2917	5.9541	5.5334	5.2212	4.9266	4.6486	4.3864	4.1389	3.9054	3.6850
9	6.9004	6.4237	6.0613	5.7193	5.3966	5.0921	4.8048	4.5337	4.2780	4.0366	6.9004	6.4237	6.0613	5.7193	5.3966	5.0921	4.8048	4.5337	4.2780	4.0366
10	7.3673	6.9516	6.5594	6.1893	5.8401	5.5106	5.1997	4.9063	4.6295	4.3683	7.3673	6.9516	6.5594	6.1893	5.8401	5.5106	5.1997	4.9063	4.6295	4.3683
11	7.8952	7.4497	7.0294	6.6328	6.2586	5.9055	5.5723	5.2579	4.9613	4.6813	7.8952	7.4497	7.0294	6.6328	6.2586	5.9055	5.5723	5.2579	4.9613	4.6813
12	8.3933	7.9198	7.4729	7.0513	6.6535	6.2781	5.9239	5.5896	5.2743	4.9767	8.3933	7.9198	7.4729	7.0513	6.6535	6.2781	5.9239	5.5896	5.2743	4.9767
13	8.8634	8.3633	7.8914	7.4462	7.0261	6.6297	6.2556	5.9027	5.5696	5.2554	8.8634	8.3633	7.8914	7.4462	7.0261	6.6297	6.2556	5.9027	5.5696	5.2554
14	9.3069	8.7818	8.2863	7.8188	7.3776	6.9614	6.5686	6.1980	5.8483	5.5184	9.3069	8.7818	8.2863	7.8188	7.3776	6.9614	6.5686	6.1980	5.8483	5.5184
15	9.7253	9.1766	8.6589	8.1704	7.7094	7.2744	6.8640	6.4767	6.1113	5.7665	9.7253	9.1766	8.6589	8.1704	7.7094	7.2744	6.8640	6.4767	6.1113	5.7665
16	10.1202	9.5492	9.0105	8.5021	8.0224	7.5698	7.1427	6.7397	6.3594	6.0006	10.1202	9.5492	9.0105	8.5021	8.0224	7.5698	7.1427	6.7397	6.3594	6.0006
17	10.4928	9.9008	9.3422	8.8151	8.3178	7.8485	7.4057	6.9878	6.5936	6.2216	10.4928	9.9008	9.3422	8.8151	8.3178	7.8485	7.4057	6.9878	6.5936	6.2216
18	10.8444	10.2325	9.6552	9.1105	8.5965	8.1114	7.6538	7.2220	6.8145	6.4300	10.8444	10.2325	9.6552	9.1105	8.5965	8.1114	7.6538	7.2220	6.8145	6.4300
19	11.1761	10.5456	9.9506	9.3892	8.8594	8.3596	7.8879	7.4429	7.0230	6.6267	11.1761	10.5456	9.9506	9.3892	8.8594	8.3596	7.8879	7.4429	7.0230	6.6267
20	11.4891	10.8409	10.2293	9.6521	9.1076	8.5937	8.1089	7.6513	7.2197	6.8123	11.4891	10.8409	10.2293	9.6521	9.1076	8.5937	8.1089	7.6513	7.2197	6.8123
21	11.7845	11.1196	10.4922	9.9003	9.3417	8.8146	8.3173	7.8480	7.4053	6.9875	11.7845	11.1196	10.4922	9.9003	9.3417	8.8146	8.3173	7.8480	7.4053	6.9875
22	12.0632	11.3826	10.7404	10.1344	9.5626	9.0231	8.5140	8.0336	7.5804	7.1527	12.0632	11.3826	10.7404	10.1344	9.5626	9.0231	8.5140	8.0336	7.5804	7.1527
23	12.3262	11.6307	10.9745	10.3553	9.7711	9.2198	8.6996	8.2088	7.7456	7.3086	12.3262	11.6307	10.9745	10.3553	9.7711	9.2198	8.6996	8.2088	7.7456	7.3086
24	12.5743	11.8649	11.1954	10.5638	9.9678	9.4054	8.8747	8.3740	7.9016	7.4558	12.5743	11.8649	11.1954	10.5638	9.9678	9.4054	8.8747	8.3740	7.9016	7.4558
25	12.8084	12.0858	11.4039	10.7605	10.1534	9.5805	9.0400	8.5300	8.0487	7.5946	12.8084	12.0858	11.4039	10.7605	10.1534	9.5805	9.0400	8.5300	8.0487	7.5946
30	13.7953	13.0169	12.2825	11.5895	10.9356	10.3186	9.7365	9.1871	8.6688	8.1797	13.7953	13.0169	12.2825	11.5895	10.9356	10.3186	9.7365	9.1871	8.6688	8.1797
35	14.5334	13.7134	12.9397	12.2096	11.5208	10.8708	10.2574	9.6787	9.1326	8.6174	14.5334	13.7134	12.9397	12.2096	11.5208	10.8708	10.2574	9.6787	9.1326	8.6174
40	15.0855	14.2344	13.4312	12.6735	11.9584	11.2837	10.6471	10.0464	9.4796	8.9447	15.0855	14.2344	13.4312	12.6735	11.9584	11.2837	10.6471	10.0464	9.4796	8.9447
45	15.4984	14.6240	13.7989	13.0204	12.2858	11.5926	10.9386	10.3214	9.7391	9.1896	15.4984	14.6240	13.7989	13.0204	12.2858	11.5926	10.9386	10.3214	9.7391	9.1896
50	15.8073	14.9155	14.0739	13.2799	12.5306	11.8237	11.1566	10.5271	9.9332	9.3727	15.8073	14.9155	14.0739	13.2799	12.5306	11.8237	11.1566	10.5271	9.9332	9.3727

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

&lt;2&gt; Authorized Period of Use of Table is Oct 1994 through Sep 1995.

&lt;3&gt; Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum

of Agreement on Criteria/Standards for EA/LCC for MILCON Design

(Discount Rate: study periods of 1 to 10 years = 2.5%; study periods greater than 10 years = 2.8%).

&lt;3&gt; Covers Costs such as Routine Maintenance &amp; Repair and Custodial.

Table NE-2-5. Present Worth Factors--Annually Recurring Costs  
Non-Zero Differential Escalation (e = -2%)

Number of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	0.9561	0.9141	0.8740	0.8356	0.7989	0.7639	0.7303	0.6983	0.6676	0.6199
2	1.8702	1.7881	1.7096	1.6346	1.5628	1.4942	1.4286	1.3659	1.2702	1.2109
3	2.7442	2.6237	2.5085	2.3984	2.2931	2.1924	2.0962	1.9523	1.8612	1.7742
4	3.5798	3.4227	3.2724	3.1287	2.9914	2.8600	2.6678	2.5433	2.4245	2.3113
5	4.3788	4.1865	4.0027	3.8270	3.6590	3.4184	3.2588	3.1066	2.9616	2.8233
6	5.1426	4.9169	4.7010	4.4946	4.2058	4.0094	3.8222	3.6437	3.4736	3.3114
7	5.8729	5.6151	5.3686	5.0317	4.7967	4.5728	4.3593	4.1557	3.9617	3.7767
8	6.5712	6.2827	5.9980	5.6226	5.3601	5.1098	4.8712	4.6438	4.4270	4.2203
9	7.2388	6.8068	6.4890	6.1860	5.8972	5.6218	5.3593	5.1091	4.8705	4.6431
10	7.7601	7.3978	7.0524	6.7231	6.4092	6.1099	5.8246	5.5527	5.2934	5.0462
11	8.3511	7.9612	7.5894	7.2351	6.8973	6.5752	6.2682	5.9755	5.6965	5.4305
12	8.9145	8.4982	8.1014	7.7232	7.3625	7.0188	6.6910	6.3786	6.0808	5.7969
13	9.4515	9.0102	8.5895	8.1885	7.8061	7.4416	7.0942	6.7629	6.4471	6.1461
14	9.9635	9.4983	9.0548	8.6320	8.2290	7.8447	7.4784	7.1293	6.7964	6.4790
15	10.4516	9.9636	9.4984	9.0549	8.6321	8.2290	7.8448	7.4785	7.1293	6.7964
16	10.9169	10.4072	9.9212	9.4580	9.0164	8.5954	8.1940	7.8114	7.4467	7.0990
17	11.3605	10.8300	10.3244	9.8423	9.3827	8.9446	8.5270	8.1288	7.7493	7.3874
18	11.7833	11.2331	10.7086	10.2086	9.7320	9.2775	8.8444	8.4314	8.0377	7.6624
19	12.1865	11.6174	11.0750	10.5579	10.0649	9.5949	9.1469	8.7198	8.3127	7.9245
20	12.5707	11.9838	11.4242	10.8908	10.3823	9.8975	9.4354	8.9948	8.5748	8.1744
21	12.9371	12.3330	11.7572	11.2082	10.6849	10.1859	9.7103	9.2569	8.8247	8.4127
22	13.2863	12.6660	12.0746	11.5108	10.9733	10.4609	9.9725	9.5068	9.0629	8.6398
23	13.6193	12.9833	12.3771	11.7992	11.2483	10.7231	10.2224	9.7451	9.2900	8.8563
24	13.9367	13.2859	12.6656	12.0742	11.5104	10.9729	10.4606	9.9722	9.5065	9.0626
25	14.2392	13.5744	12.9405	12.3363	11.7603	11.2112	10.6877	10.1887	9.7129	9.2594
30	15.5529	14.8267	14.1344	13.4744	12.8453	12.2455	11.6737	11.1286	10.6090	10.1136
35	16.5872	15.8127	15.0744	14.3705	13.6995	13.0598	12.4500	11.8687	11.3145	10.7862
40	17.4016	16.5890	15.8144	15.0760	14.3721	13.7010	13.0613	12.4514	11.8700	11.3158
45	18.0427	17.2003	16.3971	15.6315	14.9016	14.2058	13.5425	12.9102	12.3074	11.7327
50	18.5476	17.6815	16.8559	16.0689	15.3186	14.6033	13.9215	13.2714	12.6517	12.0610

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

Authorized Period of Use of Table is Oct 1994 through Sep 1995.

&lt;2&gt; Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design

(Discount Rate: study periods of 1 to 10 years = 2.5%; study periods greater than 10 years = 2.8%).  
<3> Covers Costs such as Routine Maintenance & Repair and Custodial.



Table NE-2-6. Present Worth Factors--Annually Recurring Costs  
Non-Zero Differential Escalation (e = -1%)

Number of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	0.9659	0.9329	0.9010	0.8703	0.8405	0.8118	0.7841	0.7573	0.7315	0.6862					
2	1.8987	1.8339	1.7713	1.7108	1.6524	1.5959	1.5415	1.4888	1.3986	1.3469					
3	2.7997	2.7041	2.6118	2.5226	2.4365	2.3533	2.2729	2.1385	2.0594	1.9833					
4	3.6700	3.5447	3.4236	3.3067	3.1938	3.0848	2.9067	2.7993	2.6958	2.5961					
5	4.5105	4.3565	4.2078	4.0641	3.9253	3.7044	3.5675	3.4356	3.3086	3.1863					
6	5.3224	5.1406	4.9651	4.7956	4.5328	4.3652	4.2039	4.0485	3.8988	3.7547					
7	6.1065	5.8980	5.6966	5.3929	5.1936	5.0016	4.8167	4.6387	4.4672	4.3021					
8	6.8638	6.6294	6.2861	6.0537	5.8299	5.6144	5.4069	5.2070	5.0146	4.8292					
9	7.5953	7.2135	6.9469	6.6901	6.4428	6.2046	5.9753	5.7544	5.5417	5.3368					
10	8.1765	7.8743	7.5832	7.3029	7.0330	6.7730	6.5226	6.2815	6.0493	5.8257					
11	8.8373	8.5107	8.1961	7.8931	7.6013	7.3203	7.0498	6.7892	6.5382	6.2965					
12	9.4737	9.1235	8.7863	8.4615	8.1487	7.8475	7.5574	7.2780	7.0090	6.7499					
13	10.0865	9.7137	9.3546	9.0088	8.6758	8.3551	8.0463	7.7488	7.4624	7.1866					
14	10.6767	10.2821	9.9020	9.5360	9.1835	8.8440	8.5171	8.2022	7.8990	7.6071					
15	11.2451	10.8294	10.4291	10.0436	9.6723	9.3148	8.9705	8.6389	8.3195	8.0120					
16	11.7925	11.3565	10.9368	10.5325	10.1431	9.7682	9.4071	9.0594	8.7245	8.4020					
17	12.3196	11.8642	11.4256	11.0033	10.5965	10.2048	9.8276	9.4643	9.1145	8.7776					
18	12.8272	12.3531	11.8964	11.4567	11.0332	10.6253	10.2326	9.8543	9.4901	9.1393					
19	13.3161	12.8239	12.3498	11.8933	11.4537	11.0303	10.6226	10.2299	9.8518	9.4876					
20	13.7869	13.2773	12.7865	12.3138	11.8586	11.4203	10.9981	10.5916	10.2001	9.8230					
21	14.2403	13.7139	13.2070	12.7188	12.2486	11.7959	11.3598	10.9399	10.5355	10.1461					
22	14.6770	14.1344	13.6119	13.1088	12.6242	12.1576	11.7082	11.2754	10.8586	10.4572					
23	15.0975	14.5394	14.0019	13.4843	12.9859	12.5059	12.0436	11.5984	11.1697	10.7568					
24	15.5024	14.9294	14.3775	13.8460	13.3342	12.8413	12.3666	11.9095	11.4693	11.0453					
25	15.8924	15.3049	14.7392	14.1944	13.6697	13.1644	12.6777	12.2091	11.7578	11.3232					
30	17.6365	16.9845	16.3567	15.7521	15.1698	14.6091	14.0690	13.5490	13.0481	12.5658					
35	19.0812	18.3758	17.6966	17.0424	16.4124	15.8058	15.2215	14.6588	14.1170	13.5951					
40	20.2779	19.5283	18.8064	18.1112	17.4418	16.7970	16.1761	15.5782	15.0023	14.4478					
45	21.2691	20.4829	19.7258	18.9966	18.2944	17.6181	16.9669	16.3397	15.7357	15.1540					
50	22.0903	21.2737	20.4873	19.7300	19.0007	18.2983	17.6219	16.9705	16.3432	15.7391					

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

&lt;2&gt; Authorized Period of Use of Table is Oct 1994 through Sep 1995.

&lt;3&gt; Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design

(Discount Rate: study periods of 1 to 10 years = 2.5%; study periods greater than 10 years = 2.8%).  
<3> Covers Costs such as Routine Maintenance & Repair and Custodial.

Table NE-2-7. Present Worth Factors--Annually Recurring Costs  
Non-Zero Differential Escalation (e = 1%)

Number Of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	0.9854	0.9709	0.9567	0.9427	0.9289	0.9153	0.9020	0.8888	0.8757	0.8381					
2	1.9563	1.9277	1.8995	1.8717	1.8443	1.8173	1.7907	1.7645	1.6911	1.6615					
3	2.9130	2.8704	2.8284	2.7870	2.7462	2.7060	2.6664	2.5593	2.5145	2.4705					
4	3.8558	3.7994	3.7438	3.6890	3.6350	3.5818	3.4430	3.3827	3.3235	3.2653					
5	4.7847	4.7147	4.6457	4.5777	4.5107	4.3424	4.2664	4.1917	4.1183	4.0462					
6	5.7001	5.6167	5.5345	5.4535	5.2579	5.1658	5.0754	4.9865	4.8992	4.8134					
7	6.6020	6.5054	6.4102	6.1897	6.0813	5.9748	5.8702	5.7674	5.6664	5.5672					
8	7.4908	7.3811	7.1380	7.0131	6.8903	6.7696	6.6511	6.5346	6.4202	6.3078					
9	8.3665	8.1033	7.9614	7.8220	7.6851	7.5505	7.4183	7.2884	7.1608	7.0354					
10	9.0858	8.9267	8.7704	8.6169	8.4660	8.3177	8.1721	8.0290	7.8884	7.7503					
11	9.9092	9.7357	9.5652	9.3978	9.2332	9.0715	8.9127	8.7566	8.6033	8.4527					
12	10.7182	10.5305	10.3461	10.1650	9.9870	9.8121	9.6403	9.4715	9.3057	9.1427					
13	11.5130	11.3114	11.1134	10.9188	10.7276	10.5398	10.3552	10.1739	9.9958	9.8207					
14	12.2939	12.0787	11.8672	11.6594	11.4552	11.2546	11.0576	10.8640	10.6737	10.4868					
15	13.0612	12.8325	12.6078	12.3870	12.1701	11.9570	11.7477	11.5420	11.3399	11.1413					
16	13.8149	13.5730	13.3354	13.1019	12.8725	12.6471	12.4256	12.2081	11.9943	11.7843					
17	14.5555	14.3007	14.0503	13.8043	13.5625	13.3251	13.0918	12.8625	12.6373	12.4160					
18	15.2832	15.0156	14.7526	14.4943	14.2405	13.9912	13.7462	13.5055	13.2690	13.0367					
19	15.9981	15.7179	15.4427	15.1723	14.9067	14.6456	14.3892	14.1372	13.8897	13.6465					
20	16.7004	16.4080	16.1207	15.8384	15.5611	15.2886	15.0209	14.7579	14.4995	14.2456					
21	17.3905	17.0860	16.7868	16.4929	16.2041	15.9204	15.6416	15.3677	15.0986	14.8343					
22	18.0685	17.7521	17.4413	17.1359	16.8358	16.5410	16.2514	15.9669	15.6873	15.4126					
23	18.7346	18.4066	18.0843	17.7676	17.4565	17.1508	16.8505	16.5555	16.2656	15.9808					
24	19.3890	19.0495	18.7160	18.3883	18.0663	17.7500	17.4392	17.1338	16.8338	16.5391					
25	20.0320	19.6813	19.3367	18.9981	18.6654	18.3386	18.0175	17.7020	17.3921	17.0875					
30	23.0820	22.6779	22.2808	21.8906	21.5073	21.1308	20.7608	20.3972	20.0401	19.6892					
35	25.8742	25.4211	24.9760	24.5387	24.1090	23.6869	23.2721	22.8646	22.4643	22.0709					
40	28.4303	27.9325	27.4434	26.9629	26.4907	26.0269	25.5712	25.1234	24.6835	24.2513					
45	30.7703	30.2315	29.7022	29.1821	28.6711	28.1691	27.6759	27.1913	26.7152	26.2474					
50	32.9125	32.3362	31.7700	31.2137	30.6672	30.1302	29.6026	29.0843	28.5751	28.0747					

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

&lt;2&gt; Authorized Period of Use of Table is Oct 1994 through Sep 1995.

&lt;3&gt; Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design

(Discount Rate: study periods of 1 to 10 years = 2.5%; study periods greater than 10 years = 2.8%).  
<3> Covers Costs such as Routine Maintenance & Repair and Custodial.

Table NE-2-8. Present Worth Factors--Annually Recurring Costs  
Non-Zero Differential Escalation (e = 2%)

Number Of Payments	Beneficial Occupancy Date													
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004				
1	0.9951	0.9903	0.9854	0.9806	0.9758	0.9711	0.9663	0.9616	0.9569	0.9248				
2	1.9854	1.9757	1.9661	1.9565	1.9469	1.9374	1.9280	1.9186	1.8570	1.8425				
3	2.9708	2.9563	2.9419	2.9276	2.9133	2.8991	2.8849	2.7964	2.7746	2.7530				
4	3.9515	3.9322	3.9130	3.8939	3.8749	3.8560	3.7431	3.7140	3.6851	3.6564				
5	4.9273	4.9033	4.8793	4.8555	4.8319	4.6974	4.6608	4.6245	4.5885	4.5528				
6	5.8984	5.8696	5.8410	5.8125	5.6590	5.6150	5.5713	5.5279	5.4849	5.4422				
7	6.8647	6.8313	6.7979	6.6283	6.5767	6.5255	6.4747	6.4243	6.3743	6.3247				
8	7.8264	7.7882	7.6051	7.5459	7.4872	7.4289	7.3711	7.3138	7.2568	7.2004				
9	8.7833	8.5896	8.5228	8.4564	8.3906	8.3253	8.2605	8.1963	8.1325	8.0692				
10	9.5818	9.5073	9.4333	9.3599	9.2870	9.2147	9.1430	9.0719	9.0013	8.9312				
11	10.4995	10.4178	10.3367	10.2563	10.1764	10.0972	10.0187	9.9407	9.8633	9.7866				
12	11.4100	11.3212	11.2331	11.1457	11.0589	10.9729	10.8875	10.8028	10.7187	10.6353				
13	12.3134	12.2176	12.1225	12.0282	11.9346	11.8417	11.7495	11.6581	11.5674	11.4774				
14	13.2098	13.1070	13.0050	12.9038	12.8034	12.7037	12.6049	12.5068	12.4095	12.3129				
15	14.0992	13.9895	13.8806	13.7726	13.6654	13.5591	13.4536	13.3489	13.2450	13.1419				
16	14.9817	14.8651	14.7494	14.6347	14.5208	14.4078	14.2956	14.1844	14.0740	13.9645				
17	15.8573	15.7339	15.6115	15.4900	15.3695	15.2499	15.1312	15.0134	14.8966	14.7807				
18	16.7262	16.5960	16.4668	16.3387	16.2115	16.0854	15.9602	15.8360	15.7128	15.5905				
19	17.5882	17.4513	17.3155	17.1808	17.0471	16.9144	16.7828	16.6522	16.5226	16.3940				
20	18.4436	18.3000	18.1576	18.0163	17.8761	17.7370	17.5990	17.4620	17.3261	17.1913				
21	19.2922	19.1421	18.9931	18.8453	18.6987	18.5532	18.4088	18.2655	18.1234	17.9823				
22	20.1343	19.9776	19.8222	19.6679	19.5149	19.3630	19.2123	19.0628	18.9144	18.7673				
23	20.9699	20.8067	20.6448	20.4841	20.3247	20.1665	20.0096	19.8539	19.6994	19.5461				
24	21.7989	21.6292	21.4609	21.2939	21.1282	20.9638	20.8006	20.6388	20.4782	20.3188				
25	22.6215	22.4454	22.2707	22.0974	21.9255	21.7548	21.5855	21.4176	21.2509	21.0855				
30	26.6393	26.4320	26.2263	26.0222	25.8197	25.6188	25.4194	25.2216	25.0253	24.8306				
35	30.5033	30.2659	30.0303	29.7966	29.5648	29.3347	29.1064	28.8799	28.6551	28.4321				
40	34.2192	33.9529	33.6886	33.4265	33.1663	32.9082	32.6521	32.3980	32.1459	31.8957				
45	37.7927	37.4986	37.2068	36.9172	36.6299	36.3449	36.0620	35.7814	35.5029	35.2267				
50	41.2294	40.9085	40.5901	40.2743	39.9609	39.6499	39.3413	39.0352	38.7314	38.4300				

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

&lt;2&gt; Authorized Period of Use of Table is Oct 1994 through Sep 1995.

Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design

<3> (Discount Rate: study periods of 1 to 10 years = 2.5%; study periods greater than 10 years = 2.8%).  
Covers Costs such as Routine Maintenance & Repair and Custodial.

Table NE-2-9. Present Worth Factors--Annually Recurring Costs  
Non-Zero Differential Escalation (e = 3%)

Number Of Payments	Beneficial Occupancy Date														
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004					
1	1.0049	1.0098	1.0147	1.0197	1.0246	1.0296	1.0347	1.0397	1.0448	1.0496					
2	2.0147	2.0245	2.0344	2.0443	2.0543	2.0643	2.0743	2.0845	2.0948	2.1052					
3	3.0294	3.0441	3.0590	3.0739	3.0889	3.1040	3.1191	3.0529	3.0589	3.0648					
4	4.0490	4.0688	4.0886	4.1086	4.1286	4.1487	4.0666	4.0746	4.0825	4.0904					
5	5.0736	5.0984	5.1233	5.1483	5.1734	5.0784	5.0883	5.0982	5.1081	5.1180					
6	6.1033	6.1330	6.1630	6.1930	6.0881	6.1000	6.1119	6.1237	6.1357	6.1476					
7	7.1379	7.1727	7.2077	7.0959	7.1097	7.1236	7.1374	7.1513	7.1652	7.1792					
8	8.1776	8.2175	8.1018	8.1176	8.1333	8.1492	8.1650	8.1809	8.1968	8.2128					
9	9.2224	9.1057	9.1234	9.1412	9.1589	9.1768	9.1946	9.2125	9.2304	9.2484					
10	10.1076	10.1273	10.1470	10.1667	10.1865	10.2063	10.2262	10.2461	10.2660	10.2860					
11	11.1292	11.1509	11.1726	11.1943	11.2161	11.2379	11.2598	11.2817	11.3036	11.3256					
12	12.1528	12.1765	12.2002	12.2239	12.2477	12.2715	12.2954	12.3193	12.3433	12.3673					
13	13.1784	13.2041	13.2298	13.2555	13.2813	13.3071	13.3330	13.3590	13.3849	13.4110					
14	14.2060	14.2337	14.2613	14.2891	14.3169	14.3447	14.3727	14.4006	14.4286	14.4567					
15	15.2356	15.2652	15.2949	15.3247	15.3545	15.3844	15.4143	15.4443	15.4743	15.5045					
16	16.2672	16.2988	16.3305	16.3623	16.3941	16.4260	16.4580	16.4900	16.5221	16.5542					
17	17.3008	17.3344	17.3682	17.4019	17.4358	17.4697	17.5037	17.5378	17.5719	17.6061					
18	18.3364	18.3721	18.4078	18.4436	18.4795	18.5154	18.5515	18.5876	18.6237	18.6600					
19	19.3740	19.4117	19.4495	19.4873	19.5252	19.5632	19.6013	19.6394	19.6776	19.7159					
20	20.4136	20.4534	20.4931	20.5330	20.5730	20.6130	20.6531	20.6933	20.7335	20.7739					
21	21.4553	21.4970	21.5389	21.5808	21.6228	21.6648	21.7070	21.7492	21.7915	21.8339					
22	22.4990	22.5428	22.5866	22.6306	22.6746	22.7187	22.7629	22.8072	22.8516	22.8960					
23	23.5447	23.5905	23.6364	23.6824	23.7285	23.7746	23.8209	23.8672	23.9137	23.9602					
24	24.5925	24.6403	24.6882	24.7363	24.7844	24.8326	24.8809	24.9293	24.9778	25.0264					
25	25.6422	25.6921	25.7421	25.7922	25.8424	25.8927	25.9430	25.9935	26.0441	26.0947					
30	30.9219	30.9821	31.0424	31.1027	31.1633	31.2239	31.2846	31.3455	31.4065	31.4676					
35	36.2531	36.3237	36.3943	36.4651	36.5361	36.6072	36.6784	36.7498	36.8213	36.8929					
40	41.6364	41.7174	41.7986	41.8799	41.9614	42.0430	42.1248	42.2068	42.2889	42.3712					
45	47.0723	47.1639	47.2556	47.3476	47.4397	47.5320	47.6245	47.7171	47.8099	47.9030					
50	52.5612	52.6635	52.7660	52.8686	52.9715	53.0745	53.1778	53.2812	53.3849	53.4888					

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

&lt;2&gt; Authorized Period of Use of Table is Oct 1994 through Sep 1995.

&lt;3&gt; Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design

(Discount Rate: study periods of 1 to 10 years = 2.5%; study periods greater than 10 years = 2.8%).  
<3> Covers Costs such as Routine Maintenance & Repair and Custodial.

Table NE-2-10. Present Worth Factors--Annually Recurring Costs  
Non-Zero Differential Escalation (e = 4%)

Number of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	1.0146	1.0295	1.0445	1.0598	1.0753	1.0911	1.1070	1.1232	1.1397	1.1231
2	2.0441	2.0740	2.1044	2.1352	2.1664	2.1981	2.2303	2.2629	2.2332	2.2592
3	3.0887	3.1339	3.1797	3.2263	3.2735	3.3214	3.3700	3.3304	3.3693	3.4087
4	4.1485	4.2092	4.2708	4.3333	4.3967	4.4611	4.4151	4.4666	4.5188	4.5715
5	5.2238	5.3003	5.3779	5.4566	5.5364	5.4872	5.5512	5.6160	5.6816	5.7479
6	6.3149	6.4073	6.5011	6.5962	6.5469	6.6234	6.7007	6.7789	6.8580	6.9381
7	7.4220	7.5306	7.6408	7.5945	7.6831	7.7728	7.8635	7.9553	8.0482	8.1421
8	8.5452	8.6703	8.6299	8.7306	8.8325	8.9356	9.0399	9.1455	9.2522	9.3602
9	9.6849	9.6534	9.7661	9.8801	9.9954	10.1121	10.2301	10.3495	10.4703	10.5926
10	10.6650	10.7895	10.9155	11.0429	11.1718	11.3022	11.4341	11.5676	11.7027	11.8393
11	11.8012	11.9390	12.0783	12.2193	12.3620	12.5063	12.6523	12.7999	12.9494	13.1005
12	12.9506	13.1018	13.2548	13.4095	13.5660	13.7244	13.8846	14.0466	14.2106	14.3765
13	14.1135	14.2782	14.4449	14.6135	14.7841	14.9567	15.1313	15.3079	15.4866	15.6674
14	15.2899	15.4684	15.6490	15.8316	16.0164	16.2034	16.3925	16.5839	16.7775	16.9733
15	16.4801	16.6724	16.8671	17.0639	17.2631	17.4647	17.6685	17.8748	18.0834	18.2945
16	17.6841	17.8905	18.0994	18.3107	18.5244	18.7406	18.9594	19.1807	19.4046	19.6311
17	18.9022	19.1229	19.3461	19.5719	19.8004	20.0315	20.2653	20.5019	20.7412	20.9833
18	20.1345	20.3696	20.6073	20.8479	21.0913	21.3375	21.5865	21.8385	22.0934	22.3513
19	21.3812	21.6308	21.8833	22.1388	22.3972	22.6586	22.9231	23.1907	23.4614	23.7353
20	22.6425	22.9068	23.1742	23.4447	23.7184	23.9953	24.2754	24.5587	24.8454	25.1354
21	23.9185	24.1977	24.4801	24.7659	25.0550	25.3475	25.6434	25.9427	26.2455	26.5519
22	25.2094	25.5036	25.8013	26.1025	26.4072	26.7155	27.0273	27.3428	27.6620	27.9849
23	26.5153	26.8248	27.1380	27.4547	27.7752	28.0994	28.4275	28.7593	29.0950	29.4346
24	27.8365	28.1614	28.4902	28.8227	29.1592	29.4996	29.8439	30.1923	30.5447	30.9013
25	29.1731	29.5137	29.8582	30.2067	30.5593	30.9160	31.2769	31.6420	32.0114	32.3851
30	36.0939	36.5152	36.9415	37.3727	37.8089	38.2503	38.6968	39.1485	39.6055	40.0678
35	43.4281	43.9351	44.4479	44.9668	45.4917	46.0227	46.5600	47.1035	47.6533	48.2096
40	51.2006	51.7982	52.4029	53.0146	53.6334	54.2595	54.8929	55.5337	56.1819	56.8377
45	59.4374	60.1312	60.8331	61.5432	62.2616	62.9884	63.7237	64.4675	65.2201	65.9814
50	68.1663	68.9620	69.7670	70.5814	71.4053	72.2388	73.0821	73.9352	74.7982	75.6713

Notes: <1> Data Based on Assumed DOS of Apr 1995.

Authorized Period of Use of Table is Oct 1994 through Sep 1995.

<2> Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design

(Discount Rate: study periods of 1 to 10 years = 2.5%; study periods greater than 10 years = 2.8%).  
<3> Covers Costs such as Routine Maintenance & Repair and Custodial.

Table NE-2-11. Present Worth Factors--Annually Recurring Costs  
Non-Zero Differential Escalation (e = 5%)

Number of Payments	Beneficial Occupancy Date									
	Oct 1995	Oct 1996	Oct 1997	Oct 1998	Oct 1999	Oct 2000	Oct 2001	Oct 2002	Oct 2003	Oct 2004
1	1.0244	1.0494	1.0750	1.1012	1.1280	1.1556	1.1837	1.2126	1.2422	1.2358
2	2.0738	2.1243	2.1762	2.2292	2.2836	2.3393	2.3964	2.4548	2.4458	2.4981
3	3.1487	3.2255	3.3042	3.3848	3.4674	3.5519	3.6386	3.6304	3.7081	3.7874
4	4.2499	4.3536	4.4598	4.5685	4.6800	4.7941	4.7902	4.8927	4.9974	5.1043
5	5.3780	5.5091	5.6435	5.7812	5.9222	5.9256	6.0524	6.1820	6.3143	6.4494
6	6.5335	6.6929	6.8561	7.0233	7.0373	7.1879	7.3417	7.4989	7.6593	7.8233
7	7.7173	7.9055	8.0983	8.1257	8.2996	8.4772	8.6586	8.8439	9.0332	9.2265
8	8.9299	9.1477	9.1913	9.3880	9.5889	9.7941	10.0037	10.2178	10.4365	10.6598
9	10.1721	10.2345	10.4536	10.6773	10.9058	11.1392	11.3776	11.6211	11.8698	12.1238
10	11.2559	11.4968	11.7429	11.9942	12.2509	12.5130	12.7808	13.0543	13.3337	13.6191
11	12.5182	12.7861	13.0598	13.3393	13.6247	13.9163	14.2141	14.5183	14.8290	15.1464
12	13.8075	14.1030	14.4048	14.7131	15.0280	15.3496	15.6781	16.0136	16.3563	16.7064
13	15.1244	15.4481	15.7787	16.1164	16.4613	16.8136	17.1734	17.5409	17.9163	18.2997
14	16.4695	16.8220	17.1820	17.5497	17.9252	18.3089	18.7007	19.1009	19.5097	19.9272
15	17.8434	18.2252	18.6153	19.0136	19.4205	19.8362	20.2607	20.6943	21.1371	21.5895
16	19.2466	19.6585	20.0792	20.5089	20.9478	21.3961	21.8540	22.3217	22.7994	23.2874
17	20.6799	21.1225	21.5745	22.0362	22.5078	22.9895	23.4815	23.9840	24.4973	25.0216
18	22.1439	22.6178	23.1018	23.5962	24.1012	24.6170	25.1438	25.6819	26.2315	26.7929
19	23.6392	24.1451	24.6618	25.1896	25.7287	26.2793	26.8417	27.4161	28.0028	28.6021
20	25.1665	25.7051	26.2552	26.8171	27.3910	27.9771	28.5759	29.1874	29.8121	30.4501
21	26.7265	27.2984	27.8826	28.4793	29.0888	29.7114	30.3472	30.9967	31.6600	32.3376
22	28.3198	28.9259	29.5449	30.1772	30.8230	31.4827	32.1564	32.8446	33.5475	34.2654
23	29.9473	30.5882	31.2428	31.9114	32.5944	33.2919	34.0044	34.7321	35.4754	36.2346
24	31.6096	32.2861	32.9770	33.6827	34.4036	35.1398	35.8919	36.6600	37.4445	38.2459
25	33.3075	34.0203	34.7483	35.4920	36.2515	37.0273	37.8198	38.6291	39.4558	40.3002
30	42.3577	43.2641	44.1900	45.1357	46.1017	47.0883	48.0960	49.1253	50.1766	51.2504
35	52.4186	53.5404	54.6862	55.8565	57.0519	58.2729	59.5199	60.7937	62.0948	63.4236
40	63.6032	64.9643	66.3546	67.7747	69.2251	70.7066	72.2197	73.7653	75.3439	76.9564
45	76.0369	77.6641	79.3262	81.0239	82.7578	84.5289	86.3379	88.1856	90.0728	92.0005
50	89.8592	91.7823	93.7465	95.7527	97.8019	99.8950	102.0328	104.2164	106.4467	108.7247

Notes: &lt;1&gt; Data Based on Assumed DOS of Apr 1995.

&lt;2&gt; Authorized Period of Use of Table is Oct 1994 through Sep 1995.

&lt;3&gt; Tabulated Data Based on Criteria Contained in the March 1994 Tri-Service Memorandum of Agreement on Criteria/Standards for EA/LCC for MILCON Design

(Discount Rate: study periods of 1 to 10 years = 2.5%; study periods greater than 10 years = 2.8%).  
<3> Covers Costs such as Routine Maintenance & Repair and Custodial.

## Appendix A

### MEMORANDUM OF AGREEMENT ON CRITERIA/STANDARDS FOR ECONOMIC ANALYSES/LIFE CYCLE COSTING FOR MILCON DESIGN, MARCH 1994

1. Purpose. The purpose of this Memorandum of Agreement (MOA) is to establish criteria and standards for performing economic analyses and life cycle cost studies used in support of design decisions for projects in the Military Construction (MILCON) Program, i.e., to support the selection from various alternatives of components/systems being considered as elements in facilities design. These criteria and standards apply to all design decisions regardless of when they are made in the overall facilities acquisition process. This agreement does not apply to economic analyses and life cycle cost studies used to make project-justification decisions during that process.

2. General. Economic analyses shall be conducted as part of the design process to ensure that the selection/rejection of design alternatives is not based solely on construction costs, but also on least life cycle costs (LCC), that is, lowest total cost of ownership. The depth and degree of formality of these analyses shall be determined on a case-by-case basis to ensure that the cost of performing an analysis is clearly outweighed by the potential benefits derived. Results of generic studies or results of previous analyses of alternatives similar to those currently under consideration may be used in lieu of performing a new study, provided (a) the previous study was based on similar design conditions, criteria, and methods, and (b) the results of the previous study appear valid and applicable for the current project. Previous studies should be updated only as required to reflect changes of conditions and/or errors significant enough to impact the design decision. All economic analyses and other justification for the selection of a design alternative, whether a previous study or a new one, shall be clearly documented in the appropriate section of the project design analysis.

3. Methods. All analyses shall consider the total LCC for design alternatives, where the LCC includes all costs and benefits associated with an alternative over its expected life, including but not limited to construction/acquisition, energy, maintenance, operation, repair, replacement, alteration, disposal costs, and retention values. The present value discounting approach shall be used to adjust for the difference in timing of costs and benefits unless otherwise specified by other directives or by public law. The basic discount factor for finding the present value of a future amount is calculated as follows:

$$\text{discount factor} = \frac{1}{(1+d)^n}$$

where: d = appropriate discount rate, and  
n = the time period over which the discounting is done.

Discounting should be applied to all costs and benefits over the appropriate analysis period. Specific criteria are as follows:

- a. Discount Rates. The discount rates are expressed in "real" terms, i.e., over-and-above the rate of inflation for the economy as a whole.
  - (1) Energy related studies: All energy related economic studies (studies in which energy costs are relevant, regardless of their magnitude relative to other costs) shall use the current discount rate published by the National Institute of Standards and Technology (NIST) in their annual supplement to NIST Handbook 135, and disseminated by the appropriate Service Headquarters Office.

- (2) Non-energy related studies: All economic studies other than energy related economic studies shall use the current discount rates published annually by the Office of Management and Budget (OMB) as APPENDIX C to OMB CIRCULAR NO. A-94, and disseminated by the appropriate Service Headquarters Office.
- b. Analysis Period. The analysis period shall be the date of the study (DOS) through the economic life of the facility as a whole. The economic life shall not be taken beyond 25 years from the scheduled beneficial occupancy date (BOD) for the project unless specifically approved by the appropriate Service Headquarters Office. Such approval cannot be granted for energy related studies as it is precluded by statute.
- c. Cash Flow. In general, cash flow used in the analysis will be based on the estimated calendar dates on which the events and costs/benefits are projected/ scheduled to occur. Construction/acquisition costs may be assumed to be incurred as a single lump sum, preferably at the time corresponding to the midpoint of the construction/acquisition process. Other cash flows that occur periodically throughout the year (e.g., cost of fuel, electricity, water, maintenance, etc.) may be assumed to be incurred as a single lump sum, preferably at midyear. In circumstances where the above assumptions add unnecessarily to the complexity of the calculations, all cash flows may be assumed to occur at the end of the year in which they are actually scheduled/projected to occur.
- d. Benefits and Costs. All benefits and costs will be expressed in terms of constant dollars that reflect the purchasing power of the dollar on the DOS (i.e., constant DOS dollars). The rate of inflation of the economy as a whole will be excluded from all LCC calculations. (The rate of inflation is irrelevant to the LCC analysis results since all benefits and costs are expressed in terms of constant DOS dollars and discounted using a "real" discount rate which reflects the time value of money over-and-above the general rate of inflation.)
- e. Future Benefits and Costs. In projecting future benefits and costs, an allowance for future price-level changes will be made only for particular benefits and costs expected to change at rates higher or lower than the general rate of inflation. In such cases, the rates of change used in the analysis will be the "differential" rates, i.e., the anticipated differences between the actual projected rates of change and the general inflation rate.
- (1) Energy studies: Fuel/energy costs shall have differential escalation rates as published by NIST in Handbook 135 and disseminated as indicated in paragraph 3.a(1) above. All non-energy costs shall have a zero differential escalation rate.
- (2) Non-energy studies: For non-energy studies, the differential rate of future price-level change shall generally be assumed to be zero, except in those cases where there is reliable information/data to the contrary.
- (4) Computer Aided Calculations. All computer aided calculations for MILCON design economic studies will be accomplished using the Life Cycle Cost in Design (LCCID) computer program for economic analysis developed by the U.S. Army Corps of Engineers Construction Engineering Research Laboratory (CERL) or a version thereof which has been certified by CERL as equivalent.





