

Report

Residential New Construction High Efficiency Appliance and Lighting: End-of-Year Assessment

Prepared for:
D&R International

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Executive Summary

Background

D&R International (D&R) implemented the High Efficiency Appliance and Lighting Program (HEAL program or Program) in San Diego Gas and Electric's service territory in 2003. The HEAL program provided incentives to both builders and new homebuyers to encourage the installation of ENERGY STAR[®]-labeled dishwashers, clothes washers, and lighting fixtures in newly constructed homes. The incentives offered to builders and homebuyers for each Program component are summarized in Table ES.1.

**Table ES.1:
Program Incentives Levels**

Appliance or Lighting	Rebate Level Homebuyer (Retail)	Incentive Level Builder (Wholesale)
Dishwasher	\$50.00/unit	\$35.00/unit
Clothes washer	\$75.00/unit	\$50.00/unit
Lighting fixtures (single-family)		\$75.00/home
Lighting fixtures (multi-family)		\$45.00/home

Aggressive goals were established for each area of the Program as shown in Table ES.2. The goals for dishwashers and lighting represented a market penetration of 44% and 11% respectively. The clothes washer goal represented 15% of the market when measured against the total number of new homes constructed in San Diego County annual. However, since clothes washers are installed in only about 15% of the new homes, the goal represented nearly 100% of the market for builder-installed clothes washers.

**Table ES.2
Program Goals**

	Units
Dishwashers	6,200
Clothes Washers	2,100
Lighting - single-family	330
Lighting - multi-family	1,200

Process Assessment

The Program served a difficult market. The new construction market in San Diego is very much a “sellers’” market. While over 14,000 new building permits issued annually, consumers compete for the opportunity to purchase newly constructed homes. With a median selling price of \$338,000 in 2002, the demand for new homes in San Diego County is profound and continues to grow.

Despite these challenges, the D&R Program staff worked diligently and effectively to make inroads into the market and influence the multiple decision-makers involved with specifying the appliances that go into new homes. While the Program did not attract participation in the lighting component, it ended the year poised to leverage the market momentum and lessons learned from implementation to date.

The Program achieved high levels of satisfaction amongst builders and stakeholders. Builders found the Program requirements and processes to be easy-to-understand and straightforward. They indicated that D&R processed rebates quickly and scheduled site inspections at their convenience. Stakeholders felt that D&R did that right things to promote the program, maintained a strong presence in the market, and forged effective marketing partnerships.

Few consumers participated in the Program, but those that did indicated satisfaction as well. It was felt that the Program would have significant appeal to new homebuyers and that there would be opportunities for joint marketing by builders and D&R.

Market momentum was an important factor in the Program implementation. Program participation increased in each successive quarter – in the last quarter, the number of dishwasher incentive applications was equal to 35% of the Program goal. Because of the long decision-making cycles of builders and the multiple decision makers involved, it was necessary to build a high level of market awareness and momentum before significant participation could be observed.

Achievement of Program Goals

Through the Program, D&R has paid incentives for a total of 5,396 dishwashers and 155 clothes washers, or 87% and 7% of the HEAL program goals, respectively.

No incentives were paid for ENERGY STAR-qualified lighting fixtures, despite strong efforts on the part of D&R to market this aspect of the program. Significant barriers were identified (e.g., builder perceptions of product quality, higher incremental cost, availability of product, multiple decision

makers requiring long lead times to specify equipment) that could not have been overcome in the short time the program was implemented.

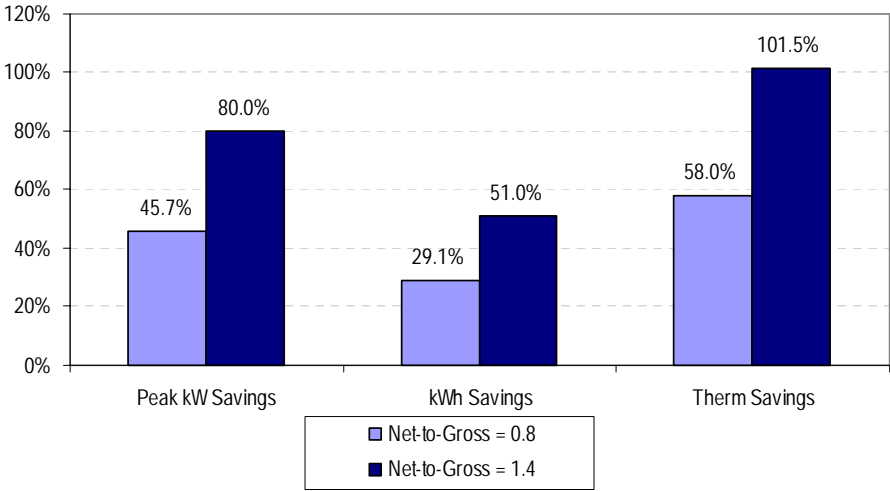
The Program’s progress toward achievement of the overall savings goal was assessed using the pre-implementation deemed savings impacts, including the net-to-gross ratio. These impacts are shown in Table ES.3

**Table ES.3
Net Energy and Demand Savings Impacts**

	Total Units Installed	KW Savings	kWh Savings	Therm Savings
Dishwashers	5,396	36.7	224,474	69,069
Clothes Washers	151	0.004	4,832	3,262
Total		36.7	229,306	72,330

However, based on builders’ indications that they have installed ENERGY STAR-qualified equipment in areas outside the Program service area, and that they will continue to do so in San Diego County despite the discontinuation of the Program, strong evidence of spillover impact was found. Figure ES.1 shows the progress toward the achievement of goals using the deemed net-to-gross ratio of 0.8 and the estimate of net-to-gross considering spillover (1.4).

**Figure ES.1:
Percent of Program Goals Achieved**



Conclusions

The HEAL program established a considerable presence in the San Diego building market in the short time it was implemented. The program filled an

important niche and tapped energy efficiency potential that otherwise would not have been captured.

The HEAL program goals were very aggressive. D&R employed a strategy of adaptive management that allowed them to nearly meet the goal associated with dishwashers and maximize the overall impact of the Program. The impact of the Program extends beyond the participation tracked, with evidence found to indicate that participating builders have changed their long-term purchasing practices in San Diego County and beyond.

While there are a few recommended changes to improve overall Program effectiveness, we regard the Program implementation as very successful to date. Continued implementation of the Program would allow:

- Completion of the process of market transformation related to ENERGY STAR-qualified dishwasher installation in newly constructed homes
- Assurance that the ground gained related to promotion of ENERGY STAR-qualified clothes washers by builders to new homebuyers is not lost
- Penetration of the market related to ENERGY STAR-qualified lighting using the lessons learned and market momentum gained from Program implementation to date

We recommend that the Program be continued in San Diego County and throughout California to capture energy savings impacts that otherwise will be lost.

I. Introduction

Overview

D&R International (D&R) implemented the High Efficiency Appliance and Lighting Program (HEAL program or Program) in San Diego Gas and Electric's service territory in 2003. The HEAL program promoted ENERGY STAR-labeled dishwashers, clothes washers, and lighting fixtures to both residential builders and new homebuyers.

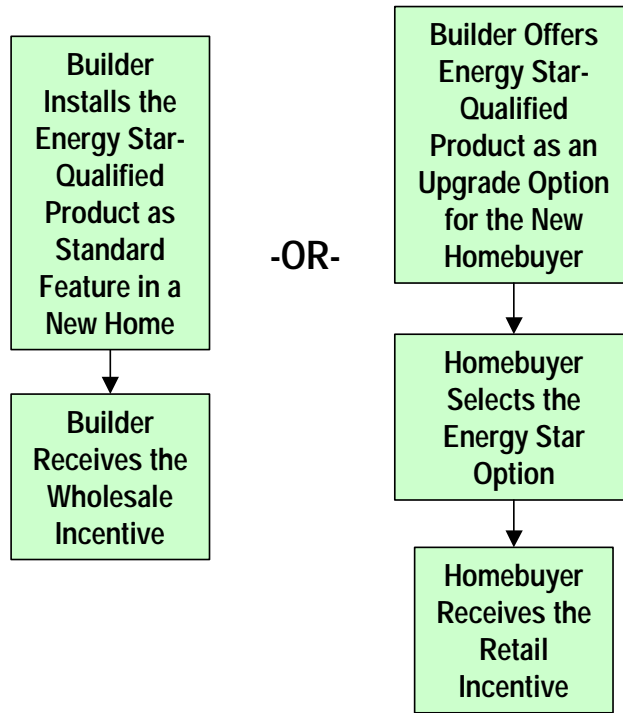
The HEAL program provided incentives to encourage builders to install ENERGY STAR-qualified appliances and/or lighting as standard feature in their homes. Furthermore, in new homes where the homebuyer was given the option of upgrading their appliances, homebuyers were offered incentives for selecting ENERGY STAR-qualified appliances. However, to avoid double dipping, D&R ensured that only one incentive was paid per qualified product. Table I.1 lists the incentive levels for qualifying equipment at the retail and wholesale levels.

**Table I.1:
Rebate Levels**

Appliance or Lighting	Rebate Level Homebuyer (Retail)	Incentive Level Builder (Wholesale)
Dishwasher	\$50.00/unit	\$35.00/unit
Clothes washer	\$75.00/unit	\$50.00/unit
Lighting fixtures (single-family)		\$75.00/home
Lighting fixtures (multi-family)		\$45.00/home

Figure 1.1 illustrates the two participation options provided through the program.

**Figure 1.1:
Program Participation Options**



Early in the implementation of the program, D&R decided to focus its efforts on encouraging builder participation at the wholesale level. It was determined that targeting the large volume builders that dominate the San Diego new home market provided a more direct route to influence and encourage the installation of high-efficiency lighting and appliances than attempting to impact individual consumers. As participation was dominated by homebuilders, this strategy increased the Program’s overall effectiveness

Program Goals

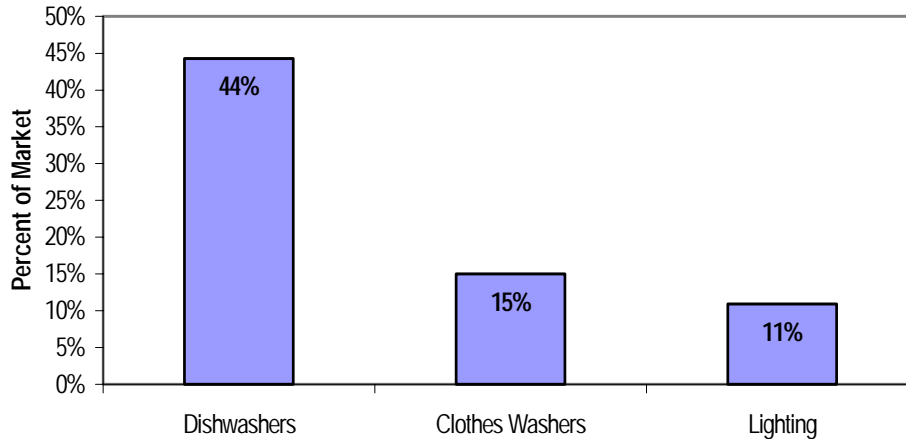
Table I.2 lists the goals for each of type of equipment included in the HEAL program. The HEAL program provided for participation at both a wholesale and retail level; however, virtually all the participation was at the wholesale level (i.e., the builder selected and installed the qualifying equipment and received the associated rebate).

**Table I.2:
Program Goals**

	Units
Dishwashers	6,200
Clothes Washers	2,100
Lighting - single-family	330
Lighting - multi-family	1,200

The HEAL program goals were aggressive and represented a significant share of the new construction market in the targeted area. Figure I.2 indicates the market share (number of units to be installed/number of new homes built in San Diego County annually) that each of the HEAL program goals represents. Particularly aggressive was the goal for clothes washers, as it is estimated that builders install clothes washers in only about 15% of the homes they construct¹. Since the HEAL program focused mainly on the wholesale (builder) market, the program would have had to achieve 100% market penetration of the builder installed clothes washer market to meet this goal.

**Figure 1.2:
Market Share**
(Based on # of new homes built in SD County)



¹ While many large production builders offer homebuyers the option of purchasing clothes washers and dryers through their design center, it is an option homebuyers rarely exercise. Homebuyers will either bring clothes washers and dryers from their previous home or purchase new units from other appliance retailers. The design center would typically offer fewer options, and may have higher costs than traditional appliance retailers.

Progress toward Program Goals

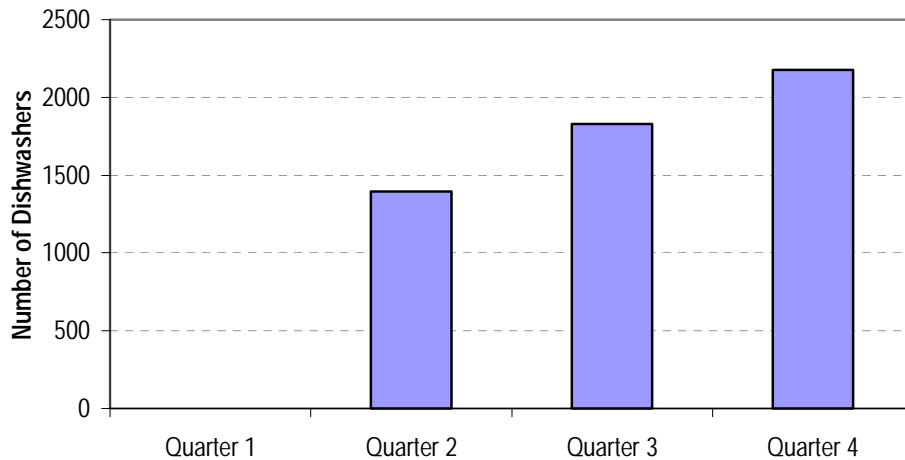
Installation of ENERGY STAR-labeled dishwashers has gained significant momentum through the HEAL program period. D&R has paid incentives for a total of 5,396 dishwashers and 155 clothes washers, or 87% and 7% of the HEAL program goals, respectively. Table I.3 indicates the number of builder and consumer participants in the program through the end of 2003.

**Table I.3:
Program Participation Summary**

	Dishwashers	Clothes Washers	Total ²
Builders	26	9	29
Consumers	4	4	5

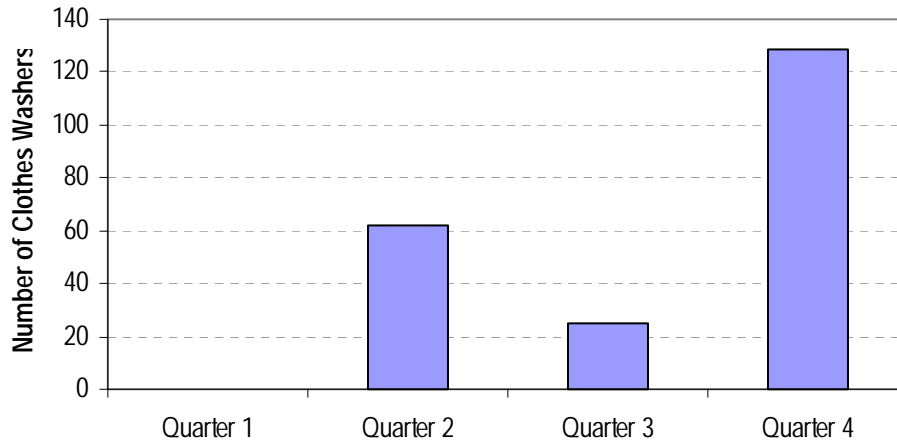
Much of the participation took place in the final quarter of program implementation. Figures I.3 and I.4 show the number of dishwasher and clothes washer incentives applied for in each of the four quarters of the program implementation. The pattern is quite distinct for dishwashers, with participation growing in each quarter. Applications for clothes washers also peaked in the fourth quarter of implementation.

**Figure 1.3
Dishwasher Incentive Applications**



² Not additive, because a builder or consumer can apply for both dishwasher and clothes washer incentives.

Figure 1.4
Clothes Washer Incentive Applications



No incentives for ENERGY STAR-qualified lighting fixtures were applied for through the HEAL program, despite D&R's efforts to aggressively market the program in conjunction with lighting manufacturers, lighting consultants, manufacturers, distributors, electrical contractors, and architects. A discussion of the potential reasons for the lack of participation in this program component can be found later in this report.

II. Process Assessment

To assess the process of delivering the HEAL program, particularly in the second half of the implementation year, Quantec conducted interviews with program staff, stakeholders and participating builders. Quantec also accompanied D&R staff on site visits to verify installation of qualifying equipment. Table II.1 summarizes the data-collection activities conducted throughout the HEAL program implementation to inform us on the effectiveness of the processes used to deliver the program to builders and homebuyers.

**Table II.1:
Data Collection Activities**

Data Collection Activity	Number
Baseline Assessment	
General Builder Interviews	10
General Consumer Surveys	17
Mid-Stream Assessment	
Stakeholder Interview	8
Mystery Shopping	4
End-of-Year Assessment	
Program Staff Interviews	1
Program Stakeholder Interviews (Manufacturer Representatives)	2
Participating Consumer Interviews	2
Participating Builder Interviews	16
Site Visits	5

In addition, Quantec reviewed program documents and maintained regular contact with the Program staff at D&R. This regular communication kept us abreast of the implementation progress, the various marketing strategies employed throughout the year, and the adaptive management decision made to work toward meeting the program goals.

Addressing Barriers to Installation of Energy-Efficient Technologies

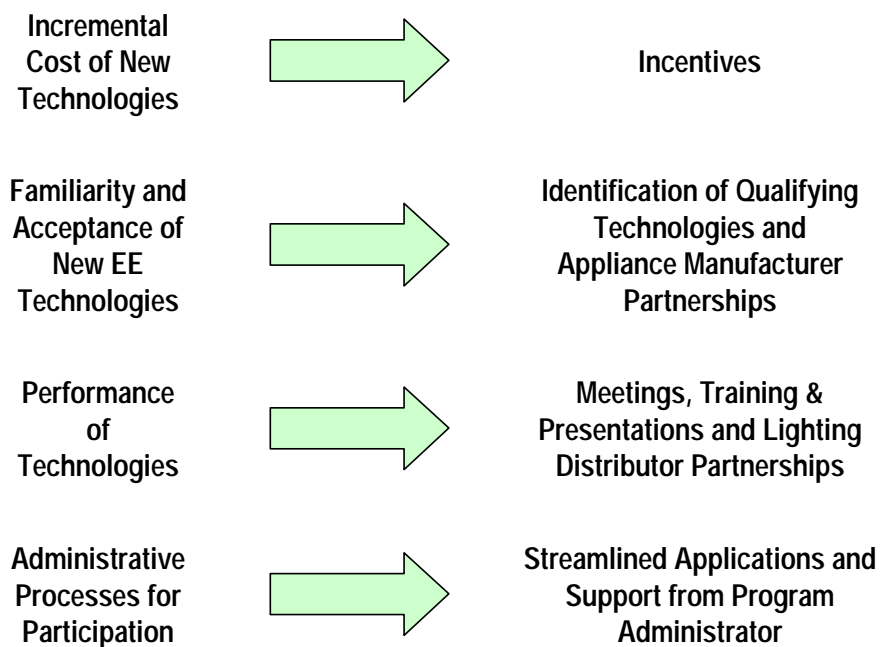
There are several barriers to the installation of high-efficiency technologies in new homes. These include, but are not limited to:

- Cost of new technologies

- Familiarity and acceptance of energy-efficient (EE) technologies
- Lack of knowledge regarding the benefits of high-efficiency technologies
- Administrative requirements of program participation

The Program used various strategies in order to address each of these barriers. A few of these are shown in Figure II.1 and their effectiveness is discussed below.

**Figure II.1:
Barriers and Program Features to Address Barriers**



The effectiveness of those Program strategies is discussed below.

Cost

Builders are certainly cost-conscious. The incentives effectively reduced the incremental cost of ENERGY STAR-qualified dishwashers such that it made economic sense for builders to install them as a standard feature in their new homes. However, the incremental cost for ENERGY STAR-qualified lighting and clothes washers can be significantly higher. Consequently, builders were less interested in considering these two options.

ENERGY STAR-labeled lighting fixtures can cost between 1.5 and 2.5 times what conventional lighting fixtures cost³, in part because they typically include the compact fluorescent light bulbs. Low-cost ENERGY STAR-qualified fixtures do exist, but these may not meet the aesthetic and quality criteria, which are the primary consideration of designers and builders.

Likewise, clothes washer efficiency is often packaged with other performance enhancements (the lowest cost ENERGY STAR-labeled on www.sears.com has 19 cycle options), driving up incremental cost. While these technologies offer substantial lifetime benefits to consumers, including energy and water cost savings, the incentives may not have been enough for builders to justify the incremental cost of ENERGY STAR-qualified clothes washers.

Availability of Efficient Technologies

D&R employed several tactics to identify efficient technologies and to inform builders and design professionals about the range of qualified products during the early stages of the design process. Most notable were the personal meetings and participation of D&R personal at building industry functions.

D&R staff assisted builders to ensure which products met program requirements and also included a list of qualified products on the program website: www.BuildingABrighterFuture.com. Only six of the 16 builders surveyed reported visiting the website and only one of those reported using the website to find qualifying equipment models. Partnerships with appliance and lighting manufacturers and their representatives were another effective tactic to inform builders of viable ENERGY STAR-qualified products.

Performance Information

Performance of ENERGY STAR-labeled dishwashers and clothes washers is well established. The ENERGY STAR-label on dishwashers and clothes washers not only indicates energy efficiency, but also creates a perception of higher-quality and improved performance.⁴

Performance of the ENERGY STAR-labeled lighting fixtures is less certain. Concerns about lighting quality and general performance of the fixtures were noted by the builders, and recognized by the lighting manufacturers and designers. These concerns persist despite almost the fact that the ENERGY STAR website (www.energystar.gov) lists almost 9,000 qualifying fixtures, and the list is actively managed to ensure that the listed products meet the performance requirements. ENERGY STAR lighting fixtures must have a life of 10,000 to 20,000 hours and carry a two-year warranty, twice the industry standard.

³ “Market Research Report: Energy Efficient Lighting in New Construction.” Prepared by Ecos Consulting for the Northwest Energy Efficiency Alliance, May 2002.

⁴ Indicated in the survey of general consumers (non-program participants) and the discussions with the consumer rebate applicants.

Administrative Processes for Participation

Builders appreciated the ease and clarity of the application process. All but one of the builders surveyed reported that the requirements were straightforward and that they were very satisfied with the application process. D&R worked closely with participating builders to ensure the program application did not inhibit participation and worked with manufacturer representatives so that could assist builders in the application process. It was especially noted that builder's appreciated only having to complete the form in its entirety once – only the lower portion of the form with specific information on the appliances installed had to be completed for installations at multiple sites.

There were several comments that lighting requirements should be simplified. While this was not an issue directly related to the application, it was at this point that the complexity of the lighting requirements might have been most evident. Builders indicated the number of fixtures required (three in a single-family home and two in multi-family) was onerous, as was the requirement there be both indoor and outdoor fixtures. D&R dropped the requirement that the home include both indoor and outdoor fixtures, in lieu of a more generic total fixture requirement, but this did not elicit additional participation in this area of the program.

Program Satisfaction

Stakeholders and builders reported a high level of satisfaction with the HEAL program. D&R maintained a strong presence within the building community throughout the program duration. D&R staff participation at a variety of local and regional building industry events helped to generate Program awareness. Program stakeholders also felt a strong marketing partnership with the D&R program staff.

Builders indicated high satisfaction with the HEAL program. In particular, they reported that:

- Incentives were paid in a timely fashion
- HEAL program requirements were presented in clear and straightforward manner
- HEAL program applications were easy to use and facilitated ease of program participation
- Inspections were scheduled at the convenience of the builders, shortly after the installations were completed

The professionalism and knowledge of the D&R HEAL program staff was noted repeatedly.

Consumer Awareness

While the program moved away from a consumer focus early in its implementation, there were a few retail-level participants. These homebuyer participants were told about the program by their builders, and were pleased to have the opportunity to participate. The program incentives were thought to be adequate. It was felt that if the consumer aspects of the program were marketed more aggressively at the retail level, other homebuyers would find the program beneficial.

It should be noted, however, that the majority of builders who helped market the program were participants themselves. In some cases, homebuyers applied for an ENERGY STAR-qualified clothes washer incentive, while their builder applied for the ENERGY STAR-qualified dishwasher incentive being installed as an integral home feature. The potential for synergistic marketing of the program was most evident in the last quarter of program participation.

A majority of the builders felt that the ENERGY STAR-qualified appliances installed in their homes positively impacted the ability to sell or rent their homes. Builders did highlight the inclusion of the ENERGY STAR appliances along with other high-efficiency aspects of the homes they constructed. The developers/builders of rental units, in particular, featured the ENERGY STAR-qualified appliances in their marketing efforts.

Market Momentum

Building market momentum played an important role in the program. Builders typically have a long lead-time for specifying equipment before it was installed, especially for lighting. Further, multiple decision makers may be involved in the decision to select particular equipment or to participate in a program. Lastly, builders are bombarded with information about products and services that could potentially be utilized within a new home. Often, repeated interactions are required to capture the builders' attention and influence their purchasing decisions.

When asked what the impetus had been for the spike in participation late in the Program, D&R attributed much of the surge to the relationships that had been fostered with industry stakeholders. The contact also noted that these relationships were beneficial and could be utilized to promote the continued installation of high efficiency appliances.

Implementation Activities

Outreach & Communication

D&R engaged in several activities to promote the HEAL program to builders and others involved in marketing appliances and lighting to builders.

In addition to calling on builders, D&R engaged architects, developers, Title²⁴ consultants, affordable housing agencies, and government agencies to disseminate information about the HEAL program. In particular, D&R was actively involved with the following organizations to promote the HEAL program and to interact with decision makers within the building industry:

- San Diego Association of Governments: Regional Housing Task Force
- San Diego Housing Federation (SDHF)
- City of San Diego Affordable Housing Task Force
- Building Industry Association
- American Institute of Architects

Program Data Collection and Record Keeping

D&R maintained an extensive set of data to facilitate program implementation. These included builder contact information, extensive contact management information, and detailed information on installation of qualifying equipment necessary to track progress from application to installation to verification to payment of incentives. Quantec found this information to be comprehensive and useful.

Program Marketing Materials

Two sets of HEAL program materials were developed: one targeted to builders and the other to consumers. D&R also maintained an extensive HEAL program Web site at www.BuildingaBrighterFuture.com. D&R primarily utilized the materials targeted to builders.

These materials were generally regarded as compelling and conducive to participation. However, participation in the program was driven by the one-on-one contacts by the program staff rather than reliance on the marketing materials.

Program Inspections

As called for in the HEAL program plan, D&R inspected 10% of the installations to verify the ENERGY STAR-labeled technologies have been installed. More than 200 of these physical inspections have been conducted to

date. All of these inspections verified the presence of an ENERGY STAR-qualified appliance.

In an effort to continue assessing the HEAL program's procedures for verifying the installation of rebated units, Quantec staff joined the D&R International Program Administrator for inspections on two occasions. At each site, D&R staff met with site contact and was directed to each of the individual homes where qualifying equipment had been installed. D&R staff visually verified the presence of eligible equipment at each location and that the model installed matched the model in the HEAL program database. No discrepancies between reported installations and actual installations were identified.

Quantec found the verification process to be well planned, thorough, and professional. All of the information regarding the project and its rebated units was taken to the site and verified to ensure the accuracy of the HEAL program database. In addition, it was clear that through the course of the program, D&R had established a viable relationship with the contacts at each site – relationships that could potentially lead to future participation in similar programs.

III. Impact Assessment

As the inspections verified that qualifying equipment was installed in all cases, savings are attributed for all incentives applied for. Through the end of the program year, D&R has committed or paid builder incentives for 5,396 ENERGY STAR-labeled dishwashers and 155 clothes washers. This represents 87% and 7% of the overall HEAL program goals, respectively.

The program impacts are calculated using the deemed impacts identified prior to implementation. The per-unit impacts for each of the Program elements are shown in Table III.1.

**Table III.1:
Per Unit Savings and Demand Impacts**

	Net-to-Gross Ratio	Per-Unit Savings			Life of Measure (years)
		Peak Demand (kW/year)	Electric Energy (kWh/year)	Natural Gas Energy (Therms/year)	
Dishwasher	0.8	0.0085	52	16	13
Clothes Washer	0.8	0.00003	40	27	14
Indoor Fixtures	0.8	0.014	89	---	20
Outdoor Fixtures (13 Watt)	0.8	0.000	110	---	20
Outdoor Fixtures (27 Watt)	0.8	0.000	218	---	20

Program Goals

The Program goals, as stated in the Program planning documents, are as shown in Table III.2.

**Table III.2
Program Goals**

	Total # of Units	Net Total kW	Net Total kWh	Net Total Therms
Appliances				
Dishwasher	6,200	42.2	257,920	79,360
Clothes Washer	2,100	0.1	67,200	45,360
Total Appliances	8,300	42.3	325,120	124,720
Lighting				
Single Family	330	11.1	185,592	
Multi-Family	1,200	26.9	276,480	
Total Lighting	1,530	38.0	462,072	
Total Program	9,830	80.3	787,192	124,720

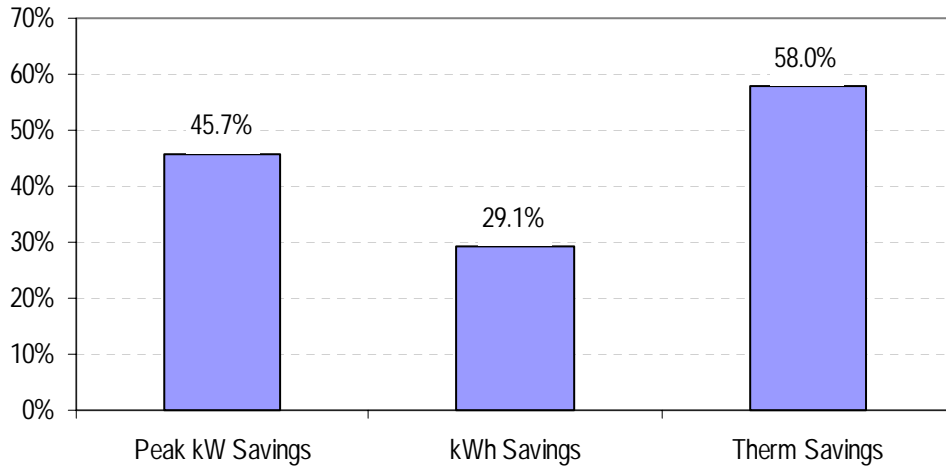
Program impacts using the per-unit impacts above are shown in Table III.3.

**Table III.3:
Net Energy and Demand Savings Impacts**

	Total Units Installed	KW Savings	kWh Savings	Therm Savings
Dishwashers	5,396	36.7	224,474	69,069
Clothes Washers	151	0.004	4,832	3,262
Total		36.7	229,306	72,330

Figure III.1 shows the percent of overall program goals achieved at the gross and net savings levels. The percent of savings achieved (peak kW, kWhs and therms) varies because of the mix of measures installed and proportion of the total program goal they represent.

**Figure III.1:
Percent of Program Goals Achieved**



Net-to-Gross Ratio

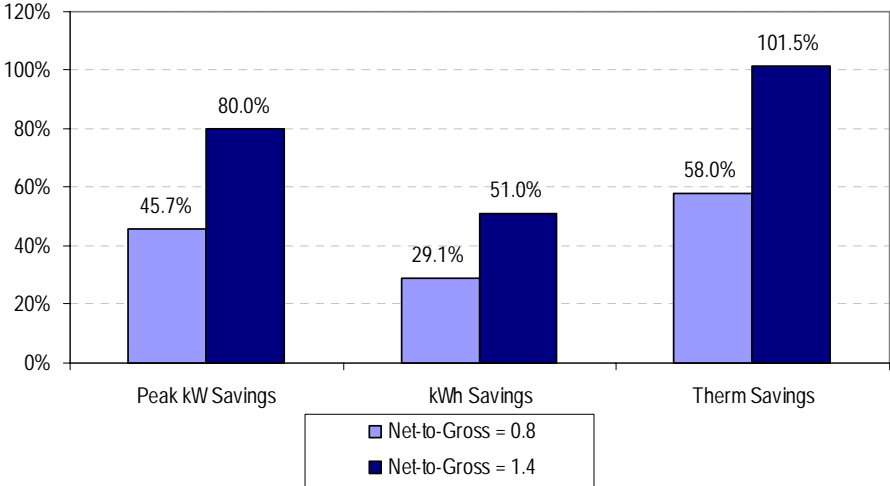
As discussed in the midstream report, there is potential to recognize spillover impacts of the program. Two potential sources of spillover were identified. One is where builders have installed qualifying equipment outside of the program service area. Four builders indicated that that this was the case and one builder reported doing so in developments outside San Diego County. Over 700 units built by this developer included ENERGY STAR-qualified

appliances in part because the HEAL program influenced their purchasing habits.

The second and more significant source of spillover is the continued specification of ENERGY STAR-labeled dishwashers after the conclusion of the program. The appliance manufacturer representatives involved in the program reported the continued commitment of participating builders to ENERGY STAR technologies, despite the fact that incentives are no longer available. Appliance manufacturers cited several reasons for this, including: favorable customer response, declining incremental cost, and a perception that it is “the right thing to do.”

While several builders indicated, in both the general builder survey and the participating builder survey, that they installed energy-efficient equipment as matter of course prior to the program, several familiar with the San Diego building market would dispute that. Further, when we conducted mystery-shopping visits to design centers and model homes, we found little evidence that ENERGY STAR-labeled equipment was installed as a standard feature. Therefore, we would assess little free-ridership with the program and would further assess that spillover impacts could be equal to as much as 50% of the direct program impacts. Therefore, the actual program net-to-gross ratio would be in the range of 1.4-1.5. Figure III.2 compares the achievement of Program goals using the deemed net-to-gross ratio of 0.8 and applying a net-to-gross ratio of 1.4, recognizing the strong potential for program spillover.

**Figure III.2:
Percent of Program Goals Achieved**



While this potential is significant, we predict that it is somewhat short-lived. Two of the major appliance manufacturers have indicated that they will begin producing only ENERGY STAR-qualified dishwashers. As a result, very few non-ENERGY STAR qualified models will be available in late 2004 or early

2005. The impact of the program is likely to continue until that time, with builders continuing to install the ENERGY STAR-qualified dishwashers as a result of the HEAL program.

IV. Conclusions

The HEAL program established a considerable presence in the San Diego building market in the short time it was implemented. The program filled an important niche and tapped energy efficiency potential that otherwise would not have been captured. Observations for each of the types of equipment targeted by the HEAL program are discussed below.

Installation of Target Technologies

Dishwashers

The program made the most progress promoting ENERGY STAR-qualified dishwashers: 26 builders, including several large production builders, have participated. The strategies that D&R has employed and the focus on the builder as the primary decision maker have been effective. The HEAL program served to effectively transform the market, with increasing participation in every quarter. The program impact is expected to continue as builders specify ENERGY STAR-labeled dishwashers, filling a gap until most major appliance manufacturers phase out standard equipment and begin offering only equipment that meets the ENERGY STAR standard.

Lighting

Lighting selections are typically driven by fixture design and aesthetics. Builders have yet to be convinced that energy-efficient lighting can be stylish attractive and reliable. Therefore, there have been no installations of ENERGY STAR-qualified lighting fixtures through the program. Efforts to market the program more aggressively, in coordination with lighting manufacturers, did not yield the hoped for impacts. Even offers to provide qualifying equipment at a cost equal to the incentives offered (i.e., no net cost to builders) did not encourage participation.

The builders indicated considerably more resistance to lighting than the appliances included in the Program, citing the cumbersomeness of the lighting requirements (i.e., the number of fixtures required and the application). While there are several common elements between the clothes washers and dishwashers that were leveraged through the Program (e.g., same manufacturers, same decision makers with the builder organizations), the lighting component did not share these commonalities.

Clothes Washers

Very few builders install a clothes washer as “standard” equipment included in the home (only 15%). To achieve the Program goal would have required

installation of ENERGY STAR-labeled in *every* instance in which clothes washers were included by the builder in the home. This would be a stretch goal in any circumstance and especially for a new program. The goals for clothes washers should be adjusted to a more reasonable level. Program resources freed-up from such an adjustment could be shifted to achieving additional dishwasher installations or to increase the marketing efforts related to lighting.

Achievement of Program Goals

Overall, the HEAL program goals were very aggressive across the board. D&R employed a strategy of adaptive management that allowed them to nearly meet the goal associated with dishwashers and maximize the overall impact of the Program.

The impacts extend beyond the participation tracked through the Program, with builders changing their long-term purchasing practices in San Diego County and beyond.

Continued Need for the Program

As stated in earlier assessments, the HEAL program has served an important niche of the market where the potential for efficiency could easily be overlooked. The Program established aggressive goals and objectives, and while it substantially met the goals with regard to dishwashers, they were not met for clothes washers and lighting. It is our opinion that this was not a failing of the Program, but rather a function of strong market barriers. We offer the following recommendations and observations related to a second-year implementation of the HEAL program:

- The goal related to clothes washers needed to be adjusted to better reflect the market characteristics – clothes washers are installed by the builder in small percentage of homes – a revised goal would be designed to capture a percentage of the market as it exists
- The HEAL program made significant progress towards transforming the market for ENERGY STAR-qualified dishwashers in residential new construction – an exit strategy ought to have been developed that essentially supported builders during a transition period until such time that builders consistently chose ENERGY STAR-qualified equipment and availability of non-qualified equipment was diminished (predicted to be early 2005)
- Though the program did not achieve installation of ENERGY STAR-qualified lighting in the first year of implementation, the market momentum achieved related to dishwashers could be leveraged and directed to lighting – many of the lessons learned by the D&R

program staff could be successfully redirected, along with the channeling of staff focus and effort, to achieve greater success in the lighting area

- Addressing builder concerns about the complexity of lighting requirements, both in terms of the number of fixtures to be installed in each new home and the associated application requirements, is necessary – development of separate program materials and applications for lighting may be warranted
- Synergistic marketing opportunities – such as those identified where the builder applies for an incentive for an ENERGY STAR-qualified dishwasher and then promotes the clothes washer incentive to the homebuyer should be explored
- While the most expeditious route to meeting the HEAL program goals is to encourage participation by large volume builders, efforts to build awareness amongst small and medium-sized builders and consumers are necessary to tap the full market potential and sustain the market momentum essential to program success

Overall, continuation of the Program is important to:

- Complete the process of market transformation related to ENERGY STAR-qualified dishwasher installation in newly constructed homes
- Ensure that the ground gained related to promotion of ENERGY STAR-qualified clothes washers by builders to new homebuyers is not lost
- Penetrate the market related to ENERGY STAR-qualified lighting using the lessons learned and market momentum gained from Program implementation to date

Appendix A. Participating Builder Survey

Name _____	Title _____
Organization/Company _____	
Contact Info: _____	Date/Time of Survey _____

Hello, my name is _____. I'm calling on behalf of San Diego Gas & Electric. We are following up with customers who participated in D&R International's High Efficiency Appliance and Lighting Program. Our records show that you received rebates for:

_____ (number of installations) ENERGY STAR dishwashers and

_____ (number of installations) ENERGY STAR clothes washers

at the following location(s):

1. Are you the person who worked with D&R International to coordinate your participation?

Yes proceed

Names of other who contributed to the decision that should also be contacted:

 No..... "when will that person be available or how can I contact him?"

2. We are conducting a survey of participants to learn about their experience with the HEAL program. This information will help SDG&E and D&R International evaluate the effectiveness of their marketing strategies, support materials, and incentive levels. The survey only takes about 10 minutes, and all the information you share will, of course, remain confidential. Is this a good time to talk?

Yes

No..... schedule call back

Program Awareness

3. How did you first hear about the Program?
- Received information in the mail
 - Contacted by D&R representative
 - From a local utility
 - Visited the program website (www.BuildingaBrighterFuture.com)
 - From another program participant
 - Other (specify: _____)
4. Why were you initially interested in participating in the HEAL program? **[DO NOT READ, CHECK ALL THAT APPLY]**
- Rebate allowed us to offer an energy efficient option
 - Rebate allowed us to provide appliance upgrades
 - Rebate lowered the cost of energy-efficient measure already planned to be installed.
 - Wanted to use energy efficiency as market tool
 - Builder commitment to efficiency
 - Other (specify: _____)
5. Was anyone else involved in the decision to participate?
- Yes (specify: _____)
 - No
6. Have you participated in energy efficiency rebate or incentive programs before?
- Yes
 - No Skip to Q8
7. What program have you participated in? (i.e., utility, program name, technologies included, magnitude of incentive/rebate).
- _____
- _____
8. What would best describe you as a builder:
- We seek the highest efficiency technologies and try to include them in our homes whenever possible
 - We include energy efficient technologies wherever it makes economic sense
 - We include energy efficient technologies only if the buyer indicates they want it
9. Do you install clothes washers in some of your units?
- Yes (Percentage of Units _____)
 - No

Assessment of Program Materials

10. How clearly did you feel the requirements for the Program were explained?
- Very clear
 - Somewhat clear
 - Not very clear
 - Did not deal with program enrollment process [DO NOT READ]
 - Don't remember
11. If somewhat clear or not very clear, in your opinion, could anything have been done to clarify the Program's enrollment requirements?
- Yes (specify: _____)
 - No
12. How straightforward did you feel the application process was?
- Very straightforward
 - Somewhat straightforward
 - Not Very straightforward
 - Did not deal with the application process
13. From your perspective, would any modifications the Program's application process be helpful?
- Yes (specify: _____)
 - No
14. Did you visit the Program's web site when considering enrolling? (Probe: at www.BuildingaBrighterFuture.com)?
- Yes (specify: _____)
 - No..... Skip to Q17
15. What information did you look for on the web site? [DO NOT READ]
- Rebate levels
 - Eligible equipment
 - Program terms and conditions
 - Program application forms
 - Other (specify: _____)
16. How effective did you feel the web site was?
- Very effective
 - Somewhat effective
 - Not very effective
 - Not involved in that aspect of the Program
 - Don't know/remember

17. Would any additional Program materials been helpful?
 Yes (specify: _____)
 No

Program Rebate

18. Overall, how satisfied were you with the rebate process?
 Very satisfied
 Somewhat satisfied
 Not very satisfied
 Did not deal with the rebate process
19. Did the rebate arrive in a reasonable length of time?
 Yes
 No (comment: _____)
 Don't Know/Remember
20. If the rebate had been larger, would it have impacted your participation? **[DO NOT READ]**
 Yes, I would have installed more of the same energy efficiency measure
 Yes, I would have installed some of the other rebated measures offered by the Program
 No, I already installed the rebated measure in all units..... Skip to Q24
 No..... Skip to Q24
21. How much larger would the rebate have to have been to cause this change?
 (Please align changes with the answers provided above and by measure if possible)

22. On the other hand, if the rebate had been smaller, would it have impacted your participation? **[DO NOT READ]**
 Yes, I would not have installed any of the energy efficiency measures
 Yes, I would not have installed as many of the energy efficiency measures
 No..... Skip to Q24
23. How much smaller would the rebate have to have been to cause this change? (Please align changes with the answers provided above and by measure if possible)

Site Visits

24. Were the site visits scheduled for a time that was convenient for you?
 Yes
 No (comment: _____)
25. Did you have any issues with regard to the site visit/installation verification process?
 Yes (comment: _____)
 No

Program Impact

26. Has your participation in the HEAL program increased your awareness of, or familiarity with, the rebated energy efficiency measures?
 Yes (comment: _____)
 No..... Skip to Q28
27. Will your increased awareness lead to the decision to install more energy-efficient appliances independent of the Program?
 Yes (comment: _____)
 No (why not?: _____)
28. Do you believe that the inclusion of energy efficiency measures positively impacted your ability to sell/rent the unit in which it was installed?
 Yes
 No..... Skip to Q31
29. How much of an impact did the installation have?
 A significant impact
 Somewhat of an impact
 Not very much of an impact
 Not sure/don't know
30. Are you likely to include energy efficiency measures in future construction as a result of the increased ability to sell/rent the unit?
 Yes (comment: _____)
 No (why not?: _____)
31. Did your participation in the HEAL program lead to the installation energy efficient appliances at other site not directly participating in the Program? (e.g., at building sites outside of the program eligibility area of San Diego County)
 Yes (specify where, how many, etc. _____)
 No

32. Overall, has your participation in the HEAL program impacted your company's purchasing practices with regard to energy-efficient appliances within San Diego County?
 Yes (comment: _____)
 No
33. Will you continue to include ENERGY STAR appliances in your new homes even though the HEAL program has concluded?
 Yes (specify where, how many, etc. _____)
 No

Opportunities for Enhancement

34. While many participating builders were able to take advantage of the rebates on clothes and dishwasher, few took advantage of the rebates for ENERGY STAR lighting. Did you consider installing ENERGY STAR lighting fixtures?
 Yes
 No
35. What are the barriers to installing ENERGY STAR lighting fixtures in your new homes?
[DO NOT READ, CHECK ALL THAT APPLY]
 Availability of ENERGY STAR lighting fixtures
 Cost of ENERGY STAR lighting fixtures
 Quality of light from fixtures
 Style of fixtures
 Other (specify: _____)
36. What could be done to overcome these barriers?

37. Would any additional Program features have been helpful or would you like to see offered as part of, or in conjunction with, the HEAL program? (Probe: Increased coordination with local utilities, etc.)
 Yes (specify: _____)
 No
38. How will discontinuation of the program impact your selection of dishwashers, clothes washers or lighting?

Thank you – I appreciate your time. Have a nice day.