Market Progress Evaluation Report

THE SUPER GOOD CENTS® MANUFACTURED HOUSING VENTURE, NO. 3

prepared by

Pacific Energy Associates, Inc.

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MARKET PROGRESS EVALUATION REPORT #3

Final Report

Funded By:

NORTHWEST ENERGY EFFICIENCY ALLIANCE
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The views and opinions of the authors expressed herein do not necessarily reflect those of the Northwest Energy Efficiency Alliance, its board, its members, or its staff.

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Executive Summary

The Northwest Energy Efficiency Alliance (the Alliance) is a non-profit group of electric utilities, state governments, public interest groups and industry representatives committed to bringing affordable, energy-efficient products and services to the marketplace. In June 1997, the Alliance initiated the *Super GOOD CENTS® Manufactured Housing Venture* (SGC Venture), a market transformation program based on continuing the technical approach developed by the Bonneville Power Administration (BPA) and other utilities in the region.[1] The SGC Venture was designed to supplement the similar efforts of the Oregon Office of Energy to help create a self-sustaining, market-supported SGC certification and quality assurance program in the rest of the region.

In May 1998, the Alliance contracted with Pacific Energy Associates, Inc. (PEA) to research and develop a baseline market assessment of the manufactured home industry in the Northwest, and to produce a series of *Market Progress Evaluation Reports* (MPERs) reviewing and reporting on the SGC Venture. PEA has issued two previous MPERs, each covering a discreet implementation period. The SGC Venture has now concluded; funding for the Venture ended in June of 2001. This final MPER documents the history of the initiative and the regional market, summarizes key accomplishments, and presents PEA's key findings and lessons learned from the overall review of the SGC Venture effort.

The SGC Venture received $2.7 million dollars in Alliance funding over the four-year course of the project. Marketing costs dominate the SGC Venture budget, as one would expect from a program of this design.

A key progress indicator for the SGC Venture is the production and sales of SGC-certified manufactured housing in the Northwest. *Figure ES-1* presents a graph of the last twenty years of production of manufactured homes and SGC-certified units in the region.

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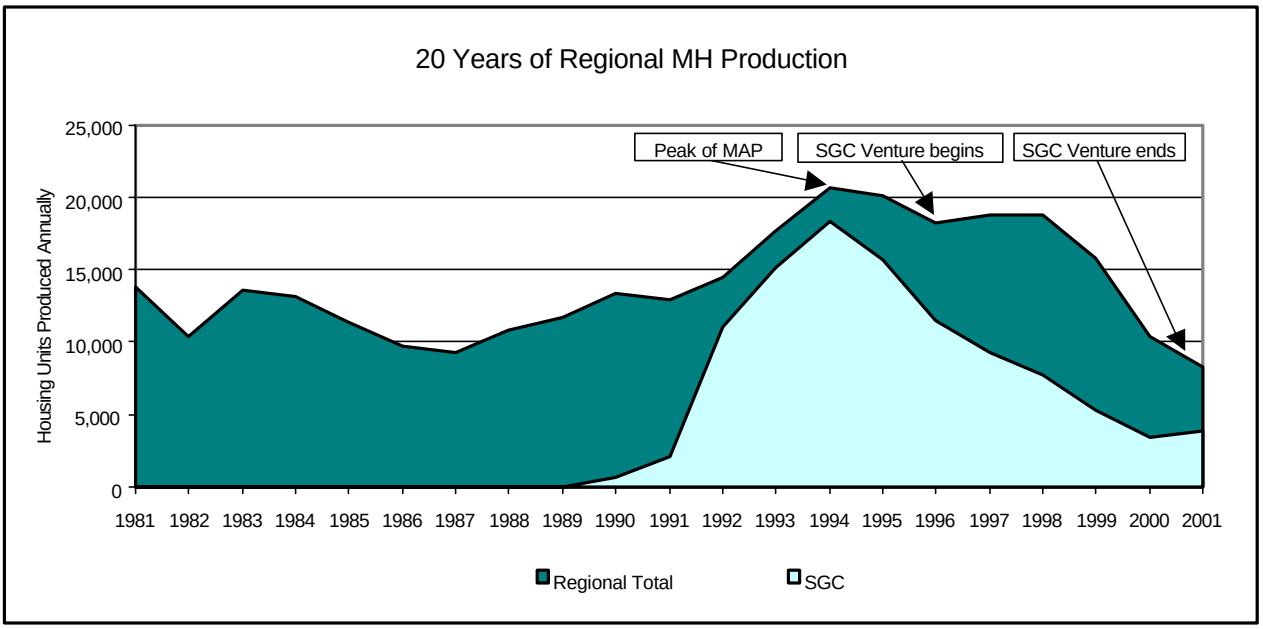
[1] The term Super GOOD CENTS® in this report specifically includes Natural Choice® Manufactured Homes, the natural gas-fueled analog of electric SGC homes. Together, these homes are sometimes referred to as NEEM Homes (Northwest Energy Efficient Manufactured Homes).

Figure ES - 1



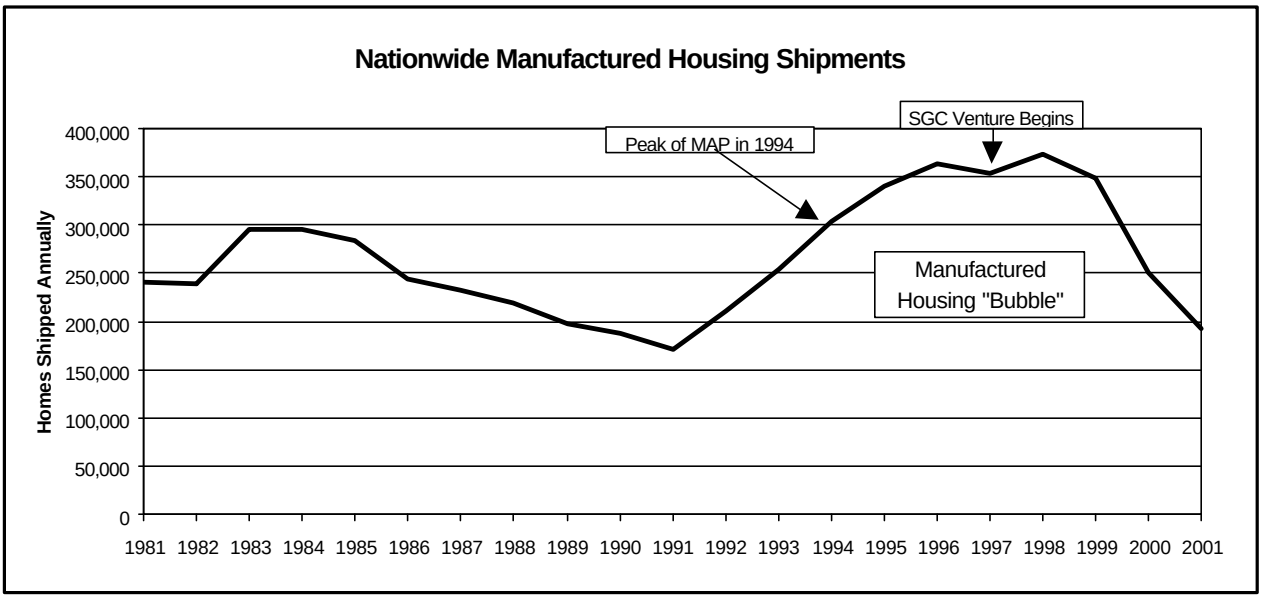
Source: NCSBCS Regional Production obtained from MHI website (not adjusted for out-shipment); SGC Production obtained from State Energy Office plant data spreadsheet. 2001 SGC production based on State Energy Office estimate.

These data clearly show a remarkable rise and subsequent fall of both total units produced and SGC-certified units in the 1990s.

In earlier reports assessing the market and Venture progress, PEA (along with many of the program and market actors interviewed) had attributed the increased regional production "bubble" to BPA's SGC Program and the subsequent *Manufactured Housing (Resource) Acquisition Program*, also known as MAP. This is significant because many of the Venture supporters assumed that the value of the SGC program to the industry lay in its potential to help turn the manufactured housing market around.

Based on a recent review of regional and national production and shipment data, PEA no longer believes that SGC and MAP should be considered the drivers behind the "bubble" and the profoundly changed manufactured housing industry in the Northwest. Although PEA does not discount the impact of these programs, *Figure ES-2* indicates that the markedly increased production and sales in the 1990s were a nationwide trend, most likely driven by the economy and overly aggressive lending and other business practices within the manufactured housing industry.

Figure ES - 2

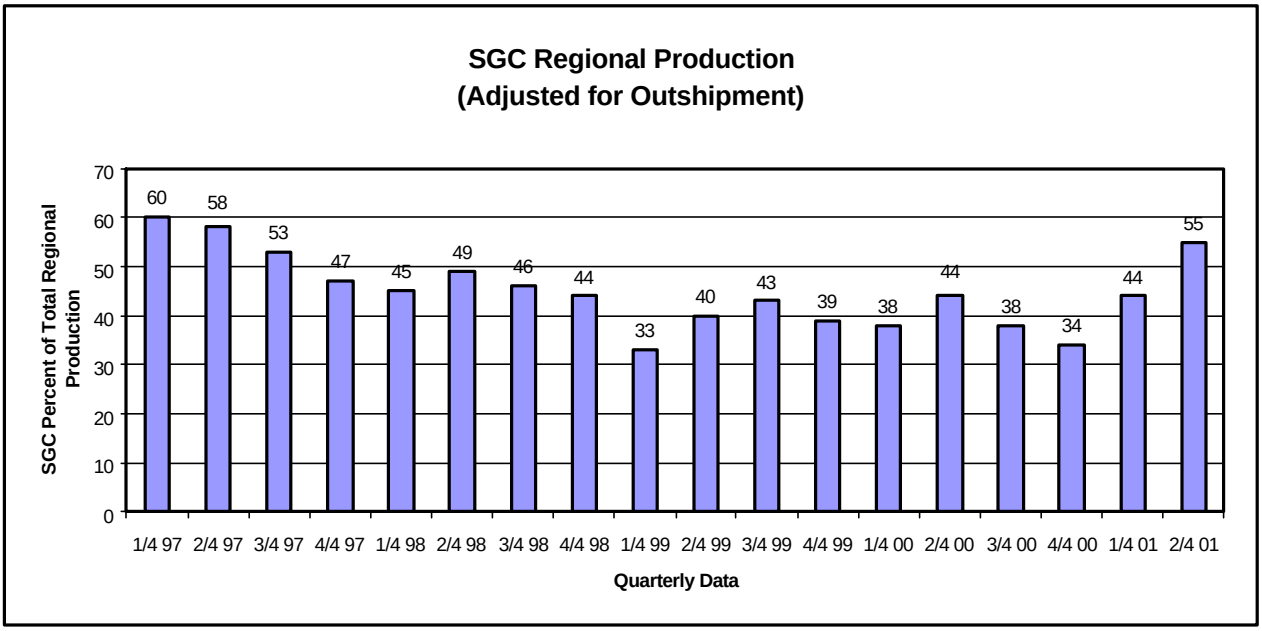


Source: NCSBCS MH Shipments obtained from MHI website.

PEA believes the downturn of the regional and national manufactured housing market indicated in *Figure ES-1* and *Figure ES-2* is simply a result of the repercussions of the questionable lending and business practices that created the "bubble," overlaid on the recent and economic conditions. Unfortunately, this industry and market downturn coincided with the Alliance's SGC Venture period and provided a most difficult operating environment for the Venture.

Figure ES-3 (below) presents the market share of SGC-certified manufactured homes in the Northwest region just before and during SGC Venture implementation. Market share eroded from about 50% at the beginning of the Venture to a low of 33%. It fluctuated for two more years near the bottom of the market share curve before fully recovering during the regional energy crisis in the first half of 2001.

Figure ES - 3



Source: Single-family Housing Starts Authorized by Building Permits obtained from report C-40, Table 2U, U.S. Census Bureau; NCSBCS Statewide MH Shipments obtained from MHI website. 2001 NCSBCS Shipment data obtained from Don Davey of BPA.

In June 2001, the Alliance decided to end the SGC Venture. While the story of a market "bubble," industry turmoil, and reduced SGC market share is daunting, PEA believes that the SGC Venture managed to accomplish the most important of its original objectives. Through the efforts of the SGC Venture representatives and supporters, the real and potential value of SGC was demonstrated to the region's manufacturers. The informed manufacturers, in turn, agreed to SGC product certification fees sufficient to enable the establishment of a fee-based quality assurance program, without a marketing component, that is proving to be self-sufficient in the current market environment.

Although the Alliance decided to end the SGC Venture abruptly, its exit from the market adapted to the opportunities presented by BPA through the *Conservation and Renewables Discount* (C&RD). For a limited post-SGC Venture period, the Alliance agreed to fund a marketing contractor to conduct outreach to the eligible utilities in the region and coordinate the

marketing and technical aspects of participating in the BPA C&RD program. This Alliance-funded program contractor is currently having a great deal of success facilitating the coordination of the residual SGC quality assurance program elements with modest industry-delivered marketing and utility incentive program offers based on C&RD. The result appears to be numerous, effective local resource acquisition program elements targeting the energy efficiency available through SGC manufactured housing. Recent market data indicate that the impact of support from these local resource acquisition programs, in aggregate, may help reverse the trend of the last several years of an annual decline in SGC production/market share. However, the data are not yet available that would confirm the impact of the resource acquisition strategy for 2001.

Overall, PEA believes the SGC Venture succeeded in several ways. The Venture was able to maintain the SGC brand and third-party certification infrastructure throughout the region during a difficult market slump. Furthermore, the SGC brand and the quality assurance process was successfully transitioned to the industry, who is demonstrating that it values the brand by agreeing to pay fees necessary to support the program, and continuing to build and label SGC homes. This full and complete industry support for SGC by 100% of the manufacturers is clearly the best indicator of the Venture success.

1. Introduction and Background

The Northwest Energy Efficiency Alliance (the Alliance) is a non-profit group of electric utilities, state governments, public interest groups and industry representatives committed to bringing affordable, energy-efficient products and services to the marketplace. This report, the last in a series of *Market Progress Evaluation Reports* (MPER), reviews the status of the Alliance's regional *Super GOOD CENTS Manufactured Housing Venture* (SGC Venture) and its influence on the market.

The main body of this report is divided into five sections. In this first chapter, Pacific Energy Associates, Inc. (PEA) presents a brief history of the program efforts leading to the SGC Venture and some highlights from the original baseline market characterization efforts. *Chapter* 2 presents program planning and implementation progress and issues identified over the course of the Venture through summaries of key findings and recommendations from previous MPERs and other PEA products developed for the Alliance. In *Chapter 3*, the performance of the program and market is presented, typically with information showing the entire period of program intervention. Finally, PEA presents key findings and lessons learned from the operation and evaluation of the SGC Venture in *Chapter 4.*

The main body is followed by the report reference list and program cost-effectiveness summaries developed by the Alliance for the SGC Venture.

Summary History of Super GOOD CENTS® for Manufactured Housing in the Northwest

The Northwest's experience with the manufactured housing industry to increase energy efficiency is well documented. *(See, for example, Ecklund et al., 1996, or Lee et al., 1994, in the reference list.)* Below is an extremely brief summary and timeline to indicate the major changes.

Initial technical demonstrations of the feasibility of dramatically improving the energy efficiency of manufactured housing took place in the mid-1980s through the *Residential Conservation Demonstration Program* funded by BPA. This evolved into the first utility rebate programs through a SGC effort that paid customer incentives of $2,000 to $3,000 per home in 1988. This version of SGC reached, at best, 20% of the manufactured home market.

1. Introduction and Background

In an effort to dramatically improve the market penetration of SGC manufactured homes, a program that worked directly with manufacturers was developed. In April of 1992, all of the region's manufacturers agreed to build to SGC standards in return for a payment of $2,500 per home. This innovative program concept came to be known as the *Manufactured Housing (Resource) Acquisition Program*, or MAP. As MAP was being implemented, efforts were also undertaken to improve the federal standards that cover the energy efficiency of manufactured homes and, in 1994, the HUD energy efficiency standards were raised. Payments to MAP manufacturers subsequently dropped to $1,500 per home. At its peak, the MAP effort certified nearly all of the homes manufactured for the Northwest market.

The MAP effort ended earlier than planned (July/August 1995) because two of its utility sponsors were no longer interested in paying the program costs. Their withdrawal from the program forced its closure within a few months. A plan to transition the program away from full utility funding had not been developed and the State Energy Office scrambled to find ways of continuing the SGC effort.

Following the end of the MAP effort, the Oregon Department of Energy acquired the rights to the SGC trademark and sub-licensed the rights to the Idaho Department of Water Resources and the Washington State Energy Office. In each state (at that time), the manufacturers paid $30 (per SGC home produced) to the state, which was used to support quality control, technical assistance, and limited marketing. Only in Oregon, which has the strongest manufacturing base, was the program self-sufficient based on fees received.

Venture Funding

While Oregon had developed an inexpensive, self-sustaining SGC program based on manufacturer fees following MAP, the other states in the region were not able to duplicate that accomplishment. The primary reason for the disparity is that most of the manufactured homes in the region are built in Oregon, which gave Oregon a stronger base for funding a program.

The Idaho Department of Water Resources (IDWR), in conjunction with the Washington State University Energy Extension Service and the Montana Department of Environmental Quality, received funding from the Alliance in June of 1997 to help create a self-sustaining, market-supported SGC

certification and quality assurance program in the rest of the region. The general goal of the Venture was to increase energy efficiency in the construction and installation of manufactured homes in the Pacific Northwest. Specifically, the initial objectives of the SGC Venture included:

1. **Increased production/market share of SGC Homes.** The Venture objective was a 25% increase above benchmark penetration (estimated at 50%).

2. **Continue to provide SGC quality control/assurance.** The Venture objective was to continue to provide SGC quality assurance that SGC manufactured homes continue to be designed and constructed to the SGC specifications.

3. **Transition to a market-supported program.** The Venture objective was to transition to a fully market-supported SGC certification and quality assurance program by the end of the third Venture year (June 30, 2000).

Market Research and Evaluation

In May 1998, the Alliance contracted with Pacific Energy Associates, Inc. (PEA) to research and develop a baseline market assessment and characterization of the manufactured home industry in the Northwest, and to produce a series of *Market Progress Evaluation Reports* (MPERs) covering the SGC Venture.

The *Baseline Market Assessment and Market Characterization Study* (E98-013, August 1998) presented an initial look at the market for energy efficient manufactured housing in the Northwest, including key market characteristics and trends. In its investigation, PEA reviewed production and sales data, and interviewed a variety of key market and program actors, including all of the manufacturers located in the area. Key findings from this market research included the following:

- **Corporate buyouts and industry consolidation have changed the manufacturing base and market structure for manufactured housing in the Northwest.** Several national manufactured home

corporations have purchased existing Northwest manufacturers. While the resulting manufacturing facility may remain in the Northwest, the business plans and models manufactured represent outside thinking. In particular, there has been an influx of manufacturers moving into or expanding within the Northwest market promoting lower-cost manufactured housing, and who are less familiar with and less interested in SGC. Furthermore, there have been an increasing number of retailers, and specifically retailers owned by the manufacturers to create vertically integrated businesses in this industry.

- **Price competition increased in the Northwest manufactured housing market.** Although manufactured housing has traditionally been a price-sensitive industry, there have been several reasons for current increased emphases on price. With the reduction in sales after the end of MAP, manufacturers felt the need to reduce prices to spur sales of their products versus other manufacturers. There was an increase in the number of retailers, which also increased the attention paid to price as customers shopped for price more readily. Firms from outside the region entered the market. These firms tended to specialize in low-to-middle-cost housing, which increased competition in this more price-sensitive aspect of the market.

- **Sales of SGC houses eroded.** Combined production of SGC and gas-heated *Natural Choice* (NC) homes dropped from 69% in 1996, to 49% in 1997. The market-share based on sales of SGC/ NC houses slipped slightly each quarter of 1997, going from 63% in the first quarter to 57% in the fourth quarter. Preliminary 1998 first quarter sales numbers showed a substantial drop to 43% of the market.

- **There were additional indications in the market that regaining/ retaining market-share for SGC would be difficult.** These included the increasing emphasis on price-competitive alternatives to SGC, the sale/consolidation of manufacturers who had previously supported SGC, and high turnover in the retail sales force, leaving few sales persons with knowledge of and/or loyalty to SGC.

From this 1998 assessment and characterization of the manufactured housing market, PEA concluded that some changes to the Venture's goals and strategies be considered. Specifically, PEA suggested that the Venture's market share goal would likely prove unrealistic because the SGC market

share had eroded faster and deeper than the Venture planners had anticipated and the barriers to increasing the market penetration of SGC were substantial, given the current market conditions.

PEA recommended that the Venture complete a business plan that considered two models: a minimal scenario that would simply maintain a significant presence of SGC in the marketplace, and an enhanced scenario that would attempt to significantly increase market share (as originally planned). PEA also recommended that the SGC Venture work with EPA to redefine the ENERGY STAR® specification for manufactured housing in the Northwest and consider development of a co-marketing campaign.

Following the *Baseline Market Assessment and Market Characterization Study*, PEA researched and developed two *Market Progress Evaluation Reports* to document the Venture's progress with respect to program planning, development and implementation. In addition to the two MPERs, PEA also reviewed specific issues for the Alliance, including an assessment of the business planning process and products, and authored several independent memos/updates for the Alliance staff. Key findings from these efforts are summarized in the next chapter to document program implementation and the issues faced by the SGC Venture.

2. Venture Planning and Implementation

As described in *Chapter 1*, the financial viability of efforts to continue a SGC certification program across the region was mixed following the end of MAP. The Oregon Office of Energy (OOE – formerly known as the Oregon Department of Energy) acquired the rights to the SGC trademark and sub-licensed rights to the Idaho Department of Water Resources and the Washington State Energy Office. While Oregon developed an inexpensive, but self-sustaining, SGC program based on fees from a strong manufacturing base, the other states in the region had not been able to duplicate that accomplishment. In June of 1997, the Idaho Department of Water Resources, in conjunction with the Washington State University Energy Extension Service and the Montana Department of Environmental Quality, received funding from the Alliance to help create a self-sustaining market for SGC in the rest of the region. With this funding, the program contractors embarked on the implementation of a fee-based quality assurance and marketing program in parallel and cooperation with the OOE.

This chapter presents highlights of the program planning and implementation aspects of the SGC Venture during the program period, using summaries of key findings and recommendations from previous Market Progress Evaluation Reports (MPERs) and other PEA products developed for the Alliance. (For a complete chronology of the SGC Venture, see the chart at the end of this chapter.)

Program Planning and Implementation as Documented Through Previous MPERs

Key Findings and Recommendations From MPER #1

The first *Super GOOD CENTS Manufactured Housing Venture Market Progress Evaluation Report* (MPER #1, Pacific Energy Associates, Inc.; E99-022, January 1999) provided an early look at Venture planning and implementation, and examined several of the key market progress indicators. To develop MPER #1, PEA reviewed and analyzed market research from several sources. Production numbers and information about program activities were provided by the Venture program staff and through the Venture's *Annual Report*. Siting information was gathered from quarterly reports developed by Northwest Research Group (NRG). PEA also conducted primary market investigation activities including in-person and telephone interviews with the region's manufacturers, a telephone

survey of manufactured home retailers, and telephone interviews with the executive directors of the Idaho, Washington, and Oregon Manufactured Housing Associations. Program representatives from the state energy offices and the Alliance were also interviewed.

Findings from the first MPER included the following:

- **Shifts in market structure and corporate influence created a difficult operating environment for the Venture.** The manufactured housing industry was in a significant state of flux. New manufacturers entered the region and acquired existing companies, and more manufacturers engaged in retail distribution through purchasing independent retailers and opening new factory retail outlets. Personnel movement in the industry was high, creating challenges for the training aspects of the program.

- **Price competition continued to be a dominant trend in the industry.** Approximately 80% of the retailers surveyed projected market growth in the low- and low-to-middle-price manufactured housing.

- **The erosion of the market for SGC manufactured housing may have slowed.** Unfortunately, despite some indications that the Venture was making progress in marketing the SGC program to manufacturers and retailers, production and sales data provided mixed signals. The percentage of SGC production increased slightly during the second quarter of 1998, but then decreased for the third quarter. The absolute number of SGC homes manufactured during the second quarter of 1998 increased, but the percentage of SGC homes sold decreased during the same timeframe due to overall production increases.

- **The Alliance and the U.S. Environmental Protection Agency reviewed technical issues and opportunities pertaining to aligning the SGC program with the *ENERGY STAR*â *HOMES* program.** As of early November 1998, the technical analysis being conducted by EPA's contractor was not complete and the implications for the technical standards for the two programs had not been fully resolved. EPA said that the resolution of this issue was a priority for them and that their preference was that it would resolve in favor of being able to co-brand manufactured homes in the Northwest, if that strategy was pursued by the Venture.

Based on these and other findings in MPER #1, PEA concluded that fundamental changes in the Venture's structure and/or its program offerings would likely be needed to allow for a market-based, self-supporting program. Although increasing SGC production and sales were the focus of the program, PEA's analysis suggested that increasing market share alone would not result in a self-supporting venture: either program revenues per certified home would have to increase and/or program costs be cut substantially.

In response to several of the key findings (and more importantly, the above conclusion), PEA recommended that the SGC Venture make developing a business plan a high priority, suggesting that the *Venture Business Plan* was the conceptual base to support a transition to the envisioned market-based, self-supporting program for the industry. This recommendation was, in essence, repeated from the *Baseline Study* to indicate PEA's concern with the lack of progress with business/venture planning.

PEA also recommended that the Alliance staff continue to work to resolve the technical issues pertaining to a possible alignment of SGC and ENERGY STAR®.

Key Findings and Recommendations From MPER #2

PEA completed a second Market Progress Evaluation Report in December 1999, almost one full year after MPER #1 was completed. In addition to reviewing market share data and other program performance indicators, PEA specifically examined the progress made to develop a viable business plan for the SGC Venture.

Findings from MPER #2 included the following:

- **The manufactured housing market continued to struggle with structural and operational changes.** Vertical integration and consolidations changed the basic structure of the industry. Aggressive corporate production strategies resulted in an overbuilt market and inflated retail inventories. Aggressive sales and financing strategies led to high repossession levels, increasing the "used home" competition to new sales while consumer financial qualification standards and interest rates were raised.

- **The market share/percent of SGC certified manufactured homes continued to decline.** In the second quarter of 1999 (April through June), SGC production was at 40% of electrically heated manufactured homes. By comparison, SGC production in the second quarter of 1998 was 49%, and in the second quarter of 1997, the percentage of SGC was 58%.

- **The Venture's business planning progressed and the establishment of a new, fully regional enterprise was considered.** Some excellent progress was made in improving regional cooperation, realistically reviewing financial and organizational needs, and developing information that indicated the value of Super GOOD CENTS® to the manufactured housing industry. The critical task ahead was to gather industry support for the business planning process, and create a plan that had sufficient industry support to move forward.

- **Technical issues and opportunities pertaining to aligning the SGC program with the *ENERGY STAR® HOMES* program were largely resolved.** While the *ENERGY STAR®* criteria still required either efficient natural gas or heat pumps (in some areas) for qualification, EPA indicated it would recognize the *Super GOOD CENTS®/ Natural Choice™* (SGC/NC) program as the method for certifying ENERGY STAR® manufactured homes in the Northwest. The result of this accommodation was that all ENERGY STAR® manufactured homes in the region would also be SGC/NC.[2]

PEA's strongest recommendation in MPER #2 was to make developing a viable business plan the highest priority for the Venture. PEA also pointedly suggested that the ability of the SGC Venture to enlist manufacturer support, and the willingness of manufacturers to pay increased fees for SGC certification, were critical to creating a sustainable, regional enterprise.

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[2] The agreement provides that all ENERGY STAR® homes built in the Northwest must first be certified *Super GOOD CENTS®* or *Natural Choice™* homes. All SGC and NC homes west of the Cascades, and all NC homes east of the Cascades, must meet ENERGY STAR® requirements. However, SGC homes east of the Cascades must have a heat pump to qualify.

Business Planning and Venture Status Updates Since MPER #2

Due to a general lack of progress in developing and implementing a viable business plan for the SGC Venture, and because of industry turmoil and staff reassignments, the Alliance staff and PEA agreed to delay conducting subsequent MPERs, electing instead to review the progress and status of the Venture on a less formal basis and rely on internal memos and updates.

Findings from Interim Review of Business Planning and Market Progress

In March 2000, PEA reviewed the business planning and market progress of the SGC Venture and developed an interim report for the Alliance. PEA found that the Venture had indeed been making significant progress in developing a business plan and attempting to better engage the manufactured home industry in support of the SGC program. Unfortunately, PEA also found that the manufactured housing industry was continuing to experience significant stress, and that industry issues were adding to the challenge of developing a viable business plan and enlisting support.

Industry Reaction to the Business Plan

As reported in MPER #2, the Venture held a series of internal meetings during 1999 to define a business plan to develop a market–supported SGC certification and quality assurance program. In the fall of 1999, the Venture began discussions with the industry (primarily the manufacturers) to gauge their support for restructuring and continuing the SGC program. A key document produced by Tom Eckman of the Northwest Power Planning Council (*The Factors Affecting the Sales and Market Share of Manufactured Housing in the Northwest*) served as a basis for discussion regarding the importance of SGC to industry revenues and market share.

To review the industry reaction and amount of support for the recent *Venture Business Plan* and planning process, PEA looked at two sources of information. The first source was interviews with the state industry associations. The second was the support shown by the manufacturers as demonstrated by letters-of-intent received by the Venture.

The state-specific Manufactured Housing Association staffs indicated that the SGC Venture business planning process had been well received by the industry. All agreed that efforts to modify the existing program were needed, and that the process conducted was effective in engaging the industry. Perhaps this effectiveness was due to the realization that industry strategies focused primarily on lowest-price and vertical integration were not working. Based on these discussions with the Associations' staffs, PEA suggested that the effectiveness of the process was partly due to good planning and analysis on behalf of the Venture, and partly due to some negative conditions within the larger industry. In any event, manufacturers seemed willing to listen.

The Associations also indicated that continued support for marketing from the Alliance would be perceived as a valuable contribution and as a good faith endeavor on behalf of the utilities to continue the SGC brand and program. They also acknowledged that additional, industry-supported marketing resources would be needed.

As a practical indication of industry support, most of the region's manufacturers formally responded with letters of support to the Venture for the redesigned program. These manufacturers represented a vast majority of the SGC and total manufactured home production in the Northwest, leading PEA to conclude that the level of support expressed was more than sufficient to financially sustain the SGC brand in the marketplace through an integrated marketing and quality assurance program.

Overall, PEA also concluded that the Venture had done an excellent job of repositioning the SGC Program for future success, and that the new business plan developed by the Venture successfully resolved most of the issues regarding the development of a regional approach that had sufficient industry involvement.

In anticipation of some potential problems, PEA recommended moving to a business model where power was redistributed at a true board level (e.g., establishment of a new non-profit corporation with a Board composition defined in the bylaws). PEA also suggested that the roles of the state-based implementers be reviewed *vis-à-vis* service provision by other market actors and/or contractors.

The Last Time PEA Checked In

In September of 2000, PEA researched and developed an internal "issues memo/update" for the Alliance staff to report on the progress and status of recent changes to the SGC Venture. The Venture transition included: a) the establishment of a SGC advisory board representing the manufactured home industry; b) increases to per-home SGC fees to better support the real costs of providing quality assurance to maintain the integrity of the SGC brand, and to support marketing of the brand; and c) the development of a contract between the Alliance and the Oregon Office of Energy to provide marketing support.

PEA's review of the situation indicated that the transition was not off to a smooth start. While an advisory board had been established, misunderstandings and miscommunications eroded the trust between some critical market actors and program representatives. The anticipated marketing strategy had not been developed, slowing the overall progress to reshape the role of the industry in supporting a renewed marketing effort. In addition, the overall production for manufactured housing dropped substantially (36%) compared to the previous year.

These issues were related. The erosion of trust between industry representatives and program personnel largely concerned a lack of clarity about how the marketing money from the Alliance was to be used, and the lack of progress in securing a contractor to prepare the overall marketing strategy. The amount of money available for marketing dropped to essentially zero, as paying for the quality assurance services was estimated to require all of the funding available from the fees collected from the reduced number of certified homes.

PEA expressed a concern that it was not clear who should be responsible for moving the marketing strategy along. PEA suggested that the Oregon Office of Energy, the industry, and the Alliance all could be considered potential candidates to lead the SGC Venture marketing efforts going forward. From this, PEA concluded that the confusion about control was likely the starting point for the miscommunications and misunderstandings that followed. While there had been good intentions all around, the project stalled and working relationships were damaged because of this issue.

It was during this period that a new fee structure was launched. Designed to fully fund the QA services for SGC certification and provide monies for region-wide marketing, the new fee structure required manufacturers to pay

$100 per home. While this was a good deal for the low-volume SGC producers, it placed a disproportionate financial burden on the Venture's most loyal, all-SGC, manufacturers. This caused Fuqua, the strongest supporter of SGC, to stop participating in the program. Without the fees from Fuqua, and with the market in a slump, there was not enough fee income to support the program. Valley, the second strongest supporter of SGC, first threatened, then later quit the program even though the fee schedule was modified again to place a cap on fees.

Since The Last Time PEA Checked In

In an effort to facilitate the continuing transition of the SGC Venture marketing strategy and funding structure to an industry-supported model, the Alliance staff contracted directly for marketing strategy development (and other marketing services). Unfortunately, the operating environment for the SGC Venture continued to deteriorate during the last months of implementing the new SGC marketing campaign.

Alliance staff ultimately concluded that transitioning to an industry-supported marketing model was no longer possible, due to increasingly dire industry economics and the "breakdown" of working relationships and communications between SGC Venture representatives and key market actors. Based on this conclusion, Alliance staff recommended (to the Alliance Board) against continued operation of the SGC Venture within the framework of the existing integrated quality assurance and marketing strategy.

Alternatively, staff recommended that the Alliance exit the SGC Venture in a way that still preserved the basic quality assurance infrastructure of the SGC program, and offered limited marketing support to interested manufacturers and retailers. The post-Venture strategy developed by the Alliance staff included allocating the remaining Alliance budget to do sales training and other marketing support for dealers, and to promote the use of Bonneville Power Administration's *Conservation & Renewables Discount* (C&RD) program to utilities.

Overall, PEA believes the SGC Venture succeeded in several ways. The Venture was able to maintain the SGC brand and third-party certification infrastructure throughout the region during a difficult market slump. Furthermore, the SGC brand and the quality assurance process was successfully transitioned to the industry, who is demonstrating that it values

the brand by agreeing to pay fees necessary to support the program, and continuing to build and label SGC homes. This full and complete industry support for SGC by 100% of the manufacturers is clearly the best indicator of the Venture's success.

CHRONOLOGY OF THE *SUPER GOOD CENTS*â PROGRAM

Year 1988	Super GOOD CENTS® for MH begins
April 1992	MAP begins
Year 1994	HUD standard raised
August 1995	MAP ends
Year 1996	OOE acquires rights to SGC trademark
Year 1996	State Energy Offices begin collecting $30/home for SGC QA
June 1997	SGC Venture begins
July 1998	Comfort You Can Count on Campaign begins
August 1998	Baseline Report published
January 1999	MPER-1 published
October 1999	NPPC Presentation – fee increase requested
December 1999	MPER-2 published
March 2000	Most manufacturers agree to $100/home fee
March 2000	Business Plan – MPER published
June 2000	Original IDWR contract ends – per the exit strategy
June 2000	Industry advisory board convenes
July 2000	New fee structure
July 2000	Fuqua stopped participating in the program
August 2000	NEEA contracts marketing development and implementation to OOE
October 2000	Coates & Kokes hired to develop market plan
December 2000	SGC regional production bottoms at 137 units in December
January 2001	Program revenue crisis
January 2001	Energy “crisis” in news
February 2001	C&RD launched early
March 2001	Coates & Kokes asked to implement marketing plan
March 2001	New fee structure
March 2001	Valley stopped participating in the program
April 2001	TV ad flight launched
April 2001	NW Pride unable to fund second ad flight, third ad in jeopardy
April 2001	OOE begins dealer training
May 2001	NEEA decides to transition to utility outreach after goals missed
June 2001	Venture ends
July 2001	Local resource acquisition begins (C&RD)

Epilog

Since the end of the Venture in June 2001, there have been some new developments for SGC manufactured housing in the region. This Epilog briefly details these developments as of March 2002.

Utility outreach efforts continue to be successful as the list of participating organizations continues to expand. Fifty organizations in six states now provide consumer or sales person incentives for SGC manufactured housing. Efforts to sign up the region's IOU's continue to prove difficult.

Since concessions were made to Valley and Fuqua to lower the cap on their SGC certification fees, both have returned to the program. The region once again has 100% of manufacturers on-board the certification program. Fuqua returned beginning July 2001, after leaving in July 2000. Valley quit in March 2001, and returned in July 2001.

The market share of SGC (adjusted for outshipment) has risen from 55% at the end of the Venture, to 63% in the third quarter of 2001, and 65% in the fourth quarter of 2001. These results include SGC units produced by Valley and Fuqua (the 55% market share at the end of the Venture did not include Fuqua's SGC units since the homes were not certified, but it did include Fuqua's total production). These gains in market share are being made despite the fact that the overall market remains in a slump. Total production continues in a range of 1800 to 2300 homes built per quarter (7,000 to 10,000 units per year), down from 4,000 to 5,000 homes per quarter (15,000 to 20,000 units per year) in the mid-1990's.

PEA suggests the Alliance work to acquire summaries of the rebate records from the utilities participating in the local resource acquisition program. These records could be compared with NRG sales data (at the retailer level), or state energy office plant production data to provide insight regarding the program revival.

2. Venture Planning and Implementation

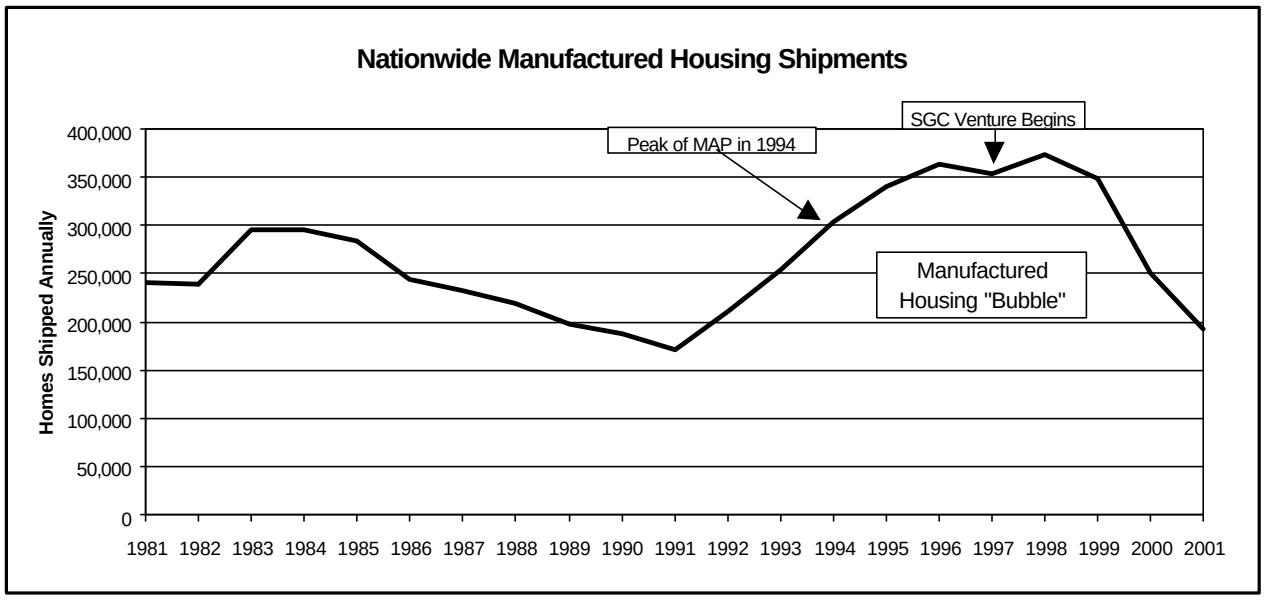
3. Program and Market Performance

In this section of the report, some key indicators of the success of the SGC Venture and the condition of the manufactured housing market during the Venture are presented. Industry data are typically shown over a twenty-year period, while SGC program data typically cover the Venture period (mid-1997 to mid-2001).

The Manufactured Housing Bubble

For this final Market Progress Evaluation Report (MPER), PEA expanded the review and analysis of manufactured housing data, and examined regional and national market statistics in parallel. PEA used the results of this examination to update and supplement the market data charts included in the *Baseline Market Assessment Report* and early MPERs. During the review and comparison of regional and national market data on manufactured housing production/shipments, it became evident that a significant increase (i.e., a market "bubble") of new manufactured homes occurred nationwide during the mid-1990s (*see Figure 1*).

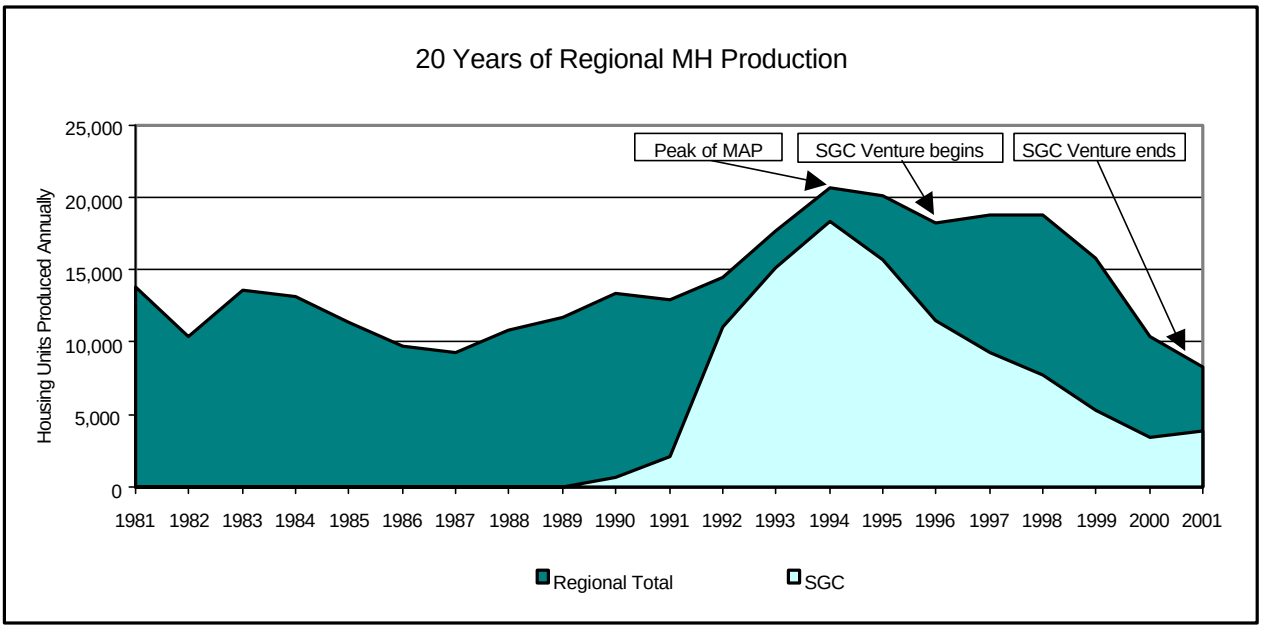
Figure 1



Source: NCSBCS MH Shipments obtained from MHI website.

A similar "bubble" occurred with unit production in the Pacific Northwest during the same period (*see Figure 2*).

Figure 2



Source: NCSBCS Regional Production obtained from MHI website (not adjusted for out-shipment); SGC Production obtained from State Energy Office plant data spreadsheet. 2001 SGC production based on State Energy Office estimate.

In earlier MPERs, PEA (along with many of the program and market actors interviewed) had attributed the regional production "bubble" to the SGC/MAP program to some significant degree. Although PEA would not discount the impacts of these programs, it turns out that markedly increased production and sales in the 1990s were a nationwide trend, driven by aggressive lending, easy money, and unsound accounting and financing practices. A recent article appearing in the *New York Times* detailed the causes and fallout from this national trend.[3]

[3] Berenson, Alex, "A Boom Built on Sand Goes Bust," *New York Times*, November 25, 2001. The *New York Times* reported that major national manufactured housing lenders, Green Tree Financial and Conseco, used overly aggressive lending practices and unsound accounting and financing techniques to create a boom in the manufactured housing market in the late 1990's. The "bubble" burst in 2000 and 2001 when repossessions and loan write-offs skyrocketed, leaving Conseco with huge debt and insufficient income from operations to cover interest payments. Loan write-offs exceeded $554 million in 1999, $516 million in 2000, and $315 million in

Continued. . .

The two graphs above clearly show that, in the span of ten years, both the national market and the regional market nearly doubled in size, and then halved. Both markets began rapid growth in the early 1990's, rose at about the same slope, peaked in the late 1990's, and fell at the same slope from 1999 through 2001. While the timing of these changes in the national and regional markets are not exactly identical, the market conditions that lead to these changes are the same, namely, industry use of overly aggressive lending practices, and unsound accounting and financing techniques.

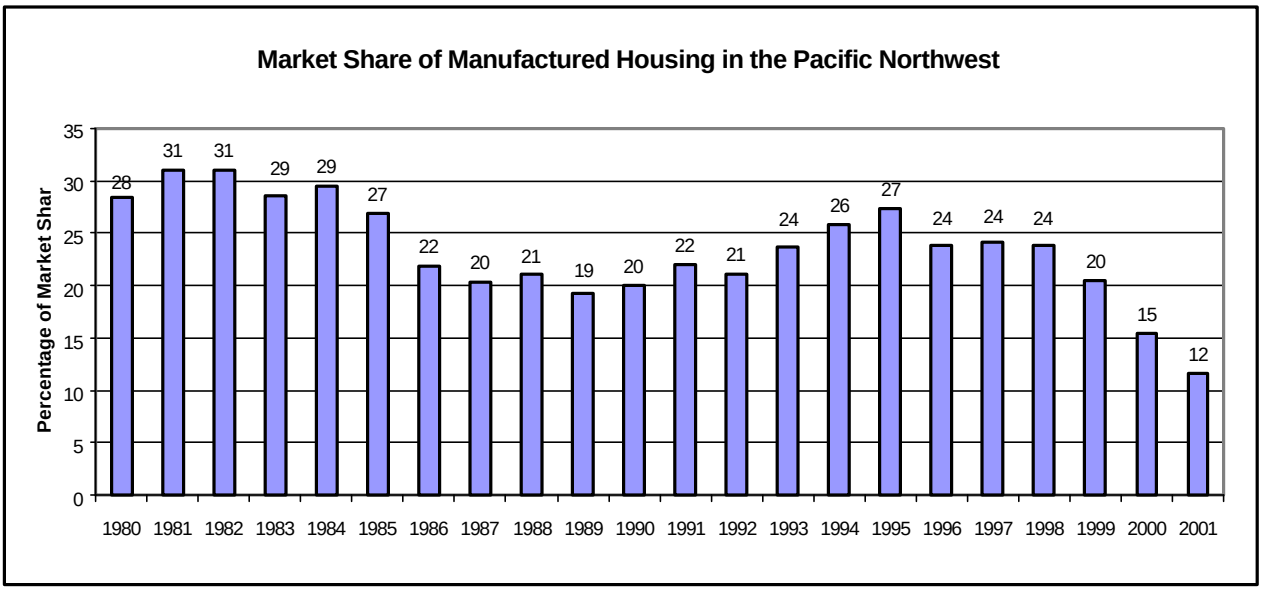
The SGC Venture generally began at the peak of the national and regional "bubbles," just prior to a serious downturn in both markets. From this information, it is easy to conclude that the SGC Venture operated during the industry's most difficult period in the past twenty years, creating challenges for the program.

As another indicator of program progress, PEA also looked at the single-family housing market in the Pacific Northwest to compare the market for manufactured housing with site-built housing. Some market actors in the manufactured housing industry view site-built housing as a competitor. PEA found only a modest increase in site-built housing during the Venture period (and the "bubble" period for the manufactured housing industry).

In terms of the market share of manufactured housing *vis-à-vis* site-built housing in the Pacific Northwest, the "bubble" phenomenon is evident again. The manufactured housing market share peaked in the mid-1990s at around 24-27%, only to fall to the lowest levels of the past twenty years in 2000 and 2001 (*see Figure 3*).

2001. Bond rating agencies lowered Conseco's debt rating to CCC, indicating that default was "a real possibility."

Figure 3



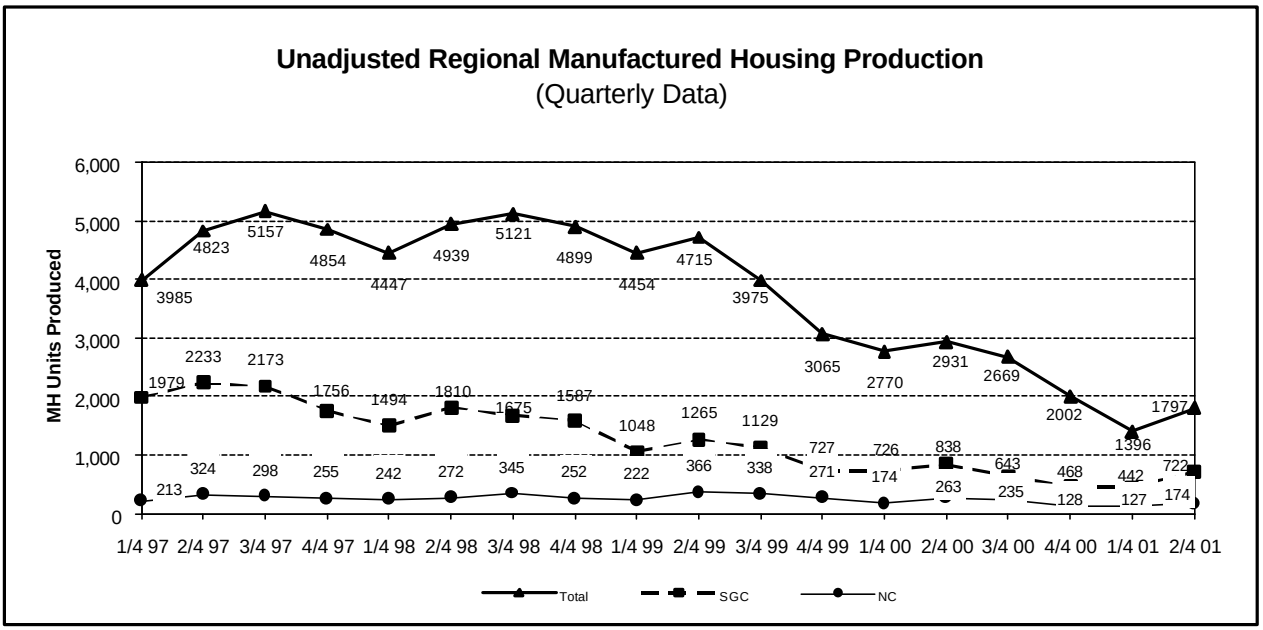
Source: Single-family Housing Starts Authorized by Building Permits obtained from report C-40, Table 2U, U.S. Census Bureau; NCSBCS Statewide MH Shipments obtained from MHI website. 2001 NCSBCS Shipment data obtained from Don Davey of BPA.

Production and Sales of SGC Manufactured Homes

Production

The industry suffered an enormous decline in overall production during the SGC Venture (*see Figure 4*). From peak-to-trough the decline in quarterly production was nearly 75%. The first quarter of 2001 marked the lowest quarterly production of SGC-certified units on record. However, a significant rebound in overall production and in SGC production occurred in the second quarter of 2001. When compared to the first quarter of 2001, total production increased 29% in the second quarter, and SGC production increased 57%.

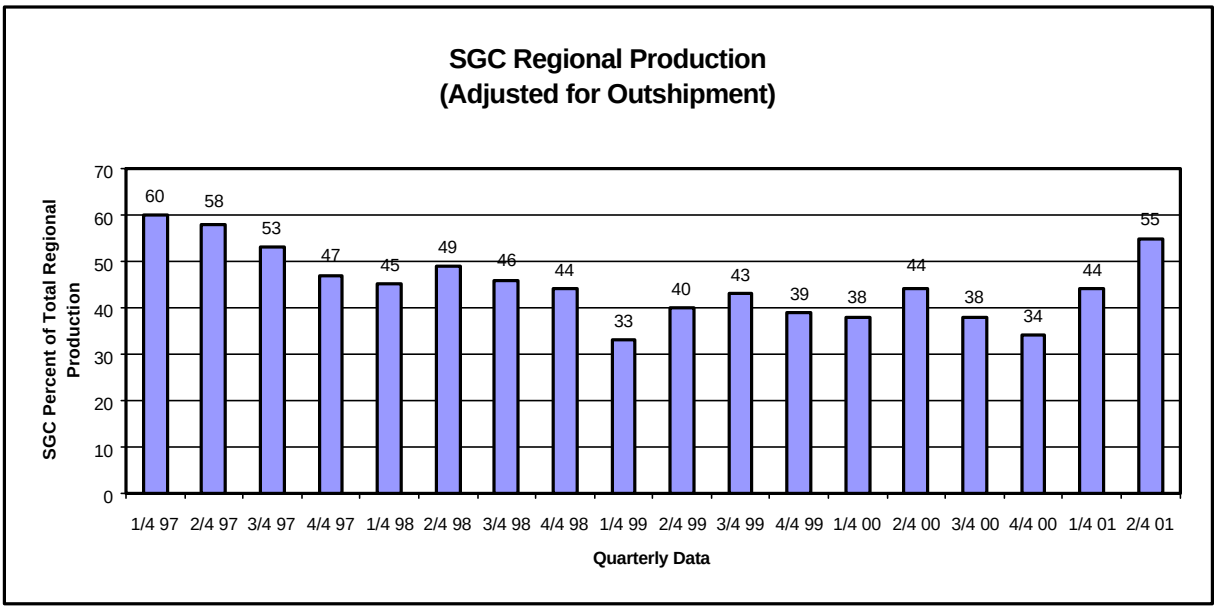
Figure 4



Source: SGC and Total Regional Production obtained from State Energy Office plant data spreadsheet.

Figure 5 shows that the regional percentage of SGC production fell in 2000 to 34%. Since bottoming out, the percentage of SGC production has risen remarkably in 2001, coinciding with the regional energy crisis. In the first two quarters of 2001, all three states reported a substantial turn-around in SGC production, with Oregon Office of Energy indicating SGC production increases continuing through the rest of 2001. The most recent production data indicate the SGC market share reaching 44% to 55%, the highest levels since the beginning of the Venture.

Figure 5



Source: SGC Production obtained from State Energy Office plant data spreadsheet. Data reflects total quarterly production from all manufacturers, including those who temporarily left the program, and SGC production for only those units certified as SGC.

Sales

Sales data indicate program participation similar to the above production data. Both the absolute number of SGC sales and the regional percentage of SGC sales dropped during the Venture, then appeared to bottom out. Sales data beyond the fourth quarter of 2000 was not available to PEA.

Summary

The manufactured housing market experienced a nationwide production/ shipment "bubble" in the 1990's. The SGC Venture began at the peak of the bubble, and struggled to establish itself for four years as the market bubble "popped." Nearly all of the data PEA reviewed to track Venture progress trended downward from 1997 through 2000. Production and sales of SGC manufactured homes, which started with a 50% to 60% market share, were cut nearly in half. At the same time, overall plant production in the region went from a high of over 5,000 units per quarter to less than 1,500 units per

quarter. Manufactured housing also lost market share to site-built homes during the Venture period.

In an effort to position SGC in the market during these difficult conditions, the Venture implemented a series of marketing efforts. Increasing annual marketing expenditures were met with fewer units built and sold. Ultimately, the Alliance invested about $2.7 million dollars over the four-year course of the project, with marketing costs dominating the budget.

As reported in *Chapter 2,* the Alliance Board elected to end the Venture in June 2001, but implement a transitional exit strategy designed to preserve the market-based SGC program elements to support the local resource acquisition efforts of the regional utilities. Remarkably, the most recent production data indicate a turnaround in the SGC manufactured housing market in 2001 and early 2002. Although the overall manufactured housing market continues to struggle, the market share for SGC has returned to over 50%, the highest level since the Venture began.

Data Reports Used To Prepare MPERs

PEA recommends the Alliance stay abreast of some of the major market indicators associated with manufactured housing in the Pacific Northwest. The most revealing indicators are total regional plant production and SGC production. From these statistics, a reasonably accurate estimate of the regional market share of SGC can be determined. Data reports are available from the Oregon Office of Energy, which compiles the regional results about two months following the end of each quarter. The data should continue to be adjusted for out-shipment to provide consistent estimates of market share.

State and national level production and shipment data that may help with understanding broad industry trends is available from *the National Conference of States on Building Codes and Standards* (NCSBCS), or the *Manufactured Housing Institute* (MHI). The MHI compiles NCSBCS data into easy-to-use reports which are accessible from their website.

Regional sales data have provided some of the most useful, detailed information about the manufactured housing market used in the *Baseline Market Assessment* and earlier MPERs. These data may continue to provide the Alliance with useful market intelligence. However, because the more readily available production data appears to provide similar market

feedback and is likely to be sufficient for the purpose of tracking post-Venture results, PEA no longer believes this information adds sufficient value to justify the cost. Sales of manufactured homes are tracked by, and can be purchased from, *NRG* of Boise, Idaho.

4. Key Findings and Lessons Learned

In *Chapter* 2, PEA presented some of the program- and market-specific findings pertaining to SGC Venture planning and implementation from previous evaluations. In this chapter, PEA attempts to extract the key findings and lessons learned regarding the overall development, administration and evaluation of the Venture that may have value to the Alliance as it considers similar programs, and similar evaluation efforts.

Key Findings

PEA makes the following key findings:

- **The Northwest Energy Efficiency Alliance "inherited" the SGC Venture.** The Alliance SGC Venture was an evolved version of a "legacy" program from the Bonneville Power Administration. The former BPA SGC Program had achieved much success in the manufactured housing market and had built key relationships with the industry. Because of this success, and because of the market and energy resource potential associated with this market, continuing the SGC program in some form seemed prudent. However, PEA does not necessarily consider all aspects of the "inheritance" to be assets when it comes to operating a market transformation venture.

- **The utility-sponsored, resource acquisition nature of the BPA SGC Program did not provide the base for an easy extension/ conversion to the Alliance's venture model.** Despite the widespread belief that the BPA SGC program was a model "market transformation" program that could be "tweaked" and extended, PEA now believes that the former BPA SGC Program should be considered an extremely effective resource acquisition program that employed creative and efficient strategies for delivering program incentives. As applied to the SGC Venture, the Alliances' venture model requires the program to ultimately be self-sustaining on a financial basis. The SGC Venture struggled to define and implement a market-based, market-supported program. PEA suspects that this is partly due to program concepts and approaches being "inherited."

- **The SGC Venture failed to establish a sound market transformation theory and supporting business plan.** The original program planners and administrators did much quality thinking about

the technical aspects of the program and other market issues, but a concise, coherent market transformation theory for the SGC Venture does not exist. Perhaps as a result, business planning for the Venture was insufficient, slow to develop, and slow to respond to changing market conditions. Over the course of the SGC Venture, the program developers and administrators failed to develop a stable and effective marketing plan and financial model to support the vision of an integrated quality assurance and marketing program.[4]

- **In defense of the SGC Venture, it operated during the manufactured housing industry's most difficult period of the past twenty years**. The industry experienced a massive production and sales "bubble" in the 1990's, brought about through overly aggressive lending practices, over-building, over-expansion, and unsound accounting and financing techniques. The SGC Venture effectively began at the peak of the bubble, and struggled for five years as the market collapsed. Further contributing to the difficult operating environment for the program, the regional manufactured housing market underwent significant structural and economic changes during the SGC Venture period. During the venture period, PEA believes that the market situation was so significant that it overwhelmed the program's ability to position itself with the industry and make progress with respect to market share and absolute production.

- **In somewhat of an indictment of the planning and operations processes, the Alliance SGC Venture lacked clear, stable leadership on the program development and implementation side.** Multiple state energy offices and other organizations were

[4] One could argue, based on a review of the original and subsequent goals and strategies that the features of the market transformation theory were: a) increasing the SGC market share 25% would create sufficient market momentum and establish program volume that would allow modest certification fees (paid by the manufacturers) to fully fund the Venture; b) a consumer marketing campaign would drive customers to retailers; and, c) point-of-purchase materials and sales person training would facilitate sales of SGC homes. In retrospect, each of these implied theory elements could be considered flawed, and requiring the venture to articulate a cohesive market transformation theory and supporting financial model perhaps would have provided the needed illumination to see the flaws.

responsible for proposing, developing and implementing the SGC Venture. For a number of reasons, the Oregon Office of Energy, representing the largest manufacturing base in the region, was initially not part of the SGC Venture. Ultimately, the OOE's efforts and the SGC Venture became integrated, but unfortunately, the roles and relationships of these organizations evolved almost constantly during the Venture period, with leadership and influence coming from numerous sources including the IDWR, OOE, NWPPC, WSEO, and to some extent the Alliance in their attempt to manage a struggling venture.

- **The Alliance-funded SGC Venture ended in June 2001, with the market and its marketing in disarray, but the project's main goal had been achieved in 2000.** While the program clearly did not meet its market share goals, it did achieve a level of self-sufficiency. The biggest SGC Venture victory was "selling" a fee increase to the manufacturers to support the quality assurance program to maintain the integrity of the SGC brand. At this increased level of funding (approximately $100/certified home), *SGC Certification and Quality Assurance* is basically a fully self-sustaining, market-supported program, even at reduced (post "bubble") SGC production and sales levels.

- **Although the Alliance decided to end their involvement in the SGC Venture, the exit was smooth thanks to the opportunities presented by BPA through the *Conservation and Renewables Discount*.** For a limited post-SGC Venture period, the Alliance agreed to fund a marketing contractor to conduct outreach to the eligible utilities in the region and coordinate the marketing and technical aspects of participating in the BPA C&RD program. This Alliance-funded program contractor is currently having a great deal of success facilitating the coordination of the residual SGC quality assurance program elements with modest industry-delivered marketing and utility incentives based on C&RD. The result appears to be numerous, effective local resource acquisition program elements targeting the energy efficiency available through SGC manufactured housing. Recent market data indicate that the impact of support from local resource acquisition programs, in aggregate, may have some role in the trend beginning to turn around after the last several years of continuously declining SGC production/market share.

Lessons Learned

Based on these and other findings, PEA offers the following as "lessons learned." Some of these "lessons" may specifically apply to the manufactured housing market, while most apply to things we might learn about operating regional business ventures or programs in general.

- **The Alliance should carefully consider the organizational structure of regional Ventures, and perhaps establish guidelines or expectations.** Typically, a business venture would be administered by a single, centralized (incorporated) organization with a Board of Directors, an Executive Director, and staff assigned to deliver products and services in a manner to achieve stated objectives. One benefit of this kind of structure is clear lines of accountability. The organization structure of the SGC Venture could not be considered typical for a business/market venture, with diverse leadership and a fairly complex contracting structure.

- **Establishment of a sound market transformation theory, identification of all the key partners at the project outset and a detailed business plan that supports the endeavor are essential for any program or venture attempting to influence markets.** Without these supporting elements, determining an organization's progress and effectiveness is challenging, and the ability of the Alliance Board to review and assess their directions and investment is compromised.

- **The Alliance should conduct the necessary market research before launching a business venture**. For the SGC Venture, PEA was conducting the baseline research one year into the states' implementation of the project. Had this been done earlier, the business-planning phase of the project may also have come earlier, instead of comprising the major activity of year two.

- **Establishment and adherence to an evaluation plan and schedule is important.** As noted in *Chapter 2*, the scope and schedule of the evaluation efforts for this program changed considerably. Although these changes were agreed to by the Alliance staff and the evaluation contractor for what seemed like valid reasons, staying the course with the evaluations may have revealed and raised issues sooner, and forced the program implementers to address concerns earlier.

- **The Alliance should develop internal staffing plans and procedures to help minimize disruption of program and evaluation management during staff turnover.**[5] Understanding that staff issues are indeed management issues, the Alliance should strive for continuity of personnel and smooth transitions. During the course of the SGC Venture, and in particular during times of concern with the program, both the Alliance program manager and evaluation manager changed. PEA is not being critical of the former staff or the current staff, but rather suggesting that the personnel changes came during difficult periods for the Venture and probably did not help the Alliance's ability to manage the program, the contractors, and the ongoing program development and implementation issues.

- **Future Alliance strategies to influence the market should consider focusing more on the market leaders and enthusiastic partners.** While Valley and Fuqua were the strongest supporters of SGC, efforts to draft a fee structure that would include all of the region's manufacturers ended up placing a disproportionate financial burden on the two of them. They viewed this as unfair, and abandoned the program. In this case, casting the broad net to bring all of the region's manufacturers on board, hurt our strongest supporters and, in the end, may have been a mistake.

[5] 'Project Transition' procedures were developed and adopted by the Alliance in the summer of 2001 largely related to the experiences associated with this project.

4. Key Findings and Lessons Learned

Appendices

Appendices

Appendix A

References

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References

Baylon, David, B. Davis and L Palmiter, *Manufactured Home Acquisition Program: Analysis of Program Impacts,* Bonneville Power Administration, August 1995.

Davey, Donald J., *Industry, Utilities and Government Implementing a Successful DSM Program*, Bonneville Power Administration, undated (1996).

Davey, Donald J., *Super GOOD Cents® Program and Manufactured Housing*, Bonneville Power Administration, undated (1997).

Davis, Bob and David Baylon, *Energy Efficient Manufactured Homes: Technical Reference*, Bonneville Power Administration, February 1996.

Davis, Claude and Ken Eklund, *MAP: What I Think We Know, . . . And What I Think We Don't*, American Council for an Energy Efficient Economy Summer Study, 1996.

Eklund, Ken, T. Hewes, T. Lineham and M. Lubliner, *Manufactured Housing in the Pacific Northwest: Moving from the Region's Largest Utility-Sponsored Market Transformation Venture to an Industry Marketing Program*, American Council for an Energy Efficient Economy Summer Study, 1996.

Eklund, Ken, et al., *First Semi Annual Report (Second Draft): Super GOOD Cents® Manufactured Housing Venture*, Idaho Department of Water Resources Energy Division, April 1998.

Lee, A.D. and R.L. Conger, *Marketing Energy-Efficient Manufactured Homes in the Pacific Northwest: Results from Dealer and Consumer Focus Groups*, prepared for Dan Davey, Bonneville Power Administration, December 1995.

Lee, A.D., S.A.Onisko, L.J. Sandahl, and J. Butler, "Everyone Wins! - A Program to Upgrade Energy Efficiency in Manufactured Housing," *The Electricity Journal*, March 1994.

Northwest Research Group, *New Manufactured Home Sales: Manufacturer's Report - SGC Edition*, Editions for Idaho, Oregon and Washington dated December 31, 1997, and for Idaho, Montana, Oregon and Washington dated March 31, 1998.

Pappas, S.G. and P. L. Harrison, "At Last: An Affordability Index For Manufactured Housing," *Manufactured Housing Today*, May 1998.

Peach, H.Gill, P. Brandis, C. Bonnyman and A. Persson, *Market Transformation in Manufactured Housing: A Pacific Northwest Experience*, American Council for an Energy Efficient Economy Summer Study, 1996.

Sandahl, Linda, and Russell, Jim, *A Unique Approach to Promoting Energy- and Resource-Efficient Home Appliances: The E-Rated Appliance Program*, American Council for an Energy Efficient Economy Summer Study, 1996.

Appendix B

Post-Venture SGC Efforts by Participating C&RD Utilities

Appendix B

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Post-Venture SGC Efforts by Participating C&RD Utilities

Table B - 1: Idaho

UTILITY	INCENTIVE	UTILITY CONTACT
CLEARWATER POWER COMPANY *LEWISTON*	$500 to the buyer and site inspection by utility	Bob Pierce (208) 798-5203
CITY OF DECLO *DECLO*	$500 to the buyer, $100 to the sales consultant	Richard Reynolds (208) 670-1000
FALL RIVER ELECTRIC COOPERATIVE, INC. *ASHTON*	$1,000 to the buyer	Suzette Bollinger (208) 652-7431
FARMERS ELECTRIC COMPANY *RUPERT*	$500 to the buyer, $100 to the sales consultant	Richard Reynolds (208) 670-1000
CITY OF HEYBURN *HEYBURN*	$500 to the buyer, $100 to the sales consultant	Richard Reynolds (208) 670-1000
IDAHO FALLS POWER *IDAHO FALLS*	$500 to the buyer, $100 to the sales consultant	Van Ashton (208) 529-1443
KOOTENAI ELECTRIC COOPERATIVE **HAYDEN**	$1,000 to the buyer	Peter Anderson (208) 765-1200
NORTHERN LIGHTS, INC. *SAGLE*	$1,000 to the buyer and $100 to the sales consultant	Elissa Glassman (208) 23-5141
CITY OF RUPERT *RUPERT*	$500 to the buyer, $100 to the sales consultant	Richard Reynolds (208) 670-1000
CITY OF SODA SPRINGS *SODA SPRINGS*	$500 to the buyer, $100 to the sales consultant	Blake Poulsen (208) 547-2600
UNITED ELECTRIC COOPERATIVE *HEYBURN*	$500 to the buyer, $100 to the sales consultant	Richard Reynolds (208) 670-1000

Table B - 2: Montana

UTILITY	INCENTIVE	UTILITY CONTACT
LINCOLN ELECTRIC COOPERATIVE *EUREKA*	$1,000 to the buyer and $150 to the sales consultant	Tim Engleson (406) 889-3301
STATE OF MONTANA *HELENA*	Tax credit – 25% up to $500 for each SGC Manufactured Home	Paul Tschida Montana DEQ (406) 444-6864
MISSION VALLEY POWER *PABLO*	$1,000 to the buyer and $150 to the sales consultant	Lyle Neiss (406) 883-7910

Table B - 3: Nevada

UTILITY	INCENTIVE	UTILITY CONTACT
WELLS RURAL ELECTRIC *WELLS*	$1,000 to the buyer and $150 to the sales consultant (retroactive to February 1, 2001)	Tommi Reynolds (775) 752-3328

Table B - 4: Oregon

UTILITY	INCENTIVE	UTILITY CONTACT
CITY OF ASHLAND *ASHLAND*	$600 to the buyer and $100 to the sales consultant	Cathy Cartmill (541) 552-2063
BLACHLY-LANE COUNTY COOPERATIVE ELECTRIC ASSN *EUGENE*	$500 credit on the electric bill to the buyer. Other incentives available for energy efficient appliances	Joe McFadden (541) 688-8711
COLUMBIA RIVER PUD *ST. HELENS*	$600 to the buyer and $100 to the sales consultant	Brent Barclay (503) 366-3253
CONSUMERS POWER INC. *PHILOMATH*	$500 to the buyer. Other incentives available for energy efficient appliances	James Ramseyer (541) 929-8531

UTILITY	INCENTIVE	UTILITY CONTACT
DOUGLAS ELECTRIC COOPERATIVE *ROSEBURG*	$300 credit on the electric bill to the buyer and $100 to the sales consultant	Todd Munsey (541) 673-6166
EMERALD PUD *EUGENE*	$200 to the buyer	Joe Savage (541) 744-7448
HARNEY ELECTRIC COOPERATIVE *BURNS*	$1,830 to the buyer	Randy Whitaker (541) 573-2061
MCMINNVILLE WATER AND LIGHT *MCMINNVILLE*	$600 to the buyer	David Christie (503) 472-6158
MIDSTATE ELECTRIC COOPERATIVE *LAPINE*	$1,000 to the buyer and $100 to sales consultant	Teresa Lackey (541) 536-7232
MILTON-FREEWATER CITY LIGHT AND POWER *MILTON-FREEWATER*	$500 to buyer. Other incentives available for energy efficient appliances.	Pat Didion (541) 938-5531
PORTLAND GENERAL ELECTRIC *PORTLAND*	PGE offers a variety of sales consultant and homeowner incentives for their Earth Advantage™ home.	Randy Hansell (503) 603-1649
SPRINGFIELD UTILITY BOARD (SUB) **SPRINGFIELD**	$600 to the buyer and $100 to the sales consultant	Deanna Solomon (541) 746-0963
WASCO ELECTRIC COOPERATIVE *THE DALLES*	$1,500 to the buyer	Jeff Davis (541) 296-5051

Table B - 5: Washington

UTILITY	INCENTIVE	UTILITY CONTACT
BENTON PUD *KENNEWICK*	$500 to buyer and $150 to sales consultant	Nikki Johns (509) 582-2175
CITY OF CHENEY *CHENEY*	$1,100 to the buyer and $200 to the sales consultant	Charlie Weber (509) 235-7241

UTILITY	INCENTIVE	UTILITY CONTACT
CLALLAM COUNTY PUD ***PORT ANGELES***	$1,000 to buyer	Dave Johnson (360) 565-3253
CLARK PUBLIC UTILITIES ***VANCOUVER***	$750 to the buyer and $100 to sales consultant	Fred Tulp (360) 992-3345
COLUMBIA RURAL ELECTRIC ASSOCIATION ***DAYTON***	Up to $900 in energy credits toward construction of a new service that will supply electricity to a new SGC site built or manufactured home	Dave Reller (509) 382-2578
FERRY COUNTY PUD ***REPUBLIC***	$1,830 to the buyer with on-site verification of heat source and SGC	John Friederichs (509) 775-3325
FRANKLIN PUD ***PASCO***	$500 to the buyer	Todd Blackman (509) 546-5946
GRANT PUD ***MOSES LAKE***	$150 to sales consultant	Jim Frank (509) 766-2506
GRAYS HARBOR PUD ***ABERDEEN***	$500 to the buyer and $50 to the sales consultant	Doug Smith (360) 538-6508
INLAND POWER AND LIGHT ***SPOKANE***	$1,000 to the buyer	Dan Villalobos (509) 747-7151
LAKEVIEW POWER AND LIGHT ***LAKEWOOD***	$1,000 to the buyer and $175 to the sales consultant	Mindy McKillip (253) 585-6060
LEWIS COUNTY PUD ***CHEHALIS***	$900 to the buyer	Norm Goodbla (360) 740-2430
MASON COUNTY PUD #3 ***SHELTON***	$500 to the buyer and $75 to the sales consultant. Free on-site inspection offered by the utility.	Jay Himlie (360) 426-8255 x5280
OHOP MUTUAL LIGHT CO. ***EATONVILLE***	$100 to the buyer. Utility provides site inspection	Jim Fields (253) 847-4363
OKANOGAN COUNTY PUD ***OKANOGAN***	$600 to the consumer and $150 to the sales consultant	Debra Peters (509) 422-8427

UTILITY	INCENTIVE	UTILITY CONTACT
ORCAS POWER & LIGHT COOPERATIVE ***EASTSOUND***	$300 to the buyer and $100 to the sales consultant	Martha Warachowski (360) 376-3571
PACIFIC COUNTY PUD NO. 2 ***RAYMOND***	$500 to the buyer and $100 to the sales consultant	Jim Dolan (360) 942-2411
PEND OREILLE COUNTY PUD ***NEWPORT***	$800 to the buyer of a single-wide, $1,000 to the buyer of a multi-wide	Marty Robinson (509) 447-3137
CITY OF PORT ANGELES ***PORT ANGELES***	$1,000 to the buyer	Bob Kajfasz (360) 417-4718

Table B - 6: Wyoming

UTILITY	INCENTIVE	UTILITY CONTACT
LOWER VALLEY ENERGY ***AFTON***	$500 to the buyer	Chad Jensen (307) 885-3175

Appendix C

Cost-Effectiveness Summary for Super GOOD CENTS® Manufactured Housing Venture

Appendix C

Appendix C

This Appendix contains a brief discussion of the background and results of the Alliance's analysis of the energy and resource savings for the SGC Venture, and includes summary pages from the analyses.

SGC Venture Cost and Savings Analysis Update

The Alliance asked PEA to review and comment on the cost effectiveness assumptions in the original *SGC Program Summary and Cost Effectiveness* spreadsheets in 1999. These comments and recommendations were detailed in *MPER-2 (December 1999)*. The original analysis was later replaced with a new model (MPER3-Final) when the Alliance adopted a more standardized and formalized approach to compare programs. PEA found that this analysis incorporated most of our comments and recommendations made from *MPER-2*. This model, *Cost Effective Summary for Super Good Cents Manufactured Homes*, is included in this *Appendix*.

The new model builds largely from the basic planning assumptions from the standardized model, and reflects many of the adjustments recommended by PEA (e.g., incorporation of market-weighted costs and savings for triple-wide homes). However, PEA has some concerns with this model regarding how SGC units and other efficiency options (i.e., baseline and Sorta GOOD CENTS units) are (or, are not) attributed to the program after 2001. SGC units continue to be produced in 2002 (as promoted by the C&RD). The model included here takes into account PEA's suggestion that the Alliance review the issue of impact attribution for the program and consider taking some credit for the continuing production of SGC units. Without the Venture providing an interim program, these units may not have been built.

Cost Effectiveness Summary
for
Super Good Cents Manufactured Homes

Creation Date	February 26, 2000
ProCost Ver.	4.1
Run Date	February 26, 2002
Analyst	Ken Anderson

Project Number:	C97-012
Sector:	Residential
Stage:	MPER3 Final

Key Assumptions — Analysis Unit: Weighted Home

Duration: Venture Period: 7 years — Project Start: 1997

Ann Non-Electric Benefits: $0.00 — Ann. Net O&M Cost: $0.00 Per Unit

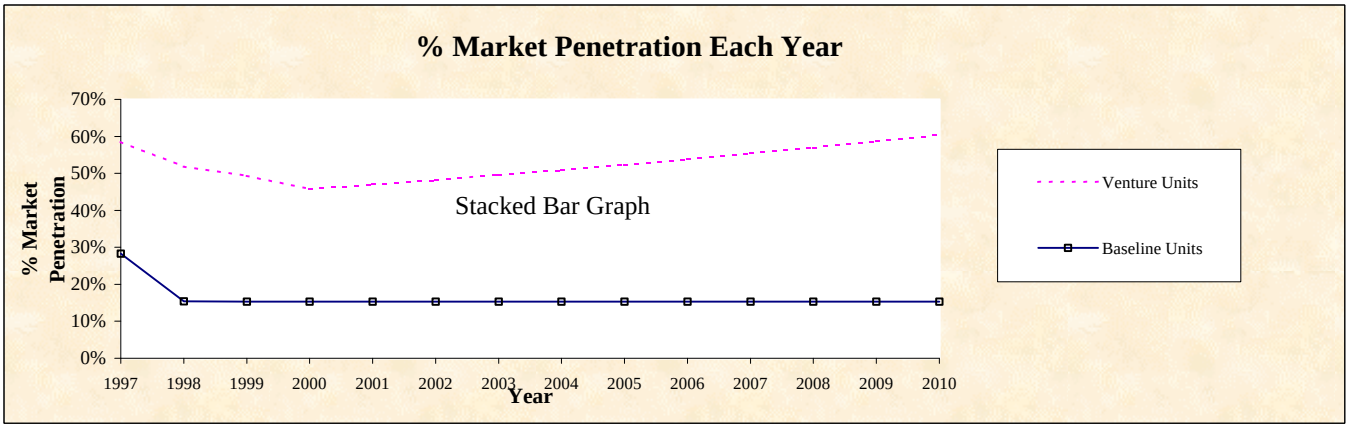
Venture Cost Summary	Period	Venture Costs	Consumer Costs	Other Costs	Total Costs
1997	Venture	$279,863	$4,045,415	$269,548	$4,594,826
1998	Venture	$473,404	$4,804,132	$329,548	$5,607,083
1999	Venture	$539,075	$3,723,354	$329,548	$4,591,976
2000	Venture	$374,658	$3,537,907	$340,214	$4,252,779
2001	Venture	$453,000	$3,764,245	$300,214	$4,517,459
2002	Venture	$453,000	$4,005,915	$400,214	$4,859,130
2003	Venture	$454,000	$4,263,978	$300,214	$5,018,193
2004	Post-venture	$0	$4,539,570	$301,534	$4,841,104
2005	Post-venture	$0	$4,833,903	$302,894	$5,136,797
2006	Post-venture	$0	$5,148,277	$304,294	$5,452,571
2007	Post-venture	$0	$5,484,082	$305,737	$5,789,818
2008	Post-venture	$0	$5,842,802	$307,222	$6,150,025
2009	Post-venture	$0	$6,226,030	$308,753	$6,534,783
2010	Post-venture	$0	$6,635,465	$310,329	$6,945,794
Totals		$3,027,000	$66,855,075	$4,410,263	$74,292,338

Assumptions:

The original analysis used manufactured housing starts from the 1996 NPPC Power Plans medium (2.4%) forecast. However, the number of homes built in 1997 and 1998 was as much as 15% lower than predicted. Starting with 14,000 units in 1999, the manufactured homes forecast was re-estimated to grow at 2.4% until it reached an annual production of 18,600 units in 2010. Of the total manufactured homes in 1990, 95+% were electric; but by 1997 the percentage dropped to 88.2%. The revised model assumes 85% electric SGC homes for 1999 and all succeeding years. SGC and NC homes were about 37% of the market in 1999. The original program expected to grow the SGC/NC market share to 55% by 2010. In 2010, that translates to 7,650 SGC homes 4,800 venture and 2,850 baseline. Also expected are 3,600 SortaGC homes which exceed the 1995 standard practice but are lower than SGC standards. An independent survey suggests SortaGC units are about 23% of the electric manufactured homes each year. Over the entire period 1997 to 2010, 230,000 manufactured homes will be built, 196,000 electric. Of these, the venture SGC and SortaGC cumulative total is 85,000 units (43,000 venture SGC and 42,000 SortaGC). Energy savings for venture SGC and SortaGC are based on their increment above 1995's Standard Practice, not the 1994 HUD standard. [1994 HUD Uo=0.079 uses 11,447 kWh/Yr; 1995's Standard Practice Uo=0.068, 9,435 kWh/Yr; SortaGC Uo=0.062. 8,329 kWh/Yr; and SGC Uo=0.051, 6,343 kWh/Yr.] Consumer costs are based on retail incremental prices, SortaGC = $439.25 and SGC = $1,128.20 per home. Energy savings for SortaGC is 1,106 kWh/Yr and SGC is 3,092 kWh/Yr, for a weighted average 2,112.1 kWh/year per home. 'Other Costs' (table above) include: Utility - $480,000 NW Natural (gas) and local electrics equal to total Alliance cost; Governmental - $903,263 for BPA, USDOE, etc.

Non-electric Benefits and Net O&M Cost Assumptions:

No non-electric or O&M benefits or costs are assumed.



2010 Market Size (Units): 18,651 **Tons of CO2 Saved by 2010: 82,034**

Estimated Cumulative Electrical Energy Savings from Venture Units

Year	Market Units	Baseline Units	Venture Contract Units	Venture Market Effects Units	Venture Cum. aMW Savings
1997	16,989	4,809	-	5,132	1.2
1998	16,707	2,572	-	6,094	2.7
1999	13,868	2,122	-	4,723	3.8
2000	14,713	2,251	-	4,488	4.9
2001	15,066	2,305	-	4,775	6.08
2002	15,428	2,360	-	5,081	7.30
2003	15,798	2,417	-	5,409	8.6
2004	16,177	2,475	-	5,758	10.0
2005	16,566	2,535	-	6,132	11.5
2006	16,963	2,595	-	6,531	13.0
2007	17,370	2,658	-	6,956	14.7
2008	17,787	2,721	-	7,412	16.5
2009	18,214	2,787	-	7,898	18.4
2010	18,651	2,854	-	8,417	20.4
Totals	230,298	37,462	-	84,805	

Total Resource Perspective	Unit First Cost	Annual Unit Savings (kWh)	Levelized Cost (Cents/kWh)	CE Index* (Benefit/Cost Ratio)
Venture + Post-Venture Period	$876.04	2,112.06	1.62	**1.4**
Venture Period Only	$936.70	2,112.06	1.77	1.3
Alliance Perspective	**Unit First Cost**	**Annual Unit Savings (kWh)**	**Levelized Cost (Cents/kWh)**	**CE Index* (Benefit/Cost Ratio)**
Venture + Post-Venture Period	$35.69	2,112.06	-0.38	34.2
Venture Period Only	$84.79	2,112.06	-0.27	14.4

*** If CE Index for Total Resource Perspective and Venture + Post-venture Period is greater than 1.0, then project is deemed cost effective.**

Consumer Perspective

Scenario	Electric Savings	First Cost	Ann. O&M cost & Non-electric Benef	Simple Payback in Years @ 5.0 cents/kWh	@ 3.0 cents/kWh
Savings and Benefits	2,112	$788	$0	$106	$63
Payback (Yrs) Electricity plus Non-electric Benefits less O&M Costs			$0	7.465	12.442
Simple Payback (Yrs) Electricity Savings Only				**7.465**	**12.442**

Key Changes

Final model for SGC. Same as AAA1999. closeout scenarios considered but not used. Change from AAA2000 to include higher local utility equal to total Alliance cost.

Breakeven: 0.5321276 kWp/Unit January Peak Demand reduction

Maximum Added Alliance Dollars	$37,000,000	
Minimum Number of Units	8,300	10%
Proposed units	84,800	