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NRNC MARKET CHARACTERIZATION AND PROGRAM ACTIVITIES TRACKING TRENDS REPORT 1999-2005

FINAL

Prepared for

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1. INTRODUCTION

The main objective of the statewide Market Characterization and Program Activity Tracking (MCPAT) project is to collect, summarize and report nonresidential new construction (NRNC) market characteristics, as well as program information, in support of the statewide Savings By Design (SBD) energy efficiency program offered by Southern California Edison, Pacific Gas and Electric Company, San Diego Gas and Electric Company, and Southern California Gas Company. The publication of results on an ongoing basis allows program designers, implementers, evaluators, and market participants to determine the extent to which the NRNC market changes over a given period of time, understand how energy efficiency practices are implemented in the NRNC market, and if necessary, modify the SBD Program to most effectively enhance energy efficiency practices in the new construction market.

This Report examines the NRNC market trends and Savings By Design program trends from SBD program inception (July 1999) until the end of calendar year 2005. Its main goal is to provide a summary of market and program activities in support of Savings By Design program planning and implementation activities in the second half of 2006 and beyond.

The data presented in this report were obtained from the series of NRNC MCPAT Reports that started in 2000 and were produced every year since then. The NRNC MCPAT Reports contain detailed information about market and SBD program activity in each calendar year. They present alternative comparisons of program penetration, as well as information about the most active market actors (architects, engineers and contractors).[1]

F.W. Dodge Reports represent the main source of market activity data presented in the NRNC MCPAT Reports. F.W. Dodge Reports provide detailed project information on construction projects that have *started* within a given time period (e.g. a year). Regarding project types, F.W. Dodge Reports make a clear distinction between new/addition projects, in which new building area is produced, and alteration projects (which include remodeling, renovation, tenant improvement, and retrofit projects). Even though retrofit projects do not qualify for the SBD program, the F.W. Dodge alteration data remain the best available source of information regarding the nonresidential remodel/renovation (R&R) market.

Because nonresidential new construction projects can take years to complete, the levels of SBD participation, and the energy, demand and therm savings presented in the NRNC MCPAT Reports are based on program applications *committed* in a given calendar year. Program commitment indicates that a customer has filed an application, that the utility has reviewed it and found that it fits within the scope of the SBD program, that an agreement was signed between the utility and the customer, and that the application was not cancelled or withdrawn before the end of the calendar year. The savings presented in the NRNC MCPAT Reports are therefore *estimated*, not *achieved* savings.

[1] The NRNC MCPAT Report series can be found on the CALMAC web site at www.calmac.org.

REPORT LAYOUT

The main body of the Trends Report starts in Chapter 2 with a discussion of trends in the NRNC market. Drawing on the Savings By Design program participation databases maintained by the four California investor-owned utilities (IOUs) PG&E, SCE, SDG&E and SoCalGas, the chapter then discusses trends in SBD program participation and estimated energy, demand and therm savings, as well as trends in the program penetration into the market.

Chapter 3 presents trends in the number of SBD applications for a particular measure type in 1999-2005. It then discusses trends in the energy savings associated with measures proposed by SBD program participants, by measure type.

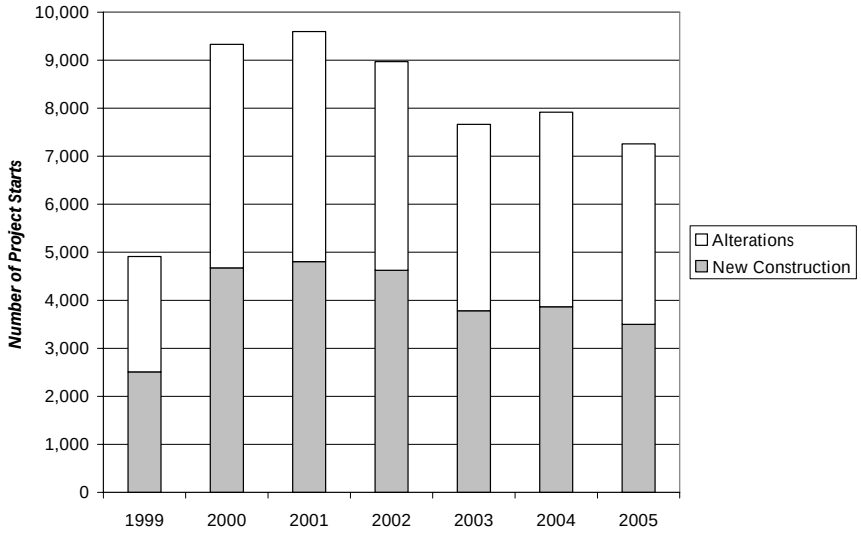
2. NUMBER OF NRNC PROJECTS, 1999-2005

This chapter presents information on the nonresidential construction activity that has occurred between the second half of 1999 and the end of 2005, in the State of California. The first section summarizes total NRNC market and Savings By Design program activity. The second section covers the number of project starts in the market, by building type, as reported by F.W. Dodge. The third section analyzes the Savings By Design (SBD) program activity for projects committed between the second half of 1999 and the end of 2005. The last section presents SBD program penetration into the market.

2.1 MARKET AND PROGRAM SUMMARY

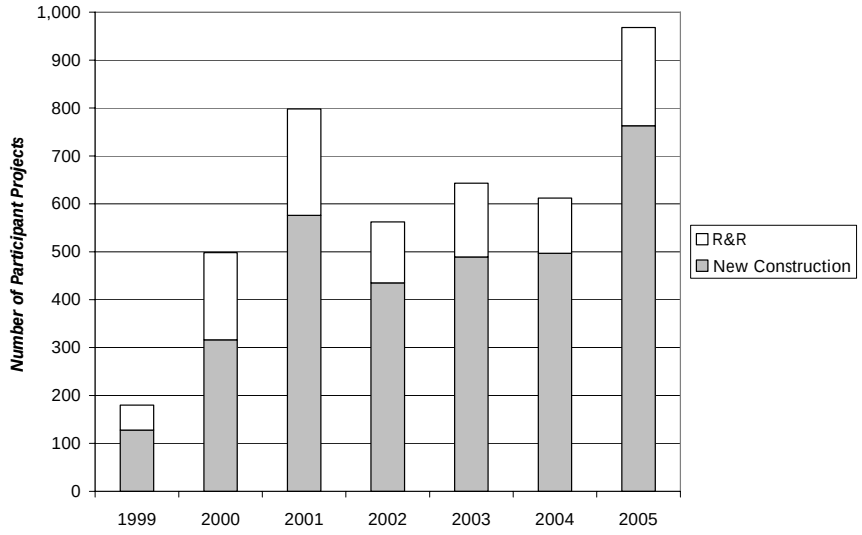
F.W. Dodge data indicate that, between mid-1999 and the end of 2001 market activity was relatively stable to the number of projects starting construction per year. Similar to the general trends in the California economy, NRNC activity started to decrease in 2002, and continued to decrease in 2003 (Exhibit 2.1). Due to an increase in activity in the alterations sector the number of projects increased slightly in 2004 as compared to 2003, only to decline again in 2005.

Exhibit 2.1
F.W. Dodge Number of Nonresidential New Project Starts
By Year



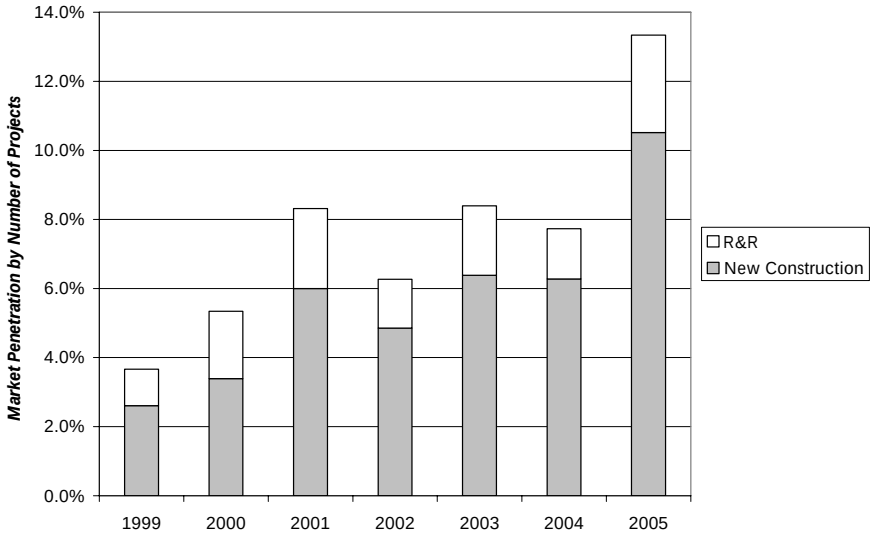
The Savings By Design (SBD) program activity follows similar trends as the NRNC market, with a relatively busy year in 2001 and a less active year in 2002. The number of committed projects increased 2003 relative to 2002, but was still significantly lower than in 2001 (Exhibit 2.2). In 2004 the number of committed new construction projects increased slightly, but the number of R&R projects dropped significantly, which caused the overall number of committed projects to drop slightly as compared to 2003. In 2005 the number of committed projects increased again, in conjunction with an increase in committed incentive amounts.

Exhibit 2.2
Number of SBD Program Participants
By Year



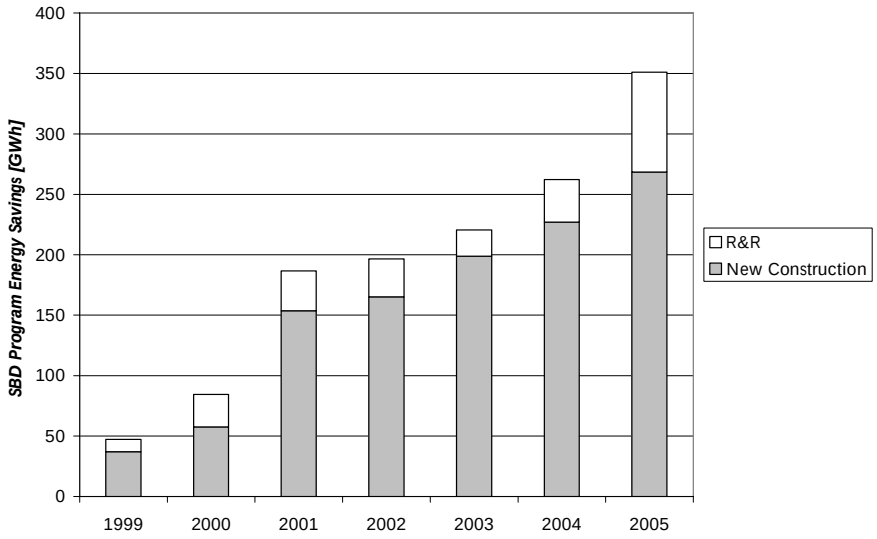
SBD program penetration into the market follows the market and program trends, increasing between 1999 and 2001, and dropping in 2002. While market trends continued downwards, program activity recovered in 2003 and 2004 and increased significantly in 2005, achieving the highest historic penetration rates in terms of number of participant projects (Exhibit 2.3). Note that because F.W. Dodge alteration projects include retrofits, but retrofits do not qualify for the SBD program, SBD program penetration into the market for the R&R segment, and therefore for the entire program, are underestimated.

Exhibit 2.3
SBD Penetration into the Market
By Year



Although SBD program activity slowed after 2001 and increased again substantially in 2005, total SBD program estimated energy savings have increased steadily over time (Exhibit 2.4).[2] In 2005 the total estimated energy savings were three times higher than they were in 2000, even though the number of committed applications was only twice higher than in 2000. New construction projects account for most of the estimated energy savings, but the fraction attributable to the R&R projects is growing steadily.

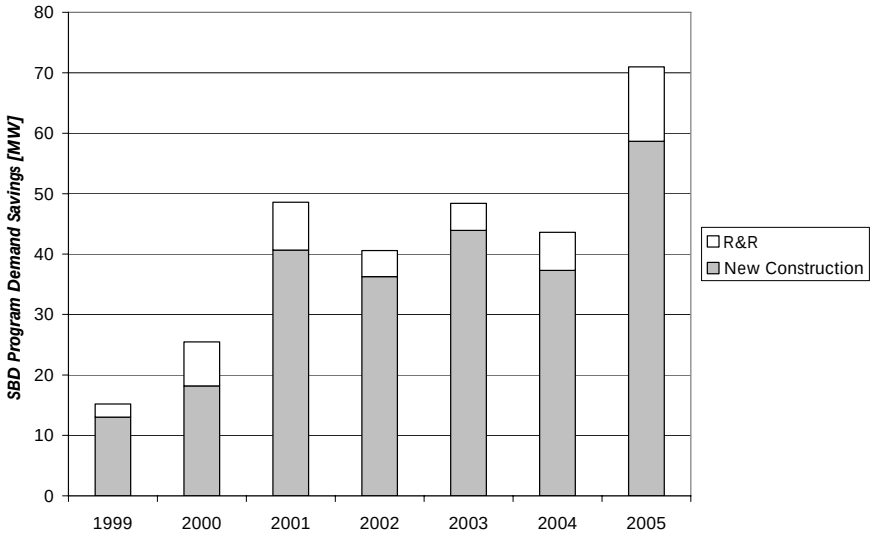
Exhibit 2.4
Estimated Energy Savings from Committed SBD Applications (GWh)
By Year



SBD program estimated demand and therm savings fluctuated more than energy savings. In particular, estimated demand savings seem to follow participation rates more closely, with years 2002 and 2004 generating less demand savings than 2001, 2003 and 2005 (Exhibit 2.5).

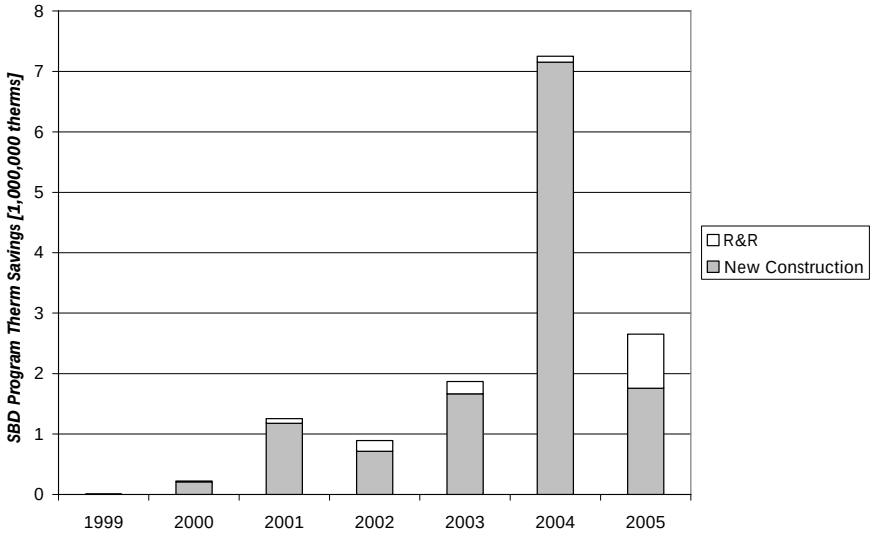
[2] The energy, demand and therm savings presented in the NRNC MCPAT Reports are *estimated* savings; they were obtained from applications *committed* to the SBD program in a given calendar year.

Exhibit 2.5
Estimated Demand Savings from Committed SBD Applications (MW)
By Year



Estimated therms savings followed a similar trend, with the exception of year 2004 when "process and other" measures account for over 4 million therms, and whole building measures account for almost 3 million therms (Exhibit 2.6). By comparison, all measures committed in the very busy year 2005 are responsible for only 2.6 million therms.

Exhibit 2.6
Estimated Therm Savings from Committed SBD Applications (millions of therms)
By Year



2.2 MARKET TRENDS BY BUILDING TYPE

Exhibits 2.7–2.9 present the activity in the nonresidential new construction market by building segment (as described by F.W. Dodge), in terms of number of projects that have started construction in a given period of time. Appendix A contains a glossary of building types tracked by F.W. Dodge. Please refer to Appendix B for data supporting the charts presented in this chapter.

Exhibit 2.7 shows the total number of projects that have started construction between July 1999 and December 2005.

Exhibit 2.8 presents the number of nonresidential new construction and addition projects that have started construction from the inception of the SBD program (July 1999) until the end of 2005, as reported by F.W. Dodge.

Exhibit 2.9 summarizes the number of nonresidential alteration projects that have started construction between July 1999 and December 2005.

2.3 SAVINGS BY DESIGN PROGRAM TRENDS BY BUILDING TYPE

Exhibits 2.10-2.12 present Savings By Design program activity for nonresidential new construction participants for whom the IOUs have committed funds between July 1999 and December 2005.

Exhibit 2.10 presents the total number of participant SBD projects committed between July 1999 and December 2005.

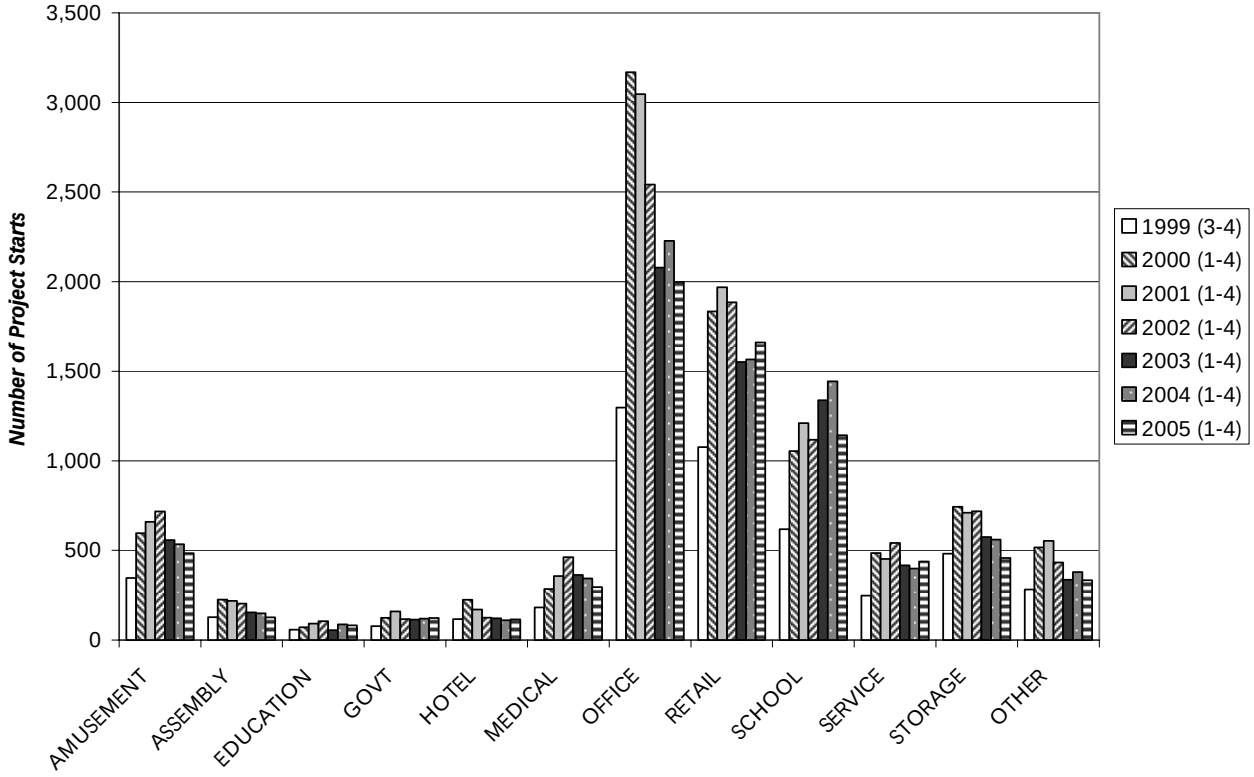
Exhibit 2.11 shows the number of participant SBD new construction projects committed between July 1999 and December 2005.

Exhibit 2.12 summarizes the number of participant SBD renovation/remodel/first tenant improvement projects (R&R) committed between July 1999 and December 2005.

2.4 PROGRAM PENETRATION INTO THE NRNC MARKET

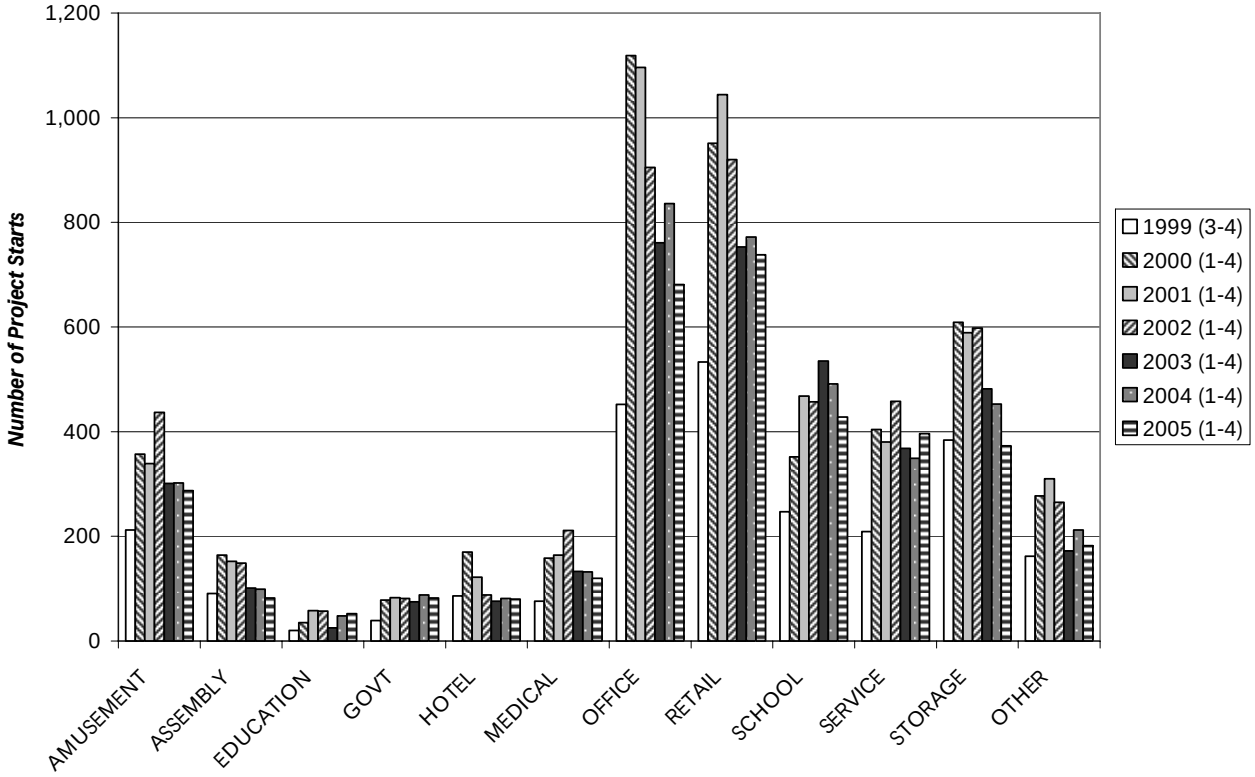
Exhibit 2.13 presents the fraction of NRNC project starts between July 1999 and December 2005 that have been captured by the projects committed to the Savings By Design program. Because F.W. Dodge alteration projects include retrofits, but retrofits do not qualify for the SBD program, SBD program penetration into the market for the R&R segment, and therefore for the entire program, are underestimated.

Exhibit 2.7
F.W. Dodge Total Number of Nonresidential Project Starts
By Building Type and Year



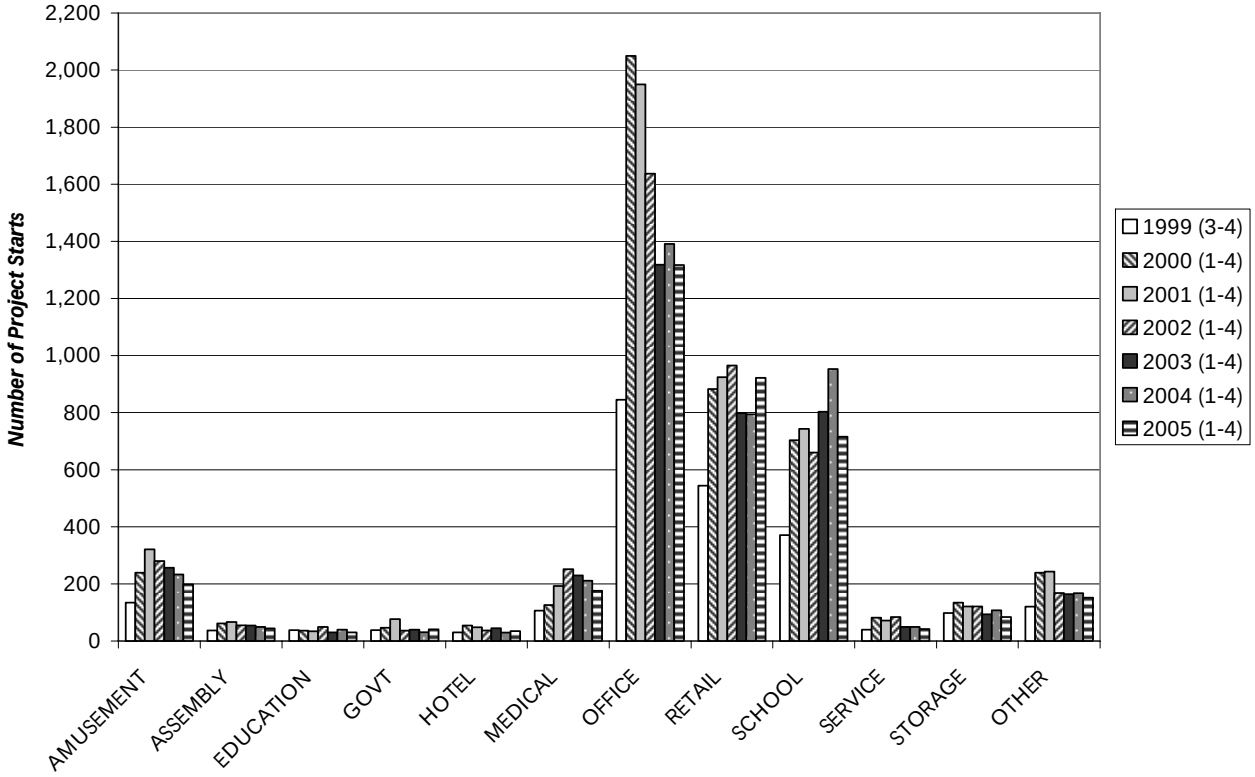
Over time, the NRNC market exhibits consistent activity by building type: some building types are very active from year to year (office, retail, school and storage) while others see relatively little activity (education, government). There are some fluctuations in the number of project starts by building type over time, with the most active building types experiencing the highest fluctuations. The overall decline in market activity in 2002 to 2005 relative to 2001 can be correlated with the trends in the California economy.

Exhibit 2.8
F.W. Dodge Number of Nonresidential New Construction Project Starts
By Building Type and Year



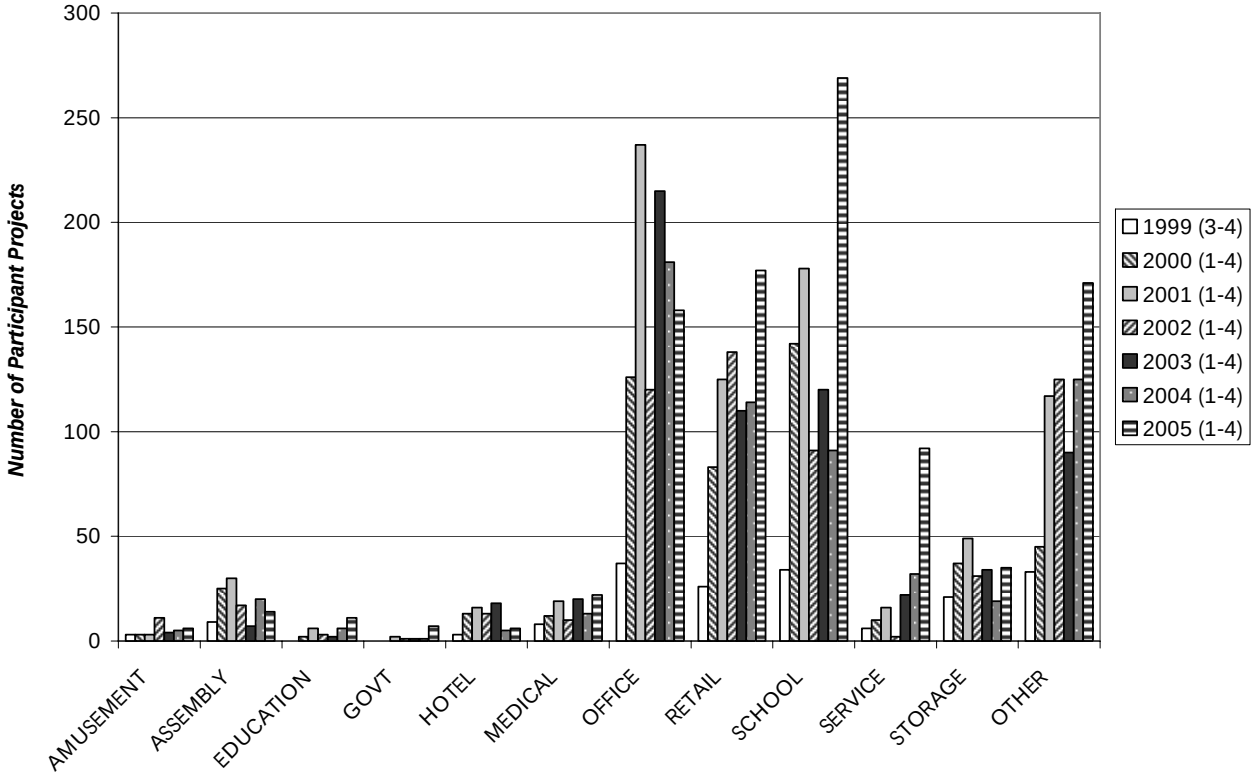
The office, retail, storage, school and service building segments represent a large share of the new construction activity. These building types also experience the highest fluctuations over time. In 2002 new construction market activity experienced a decline that continued into 2003. After a slight recovery in 2004 the new construction activity dropped again in 2005. Of all building types, only schools experienced an increase in market activity in 2003 relative to 2001 and 2002, only to experience a decline afterwards.

Exhibit 2.9
F.W. Dodge Number of Nonresidential Alteration Project Starts
By Building Type and Year



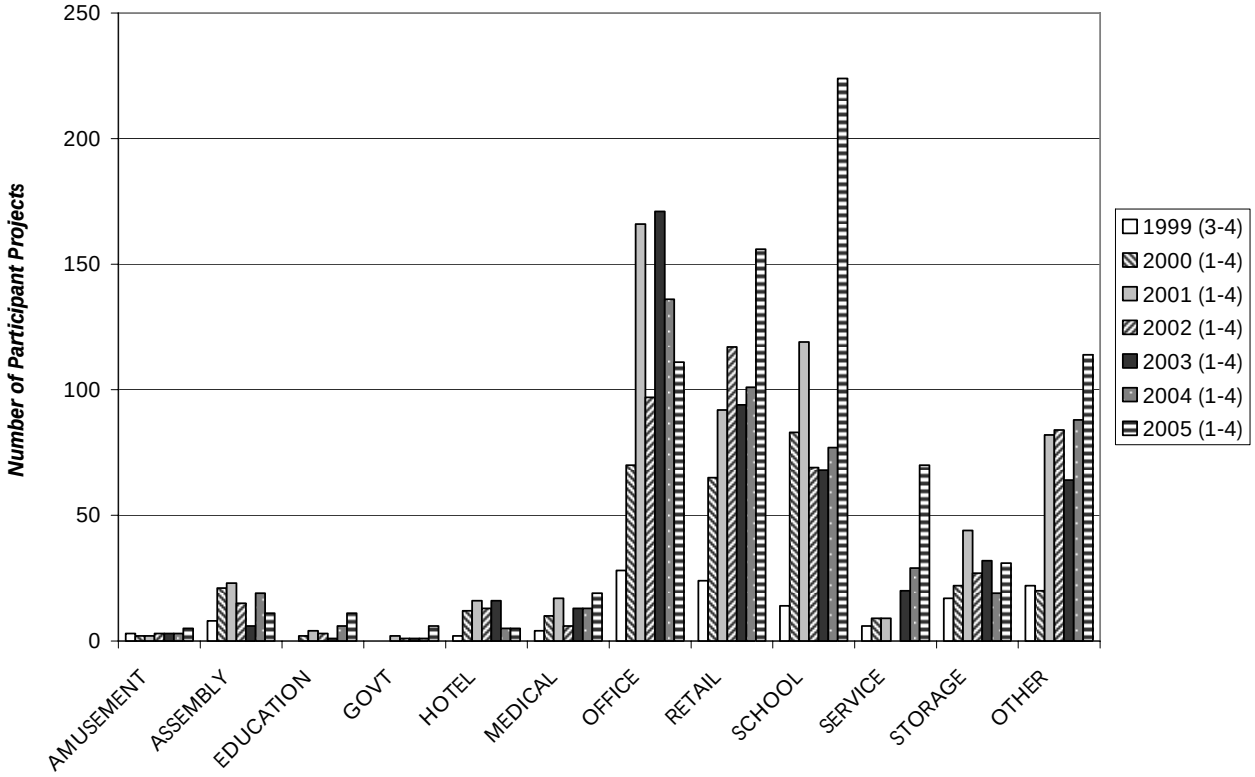
Most of the alteration activity is concentrated in the office, retail and school building segments, with office by far the most active segment. Note that in the office segment, the number of alteration projects is roughly double as compared to the number of new construction projects. Again, the most active segments also present the highest fluctuations over time. The alteration market also experiences a decline in activity in 2002 and 2003, with a slight recovery in 2004 and another decline in 2005 for most building types.

Exhibit 2.10
Total Number of SBD Program Participants
By Building Type and Year



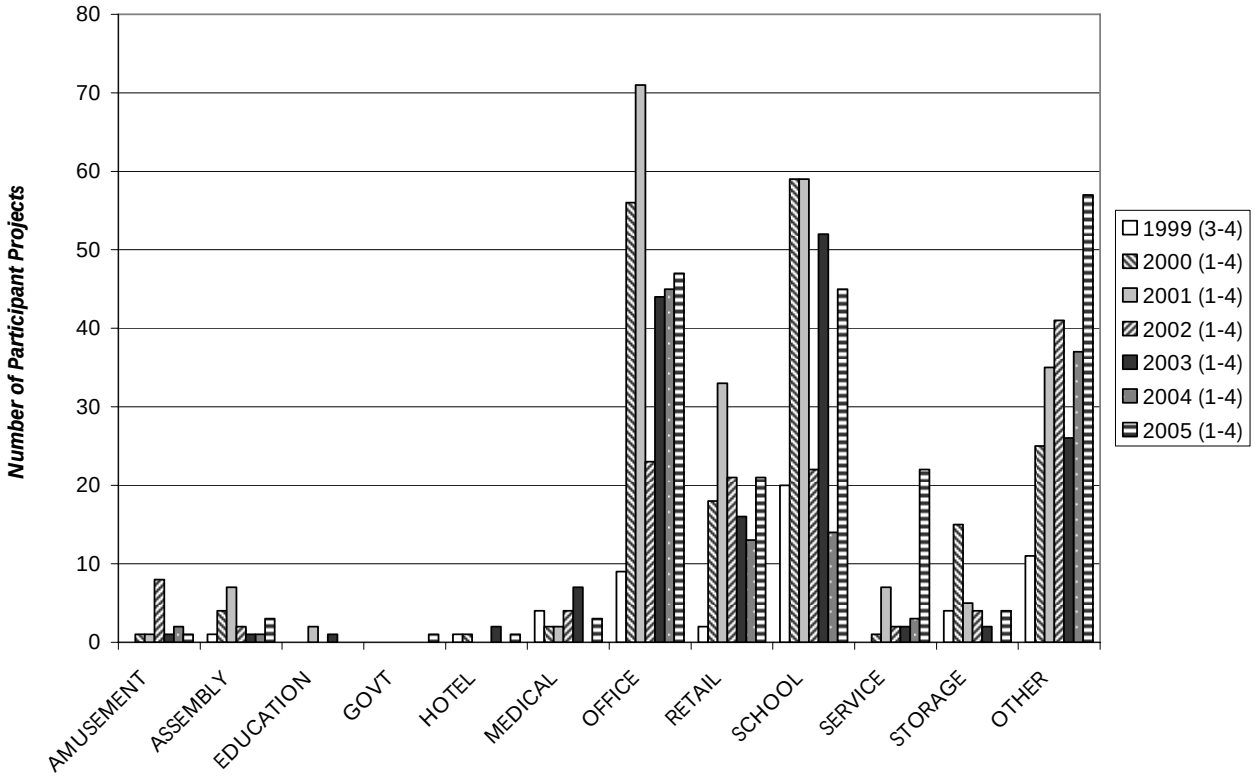
The majority of SBD program participants belongs to the office, school and retail building types. Similar to the NRNC market, program participation increased between 1999 and 2001, and then decreased in 2002, with the exception of the retail segment. Unlike the NRNC market, where the downward trend continued in 2003, program participation increased in most building segments in 2003 relative to 2002. While 2004 marked a decrease in program participation in most segments, participation increased significantly in 2005.

Exhibit 2.11
Number of Nonresidential New Construction SBD Participants
By Building Type and Year



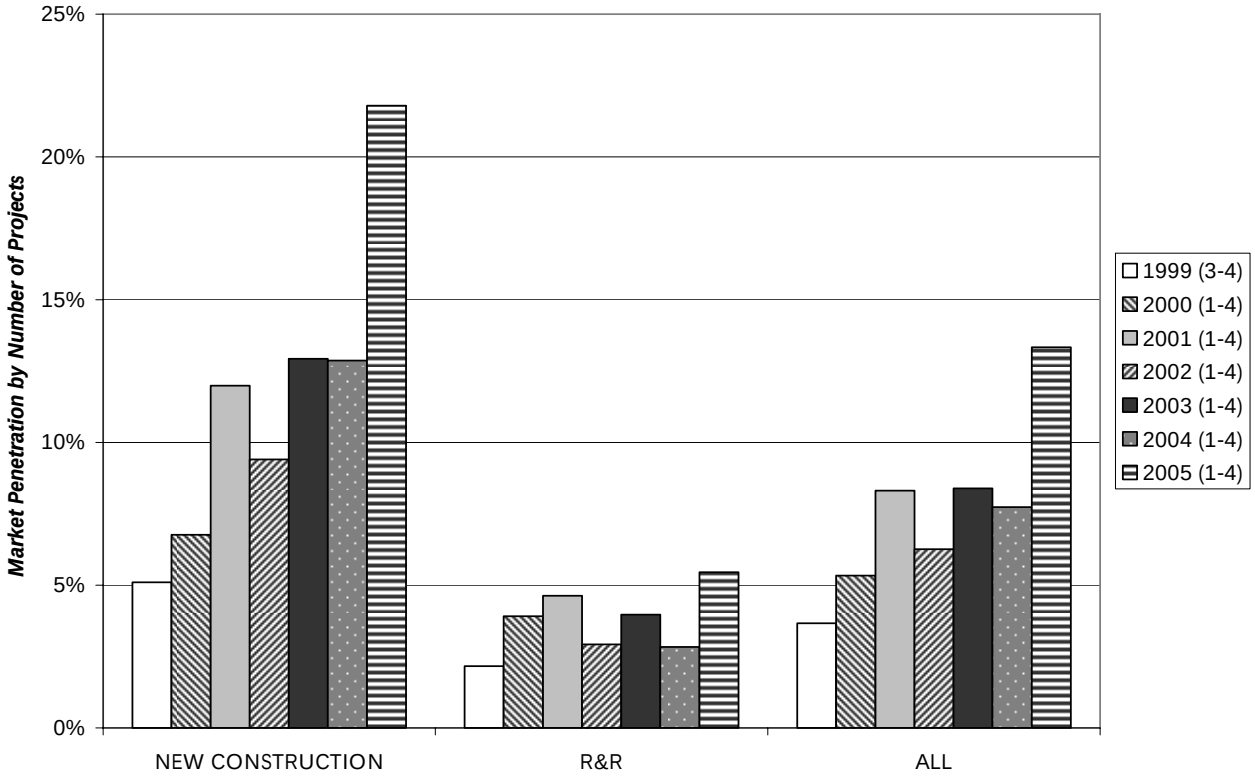
The majority of new construction SBD program participants belong to the office, retail and school building types, and most recently to the "other" segment (industrial, agricultural, etc.). New construction participation increased between 1999 and 2001, and then decreased in 2002, with the exception of the retail segment. While 2003 and 2004 marked overall increases in participation relative to 2002, in 2005 participation reached a new historic high, especially in the school, retail, service and "other" segments.

Exhibit 2.12
Number of Nonresidential R&R SBD Participants
By Building Type and Year



The majority of SBD R&R participants are concentrated in the office, retail and school building segments, and more recently in the "other" building segment (industrial, agricultural). R&R participation also experienced an increase between 1999 and 2001, a drop in 2002 and a recovery in 2003. The drop in 2004 was followed by a substantial increase in 2005. Two segments have interesting trends: in the retail segment participation continued to increase in 2002, declined in 2003 and 2004, and increased again in 2005. In the school segment participation increased significantly in 2003, dropped substantially in 2004, and then increased once more in 2005.

Exhibit 2.13
Savings By Design Program Penetration into the Market



Program penetration into the market increased from 1999 to 2001. The high penetration rates in 2001 are due both to building code changes that went into effect on July 1, 2001, and to the conservation efforts undertaken in California during the Summer of 2001. After a slight decrease in 2002, market penetration increased in 2003, only to drop slightly in 2004. In 2005 market penetration reached a historic high. Again, because F.W. Dodge alteration projects include retrofits, but retrofits do not qualify for the SBD program, SBD program penetration into the market for the R&R segment, and therefore for the entire program, are underestimated.

3. SAVINGS BY DESIGN MEASURES COMMITTED, 1999-2005

This chapter presents the measures committed by Savings By Design program participants from program inception in July 1999 until the end of 2005. The measures committed by each participant were established using the following fields from the tracking system maintained by the IOUs: the "meas_desc" field for SCE participants, the "description" field for PG&E participants, and the "msr_desc" field for SDG&E and SoCalGas participants. Each entry into the tracking system was then assigned to one of the measure types presented below, and counted as one instance in which that particular measure type was committed through the SBD program. For example, each Whole Building participant counted as one instance in which the Whole Building Approach was proposed, regardless of the number and types of measures involved. A glossary of the measure types committed by SBD participants is presented in Appendix C.

3.1 MEASURES COMMITTED

Exhibits 3.1-3.4 summarize the number of applications for each measure type committed by SBD program participants between July 1999 and December 2005. Since Whole Building projects are responsible for significantly higher energy savings than any single measure type under the Systems Approach, the measures and energy savings are reported separately for Whole Building participants and Systems Approach participants.

Exhibit 3.1 presents the number of Whole Building SBD participant projects from July 1999 until December 2005. Starting in 2002 the SBD program selected a third-party to target projects with significant refrigeration-process loads, and these projects were tracked separately from other Whole Building projects in the program tracking systems. This is the main reason why these Whole Building-Refrigeration projects (WB-Ref projects) are reported separately from other Whole Building projects.

Exhibit 3.2 presents the number of applications for a particular measure type committed by *all participants* in the Systems Approach component of the program.

Exhibit 3.3 summarizes the number of applications for a particular measure type committed by *new construction* participants in the Systems Approach component of the program.

Exhibit 3.4 shows the number of applications for a particular measure type committed by *remodel/renovation/first tenant improvement participants* in the Systems Approach component of the program.

3.2 ENERGY SAVINGS BY MEASURE

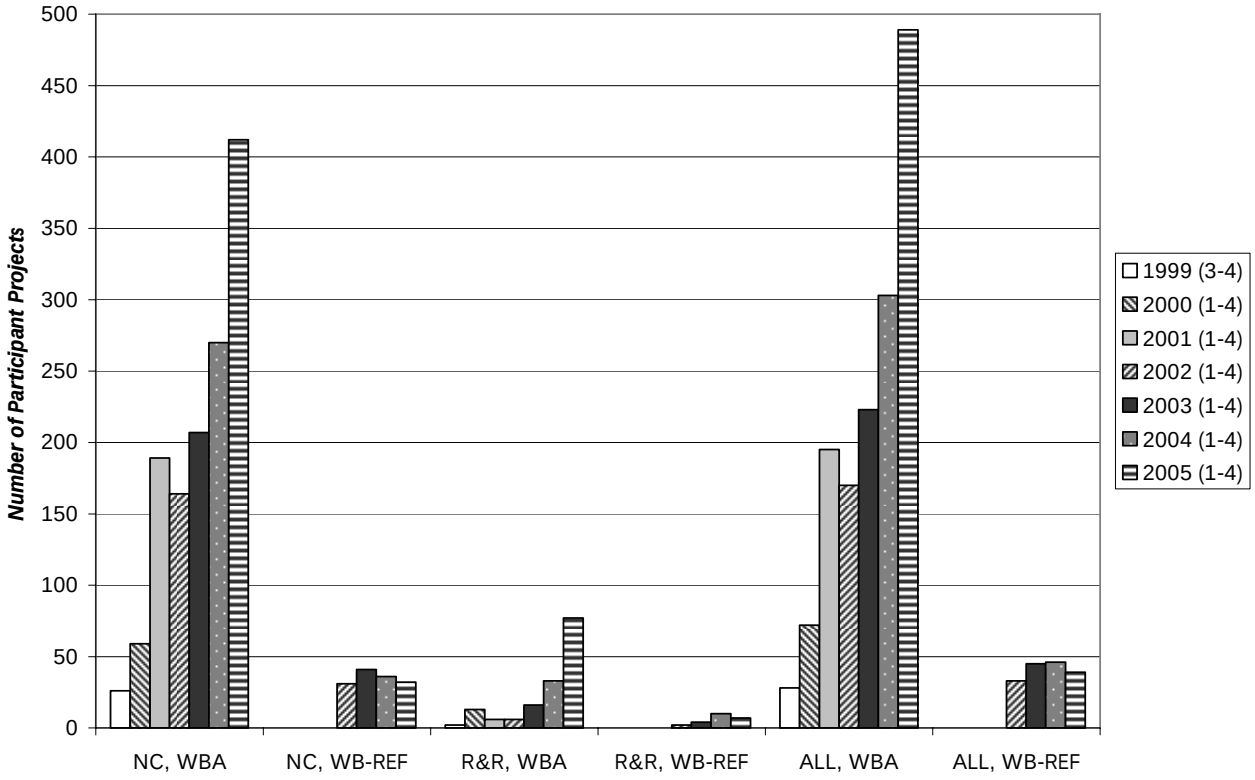
Exhibit 3.5 presents estimated energy savings for Whole Building SBD participant projects committed from July 1999 until December 2005.

Exhibit 3.6 presents estimated energy savings for all participants in the Systems Approach component of the program.

Exhibit 3.7 summarizes estimated energy savings for new construction participants in the Systems Approach component of the program.

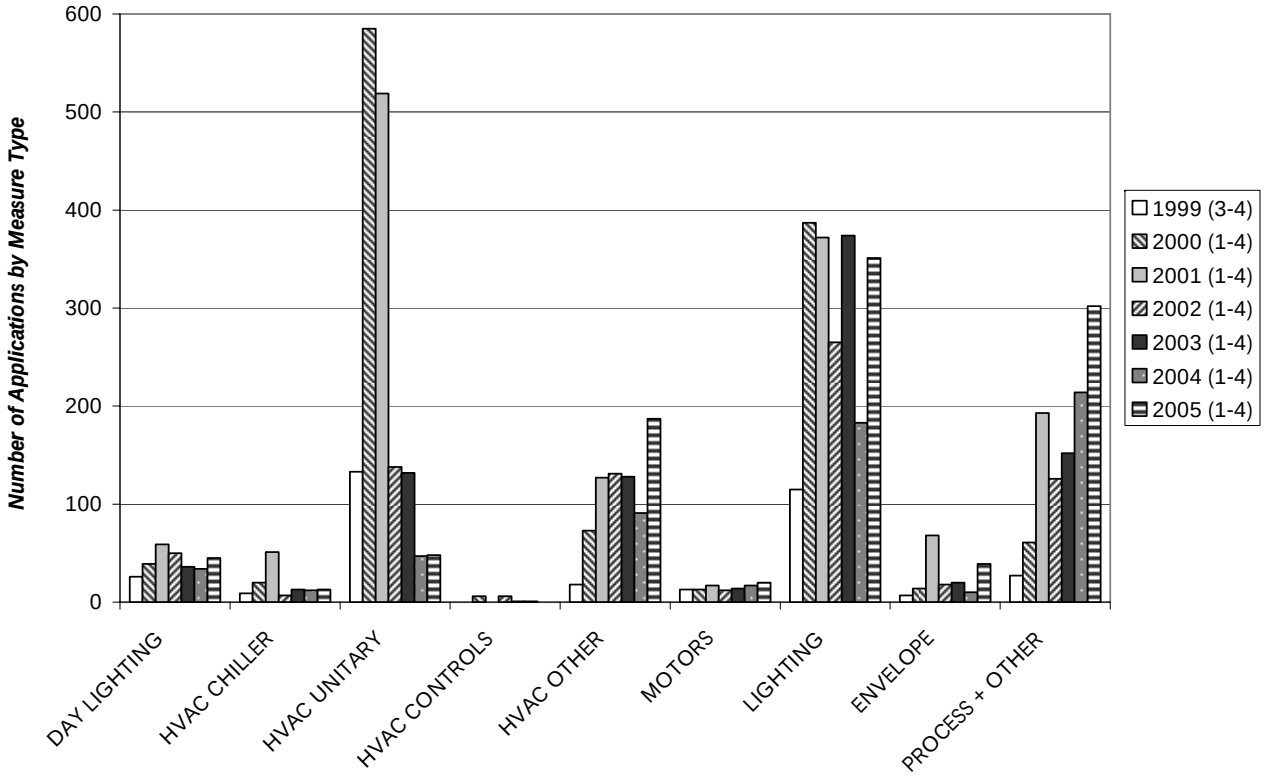
Exhibit 3.8 shows estimated energy savings for remodel/renovation/first tenant improvement participants in the Systems Approach component of the program.

Exhibit 3.1
Number of Whole Building Approach SBD Participants



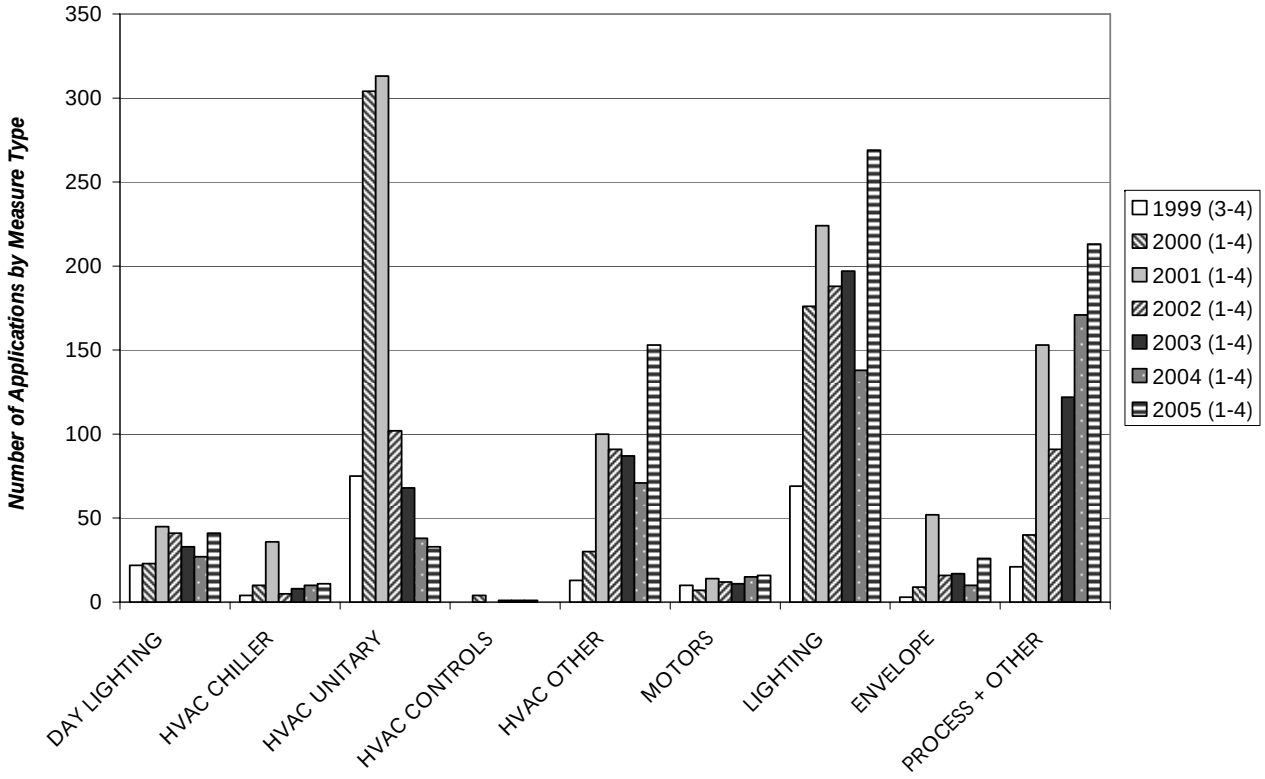
Most of the SBD Whole Building participants are new construction participants. Even though the market activity and the SBD program have registered a decrease in participation after 2001, the number of new construction Whole Building participants has increased from 1999 to 2005. The total number of WB-refrigeration projects (projects with significant refrigeration-process loads), which started at 33 in 2002, has increased to 46 in 2004, then dropped to 39 in 2005. Eighty percent of these are new construction projects.

Exhibit 3.2
Measures Committed by All Systems Approach SBD Participants



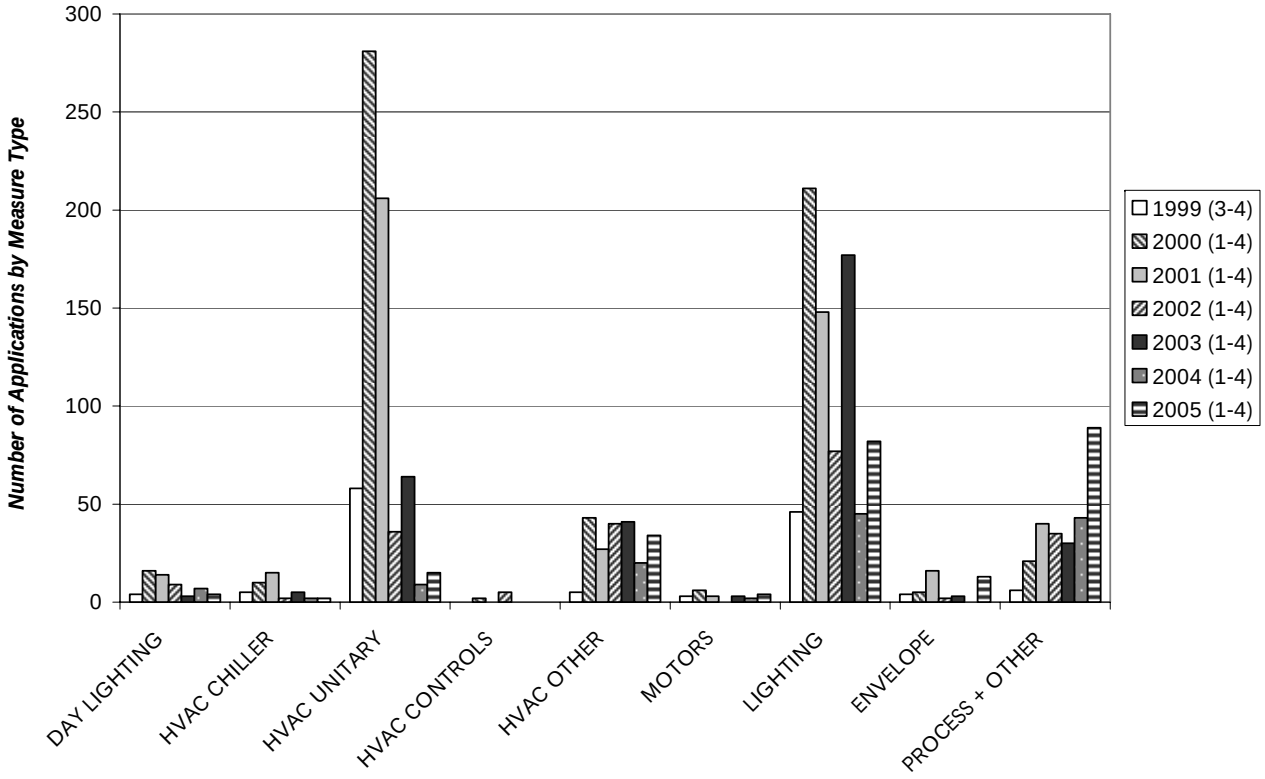
Among SBD Systems Approach participants, unitary HVAC systems were the most popular measures committed in 2000 and 2001, followed by lighting. In 2002 and 2003, as NRNC market activity slowed down substantially, unitary HVAC systems committed through the SBD program dropped to second place after lighting. Due to an increase in participation by industrial and agricultural buildings (the "other" building segment), "process and other" measures were the most numerous measures in 2004. In 2005 the dominant measure was once again lighting, but "process and other" measures such as variable speed drives, gas-fired boilers, water heating, water treatment and food processing were a close second.

Exhibit 3.3
Measures Committed by Systems Approach New Construction SBD Participants



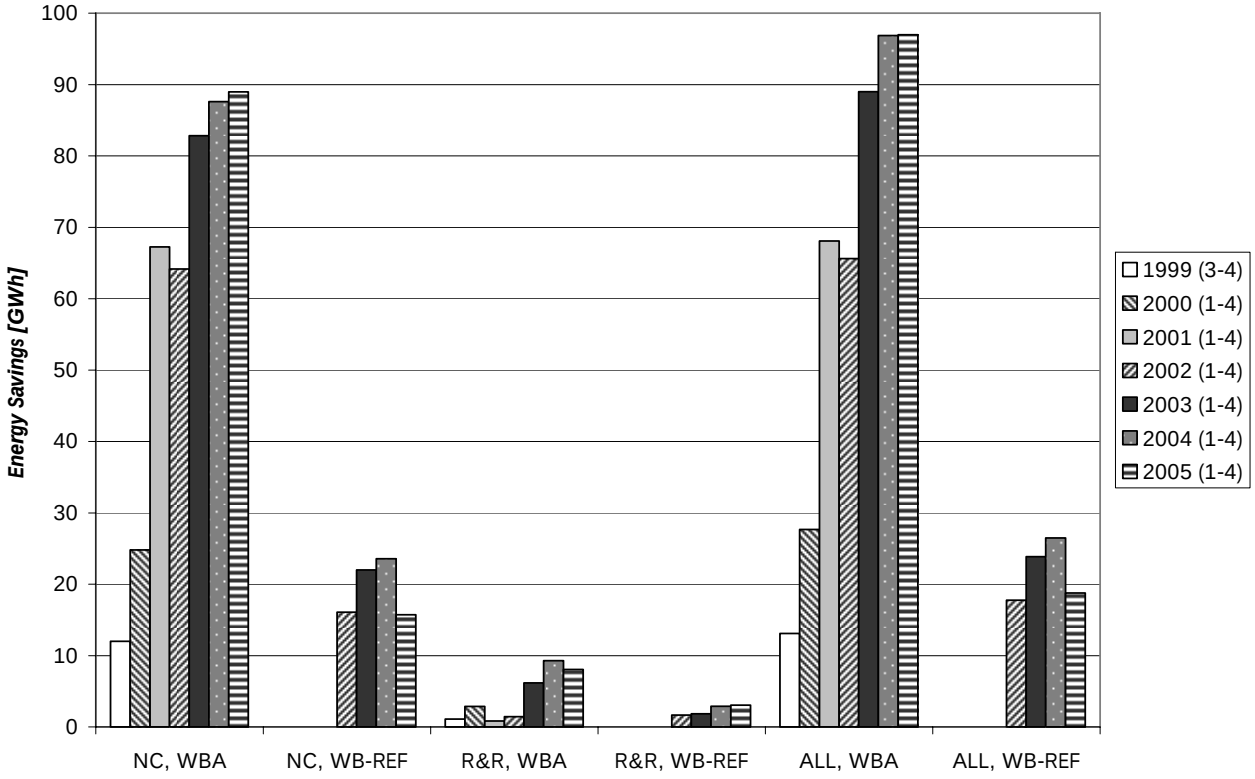
The measures committed most often by the Systems Approach new construction participants were unitary HVAC systems, lighting and "other HVAC" measures (fan or pump motors, air handler VSDs, furnaces, boilers, and other measures labeled as "HVAC energy reduction"). Note that after a peak in 2001, the number of package HVAC units decreased sharply in 2002 and continued to decrease through 2004. Lighting and "process and other" measures (variable speed drives, gas-fired boilers, water heating, water treatment and food processing) are now the measures committed most often by R&R New Construction participants.

Exhibit 3.4
Measures Committed by Systems Approach R&R SBD Participants



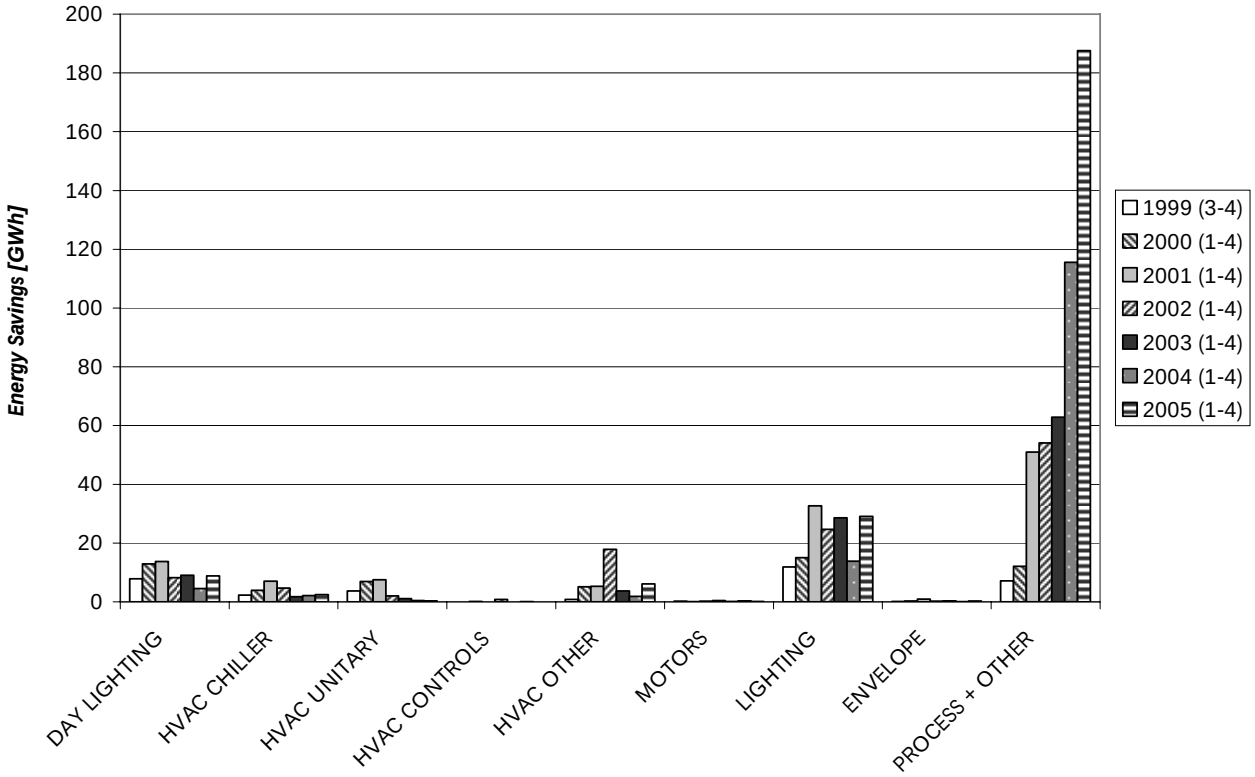
The measures committed most often by R&R participants in the Systems Approach component of the SBD program were also unitary HVAC systems, lighting and "other HVAC" measures. Similar to new construction participants, the number of committed R&R applications proposing the installation of unitary HVAC systems started to drop after 2000, and registered a historic low in 2004 after a slight rebound in 2003. Conversely, the number of "process and other" measures (variable speed drives, gas-fired boilers, water heating, water treatment and food processing) registered an increase over time, and reached a historic high in 2005.

Exhibit 3.5
Estimated Energy Savings from Whole Building Approach SBD Participants



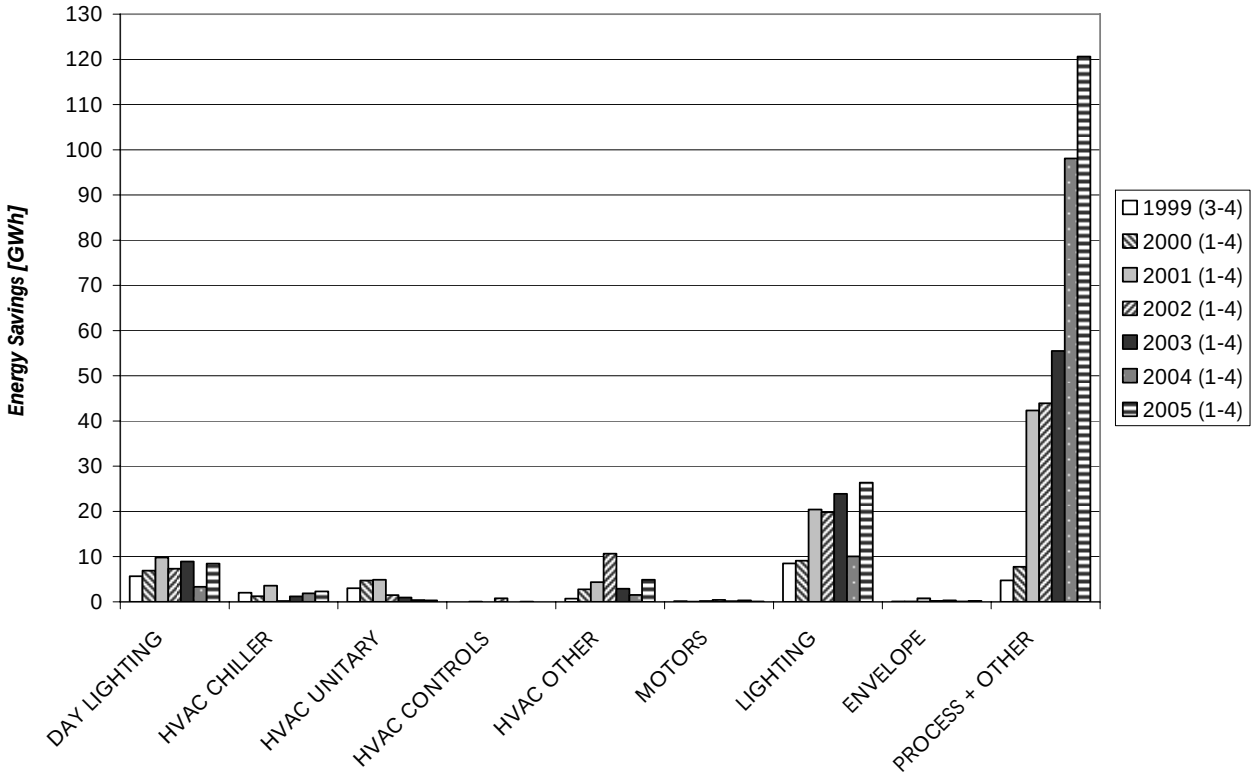
There is an upward trend over time in the estimated energy savings by Whole Building SBD participants. New construction Whole Building participants account for the highest savings, with 90 GWh of estimated savings in both 2004 and 2005. The entire Whole Building Approach component of the program accounts for 115 GWh committed in 2005, which is slightly lower than the 123 GWh committed in 2004. WB-Refrigeration projects continue to account for large GWh savings, higher than the sum of all Systems Approach measures if lighting and "process and other" measures are excluded.

Exhibit 3.6
Estimated Energy Savings from All Systems Approach SBD Participants



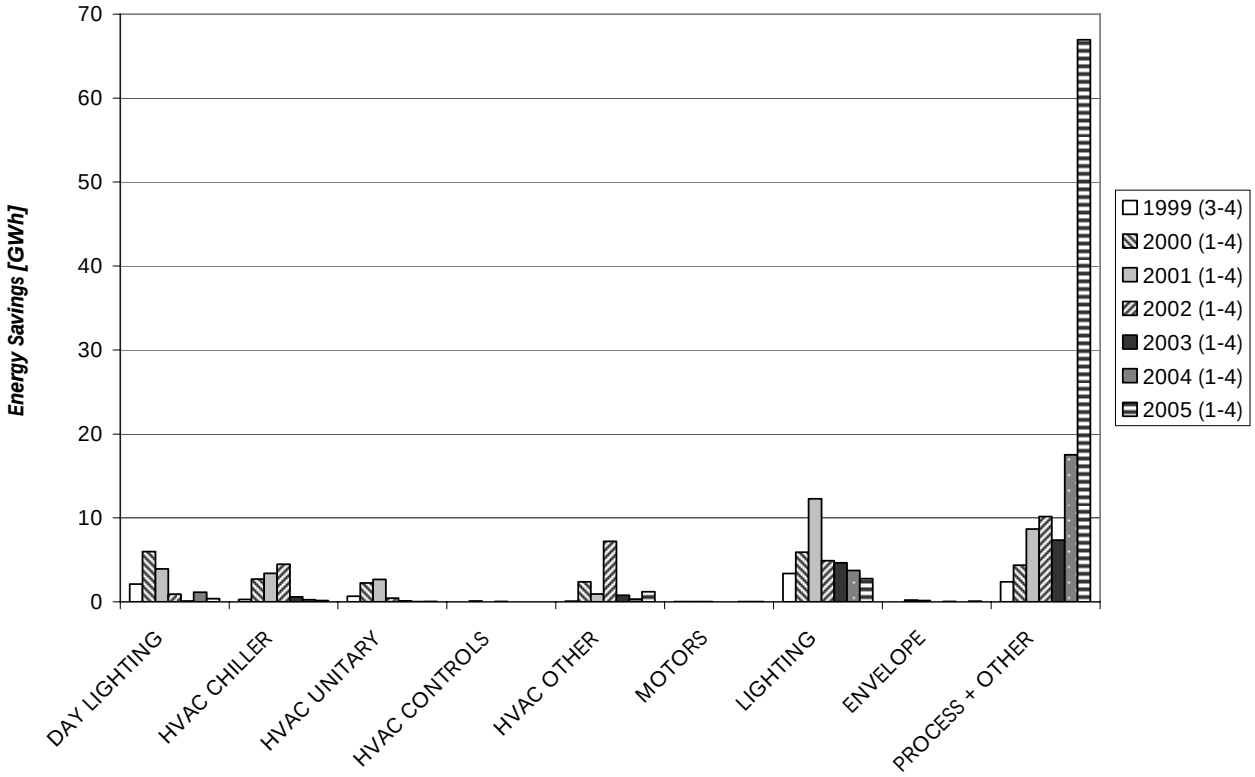
In conjunction with an increase in participation by industrial and agricultural customers (the "other" building segment), the "process and other" measure category (air compressors, variable speed drives, service hot water systems, water treatment, food processing and other measures labeled "miscellaneous" or "other") dominates the Systems Approach component of the SBD program in terms of estimated energy savings. Lighting and daylighting are next in order of importance.

Exhibit 3.7
Estimated Energy Savings from New Construction Systems Approach SBD Participants



Among measures committed by the new construction participants in the Systems Approach component, the highest estimated energy savings correspond to the ”process and other” measure category (air compressors, variable speed drives, hot water systems, gas furnaces, water treatment, food processing and other measures labeled “miscellaneous” or “other”). Other measures that are responsible for high estimated energy savings are lighting and daylighting.

Exhibit 3.8
Estimated Energy Savings from R&R Systems Approach SBD Participants



"Process and other" measures also account for the highest estimated savings by R&R participants in the Systems Approach component, followed by lighting and daylighting.

APPENDIX A

GLOSSARY OF BUILDING TYPES RECORDED BY F.W. DODGE

Amusement	amusement and recreational buildings
Assembly	religious and worship buildings
Education	libraries, museums
Government	government services
Hotel	hotels and motels
Medical	hospitals and other health-related buildings
Office	office and laboratory buildings
Retail	retail stores and shopping centers
School	schools, colleges and universities, including dorms
Service	auto service, showrooms, auto body shops, convenience stores, car wash stations and parking structures in residential multifamily buildings[3]
Storage	warehouses and storage facilities
Other	other nonresidential buildings

[3] The Savings By Design Service building type also includes utility, sanitary and sewage services, direct mail advertising services, security systems services, laundry services, and generic "services" buildings.

APPENDIX B

SUPPORTING DATA

Detailed data supporting the charts in Chapters 2 and 3 are presented in this Appendix.

Table B-1 contains detailed information about project starts by building type and year, for both NRNC market (based on F.W. Dodge data) and SBD program activity.

Table B-2 summarizes the number of applications for a particular measure type committed by the Savings By Design program participants. For consistency with the MCPAT Annual Reports, each entry into the tracking system was assigned to one of the measure types presented in Table B-2, and counted as one instance in which that particular measure was committed through the SBD program.

Table B-3 shows estimated energy savings by measure.

Table B-4 shows total estimated program savings (energy savings, demand savings and therm savings) by year.

Table B-1
Number of Project Starts by Building Type and Year
Market (F.W. Dodge)

YEAR (QTR)	AMUSEMENT	ASSEMBLY	EDUCATION	GOVT	HOTEL	MEDICAL	OFFICE	RETAIL	SCHOOL	SERVICE	STORAGE	OTHER	TOTAL
New Construction													
1999 (3-4)	212	91	20	39	86	76	452	533	247	209	384	162	2,511
2000 (1-4)	357	164	35	78	170	158	1,119	951	352	404	609	277	4,674
2001 (1-4)	339	152	58	83	122	164	1,096	1,044	468	380	589	310	4,805
2002 (1-4)	437	149	57	81	88	211	905	920	457	458	598	265	4,626
2003 (1-4)	301	101	25	75	76	133	761	753	535	368	482	172	3,782
2004 (1-4)	302	99	48	88	81	132	836	772	491	349	453	212	3,863
2005 (1-4)	287	82	52	82	80	120	681	738	428	396	373	182	3,501
Alterations													
1999 (3-4)	134	37	38	38	30	106	845	544	371	39	98	120	2,400
2000 (1-4)	239	62	36	46	54	126	2,050	883	703	82	134	239	4,654
2001 (1-4)	321	66	34	76	48	193	1,950	924	743	72	121	243	4,791
2002 (1-4)	280	55	49	36	37	251	1,637	965	660	84	121	168	4,343
2003 (1-4)	257	54	30	39	45	230	1,318	798	803	49	93	164	3,880
2004 (1-4)	233	49	39	31	29	211	1,391	794	953	49	107	167	4,053
2005 (1-4)	198	44	30	41	35	176	1,317	922	715	42	84	152	3,756
All													
1999 (3-4)	346	128	58	77	116	182	1,297	1,077	618	248	482	282	4,911
2000 (1-4)	596	226	71	124	224	284	3,169	1,834	1,055	486	743	516	9,328
2001 (1-4)	660	218	92	159	170	357	3,046	1,968	1,211	452	710	553	9,596
2002 (1-4)	717	204	106	117	125	462	2,542	1,885	1,117	542	719	433	8,969
2003 (1-4)	558	155	55	114	121	363	2,079	1,551	1,338	417	575	336	7,662
2004 (1-4)	535	148	87	119	110	343	2,227	1,566	1,444	398	560	379	7,916
2005 (1-4)	485	126	82	123	115	296	1,998	1,660	1,143	438	457	334	7,257

Savings By Design Program Participants

YEAR (QTR)	AMUSEMENT	ASSEMBLY	EDUCATION	GOVT	HOTEL	MEDICAL	OFFICE	RETAIL	SCHOOL	SERVICE	STORAGE	OTHER	TOTAL
New Construction													
1999 (3-4)	3	8	0	0	2	4	28	24	14	6	17	22	128
2000 (1-4)	2	21	2	0	12	10	70	65	83	9	22	20	316
2001 (1-4)	2	23	4	2	16	17	166	92	119	9	44	82	576
2002 (1-4)	3	15	3	1	13	6	97	117	69	0	27	84	435
2003 (1-4)	3	6	1	1	16	13	171	94	68	20	32	64	489
2004 (1-4)	3	19	6	1	5	13	136	101	77	29	19	88	497
2005 (1-4)	5	11	11	6	5	19	111	156	224	70	31	114	763
Renovation/Remodel/First Tenant Improvement													
1999 (3-4)	0	1	0	0	1	4	9	2	20	0	4	11	52
2000 (1-4)	1	4	0	0	1	2	56	18	59	1	15	25	182
2001 (1-4)	1	7	2	0	0	2	71	33	59	7	5	35	222
2002 (1-4)	8	2	0	0	0	4	23	21	22	2	4	41	127
2003 (1-4)	1	1	1	0	2	7	44	16	52	2	2	26	154
2004 (1-4)	2	1	0	0	0	0	45	13	14	3	0	37	115
2005 (1-4)	1	3	0	1	1	3	47	21	45	22	4	57	205
All													
1999 (3-4)	3	9	0	0	3	8	37	26	34	6	21	33	180
2000 (1-4)	3	25	2	0	13	12	126	83	142	10	37	45	498
2001 (1-4)	3	30	6	2	16	19	237	125	178	16	49	117	798
2002 (1-4)	11	17	3	1	13	10	120	138	91	2	31	125	562
2003 (1-4)	4	7	2	1	18	20	215	110	120	22	34	90	643
2004 (1-4)	5	20	6	1	5	13	181	114	91	32	19	125	612
2005 (1-4)	6	14	11	7	6	22	158	177	269	92	35	171	968

Table B-2
Estimated Savings By Design Program Savings
By Year

Year	Energy Savings (GWh)			Demand Savings (MW)			Therm Savings (1,000,000s)		
	New Construction	R&R	Total	New Construction	R&R	Total	New Construction	R&R	Total
1999	37.05	10.11	47.15	13.02	2.15	15.17	0.00	0.00	0.01
2000	57.51	26.87	84.38	18.19	7.28	25.47	0.21	0.01	0.22
2001	153.65	32.92	186.57	40.64	7.96	48.60	1.18	0.08	1.25
2002	165.17	31.28	196.45	36.27	4.32	40.59	0.71	0.18	0.89
2003	198.79	21.73	220.52	43.91	4.49	48.39	1.66	0.20	1.87
2004	227.03	35.25	262.28	37.30	6.30	43.61	7.15	0.10	7.25
2005	268.34	82.75	351.09	58.66	12.31	70.97	1.76	0.89	2.65

Table B-3
Measures Committed by SBD Participants
By Measure Type and Year

YEAR (QTR)	WHOLE BUILDING	WB + REFRIGERATION	DAY LIGHTING	HVAC CHILLER	HVAC UNITARY	HVAC CONTROLS	HVAC OTHER	MOTORS	LIGHTING	ENVELOPE	PROCESS + OTHER	TOTAL
New Construction												
1999 (3-4)	26	0	22	4	75	0	13	10	69	3	21	243
2000 (1-4)	59	0	23	10	304	4	30	7	176	9	40	662
2001 (1-4)	189	0	45	36	313	0	100	14	224	52	153	1,126
2002 (1-4)	164	31	41	5	102	1	91	12	188	16	91	742
2003 (1-4)	207	41	33	8	68	1	87	11	197	17	122	792
2004 (1-4)	270	36	27	10	38	1	71	15	138	10	171	787
2005 (1-4)	412	32	41	11	33	0	153	16	269	26	213	1,206
Renovation/Remodel/First Tenant Improvement												
1999 (3-4)	2	0	4	5	58	0	5	3	46	4	6	133
2000 (1-4)	13	0	16	10	281	2	43	6	211	5	21	608
2001 (1-4)	6	0	14	15	206	0	27	3	148	16	40	475
2002 (1-4)	6	2	9	2	36	5	40	0	77	2	35	214
2003 (1-4)	16	4	3	5	64	0	41	3	177	3	30	346
2004 (1-4)	33	10	7	2	9	0	20	2	45	0	43	171
2005 (1-4)	77	7	4	2	15	0	34	4	82	13	89	327
All												
1999 (3-4)	28	0	26	9	133	0	18	13	115	7	27	376
2000 (1-4)	72	0	39	20	585	6	73	13	387	14	61	1,270
2001 (1-4)	195	0	59	51	519	0	127	17	372	68	193	1,601
2002 (1-4)	170	33	50	7	138	6	131	12	265	18	126	956
2003 (1-4)	223	45	36	13	132	1	128	14	374	20	152	1,138
2004 (1-4)	303	46	34	12	47	1	91	17	183	10	214	958
2005 (1-4)	489	39	45	13	48	0	187	20	351	39	302	1,533

Table B-4
Estimated Energy Savings (GWh) for SBD Participants
By Measure Type and Year

YEAR (QTR)	WHOLE BUILDING	WB + REFRIGERATION	DAY LIGHTING	HVAC CHILLER	HVAC UNITARY	HVAC CONTROLS	HVAC OTHER	MOTORS	LIGHTING	ENVELOPE	PROCESS + OTHER	TOTAL
New Construction												
1999 (3-4)	11.98	0.00	5.69	2.02	3.03	0.00	0.75	0.17	8.52	0.11	4.77	37.05
2000 (1-4)	24.81	0.00	6.90	1.25	4.73	0.03	2.78	0.05	9.10	0.08	7.77	57.51
2001 (1-4)	67.24	0.00	9.82	3.60	4.90	0.00	4.36	0.18	20.45	0.78	42.32	153.65
2002 (1-4)	64.16	16.09	7.34	0.20	1.53	0.77	10.66	0.42	19.84	0.23	43.93	165.17
2003 (1-4)	82.85	22.00	8.94	1.22	0.95	0.00	2.94	0.13	23.91	0.33	55.52	198.79
2004 (1-4)	87.60	23.56	3.38	1.88	0.39	0.05	1.56	0.34	10.09	0.09	98.08	227.03
2005 (1-4)	88.96	15.71	8.45	2.32	0.32	0.00	4.93	0.12	26.35	0.24	120.59	268.34
Renovation/Remodel/First Tenant Improvement												
1999 (3-4)	1.10	0.00	2.13	0.30	0.68	0.00	0.08	0.03	3.39	0.00	2.39	10.11
2000 (1-4)	2.86	0.00	6.01	2.73	2.25	0.10	2.38	0.03	5.91	0.22	4.37	26.87
2001 (1-4)	0.85	0.00	3.93	3.40	2.66	0.00	0.95	0.02	12.29	0.16	8.67	32.92
2002 (1-4)	1.45	1.68	0.91	4.48	0.45	0.05	7.20	0.00	4.89	0.01	10.16	31.28
2003 (1-4)	6.16	1.85	0.09	0.61	0.14	0.00	0.79	0.01	4.67	0.05	7.37	21.73
2004 (1-4)	9.27	2.89	1.16	0.27	0.03	0.00	0.34	0.01	3.76	0.00	17.52	35.25
2005 (1-4)	8.04	3.05	0.40	0.16	0.06	0.00	1.19	0.01	2.77	0.08	66.96	82.75
All												
1999 (3-4)	13.08	0.00	7.82	2.32	3.71	0.00	0.83	0.20	11.91	0.11	7.16	47.15
2000 (1-4)	27.67	0.00	12.91	3.98	6.98	0.13	5.16	0.08	15.02	0.30	12.14	84.38
2001 (1-4)	68.08	0.00	13.75	7.00	7.57	0.00	5.31	0.20	32.74	0.94	50.99	186.57
2002 (1-4)	65.60	17.76	8.25	4.69	1.99	0.82	17.86	0.42	24.73	0.24	54.10	196.45
2003 (1-4)	89.01	23.85	9.03	1.83	1.10	0.00	3.73	0.14	28.58	0.38	62.89	220.52
2004 (1-4)	96.87	26.46	4.53	2.15	0.41	0.05	1.90	0.36	13.85	0.09	115.60	262.28
2005 (1-4)	96.99	18.76	8.85	2.48	0.38	0.00	6.12	0.14	29.12	0.32	187.55	351.09

APPENDIX C

GLOSSARY OF MEASURES COMMITTED BY SBD PARTICIPANTS

Whole Building	Measures committed by Whole Building Approach participants
Whole Building + Refrigeration	Measures proposed to be installed by JJ Hirsch Associates and VaCom in grocery and other large box stores as a whole building "alternative delivery method". All the projects that are grouped under the WB-Ref measure have significant refrigeration-process loads.
Daylighting	Daylighting measures, including skylights
HVAC chiller	High-efficiency chillers
HVAC package	High-efficiency unitary systems
HVAC controls	Controls for HVAC systems
HVAC other	Other measures labeled as "HVAC", including air handling units, pumps, variable speed drives, motors and other measures specifically labeled "HVAC".
Motors	High-efficiency motors and other measures labeled as "motors"
Lighting	Lighting measures, including lighting power density reduction
Envelope	Envelope measures, including insulation and windows
Process + Other	Process cooling and pumps, variable frequency drives and adjustable speed drives that are not specifically labeled "HVAC" or "motors", controls that are not specifically labeled "HVAC" or "motors", water treatment, food processing, gas measures such as boilers, furnaces and water heating, and measures labeled "other" or "miscellaneous".