The Green, Green Grassroots of Home: Measuring Community-Based Clean Energy Market Development Initiatives in Connecticut

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Abstract

Community-based environmental programs are intended to engage and motivate a community's local government, businesses, organizations, and residents to adopt environmentally beneficial behaviors by raising community awareness and leveraging community pride. In Connecticut, such a community-based approach is being applied to a voluntary program in which ratepayers can elect to purchase clean energy through their current electric utility. This clean energy voluntary purchasing program (the CTCleanEnergyOptions[sm]) was launched in April 2005 by the Connecticut Department of Public Utility Control as enabled by Connecticut State Assembly Public Act 03-135. To develop this voluntary market demand for clean energy, the Connecticut Clean Energy Fund (CCEF) launched a series of community-based initiatives to accelerate the rate of subscription to this clean energy purchasing program by ratepayers across the state[1]. By September 2005, subscriptions exceeded total subscriptions to an earlier program that failed to deliver a sustainable subscription base for clean energy market development after 2.5 years from 2000 to 2003. The hypothesis is that the CCEF community-based initiatives jump-started the growth in subscriptions largely from the participating communities. A number of alternative hypotheses were developed to explain this rapid program startup and sustained growth. All alternative hypotheses were rejected in favor of the conclusion that the community-based initiatives had a powerful effect on jump-starting the market for clean energy in Connecticut, delivering clean energy subscriptions at nearly double the rate of nonparticipating communities, even as community participation and subscription rates continue to climb.

Introduction

Community-based environmental programs such as Tree City, USA, are intended to engage and motivate a community's local government, businesses, organizations, and residents to adopt environmentally beneficial behaviors, largely by raising community awareness and leveraging community pride. In Connecticut, such a community-based approach is being applied to a voluntary program in which ratepayers can elect to purchase clean energy through their current electric utility. To develop this voluntary market demand for clean energy, the Connecticut Clean Energy Fund (CCEF)[2] has launched a series of community-based initiatives since 2004 to accelerate the rate of subscription to the clean energy purchasing program by commercial, industrial, institutional, and residential ratepayers. These initiatives emphasize several benefits for the participating communities: reduced environmental impacts from electricity

[1] The CTCleanEnergyOptions program is available to all customers of the state's two large electric utility companies, The Connecticut Light & Power Company and United Illuminating Company, which provide service to all or parts of 166 of the 169 municipalities in Connecticut. The clean energy program is not, however, currently available in the handful of municipalities (3) served solely by a municipal electric utility.

[2] Created by the Connecticut Legislature and funded by a surcharge on electric utility bills, CCEF invests its resources in an array of enterprises, initiatives and projects aimed at creating a diverse and growing supply of renewable clean energy, accelerating the development of clean energy technologies and educating consumers about the benefits and availability of clean energy.

generation; community pride and image; bridge building between the community, utility, and other community-based organizations; media coverage; and, a stepping stone for more collective sustainable actions (e.g., climate action programs).

This clean energy voluntary purchasing program (the CTCleanEnergyOptions[sm]) was launched in April 2005 by the Connecticut Department of Public Utility Control as enabled by Connecticut State Assembly Public Act 03-135.

According to the stated theory of change, clean energy subscribers in participating communities should exceed those of nonparticipating communities because marketing and outreach efforts to local civic institutions (e.g., municipal government, schools, universities, churches, etc.) and businesses builds awareness and support at the grass roots level, tapping into word-of-mouth networks and creating local community champions, thereby increasing residential subscriptions as well. The CCEF developed and launched three community-based initiatives, targeted at the municipality[3] level. These community-based initiatives are as follows:

1. **20% by 2010[sm] Campaign**: In 2002, the CCEF initiated the establishment of SmartPower, a 501(c)3 organization, in partnership with various private foundations (i.e., Tremaine Foundation, John Merck Fund, Rockefeller Brothers Fund, Pew Charitable Trust and Surdna Foundation), to conduct marketing campaigns dedicated to promoting clean energy – electricity from sources such as wind, solar and water. The SmartPower 20% by 2010 Clean Energy Campaign is a challenge to cities and towns, faith communities, colleges and universities and businesses to start using clean energy. SmartPower's current mission is to have 20% of the energy supply come from clean, renewable sources by 2010 and works with local governmental institutions to obtain commitments to the 20% by 2010 campaign. A town must demonstrate its commitment to the 20% by 2010 Clean Energy Campaign by:
    a. Supplying SmartPower with the official meeting minutes of the town proceedings that attest to the commitment.
    b. Officially announcing its commitment to the community through local press.
2. **Connecticut Clean Energy Communities Program**: The Connecticut Clean Energy Communities Program (CCEC) is a partnership between the CCEF, SmartPower and the individual participants in the program. Its purpose is to assist communities and their residents in the purchase and support of clean energy. For a community to qualify, it must do the following:
    a. Commit to the 20% by 2010 Clean Energy Campaign led by SmartPower.
    b. Earn a free clean energy system by meeting the lesser of the following requirements ($10,000 minimum value):
        i. 100 sign-ups in a community,
        ii. 1 GWh of clean energy demand created from a Commercial, Industrial, or Institutional customer,
        iii. 10% of households in a community, or
        iv. 100 sign-ups in a regional school district
    c. Commit to allocating 100% of the electricity generated from the installed clean energy system to additional town purchases of clean energy.
3. **Community Innovations Grants Program**: The Community Innovations Grants Program is a pilot program with the purpose of assisting Connecticut's communities in supporting clean energy awareness and education. The Community Innovations Grants Program provides eligible

[3] Connecticut is subdivided into eight counties and 169 municipalities. Of the 169 municipalities, ratepayers in 166 municipalities are eligible to participate in the CTCleanEnergyOptions Program. The three excluded municipalities are Norwich, Bozrah, and Wallingford.

communities with a $5,000 block grant to support local public awareness and education projects that promote clean renewable energy. Communities eligible for these block grants are those that have committed themselves to the SmartPower 20% by 2010 campaign. These block grants are awarded to participating communities, and the funds are managed by a local Energy Task Force (council or commission) within each community.

The three community-based programs are supplemented by other incentives through the CCEF such as leadership and achievement awards, and friendly municipal competitions to generate press and local interest.

Table 1 summarizes community participation data for the three aforementioned programs. These three initiatives were rolled out at different stages with respect to the launch of the CTCleanEnergyOptions Program on April 1, 2005. The 20% by 2010 Campaign was launched in 2004, eligibility for the Connecticut Clean Energy Communities awards began on April 1, 2005, and the Community Innovations Grant initiative was launched in June 2006. Seven municipalities committed to the 20% by 2010 campaign prior to the CTCleanEnergyOptions' launch and as of December 31, 2006, 34 municipalities had joined the campaign. By the end of the second quarter (June 30, 2005) following the CTCleanEnergyOptions' program launch on April 1, three municipalities qualified as Connecticut Clean Energy Communities. By the end of 2005, seven more municipalities in total had qualified. As of December 31, 2006, 17 municipalities had qualified for the Connecticut Clean Energy Communities program. The first Community Innovations grant was awarded in June of 2006 and by December 31, 2006, individuals or organizations representing 10 of the 17 participating Clean Energy Communities had been awarded grants.

Table 1: Community-Level Participation (Cumulative)

Quarter	Participants to SmartPower's 20% by 2010 Campaign	Qualified as a Connecticut Clean Energy Community	Recipients of Community Innovations Grant
Q2, 2005	12	3	0
Q3, 2005	17	4	0
Q4, 2005	17	6	0
Q1, 2006	21	10	0
Q2, 2006	26	12	1
Q3, 2006	28	12	9
Q4, 2006	34	17	17

Methodology

The evaluation team engaged a number of market actors to collect program and market data including: the number of participating communities by community initiative; the number of subscriptions by community, ratepayer category (residential, commercial, etc.) and level of subscription (100% or 50% subscriber[4]); energy consumed; and program marketing activities. The evaluation approach rests on tracking multiple indicators of market progress over time, comparing those indicators in participating communities to those in nonparticipating communities.

The performance metrics that are tracked over time, and are used to compare participating communities to nonparticipating communities, include the following: a basic participation indicator, based on a comparison of total subscriptions by community type (participating versus nonparticipating); an impact indicator, or signup point, which weights participation based on the subscription level (e.g., 100% or 50% subscription); a household penetration indicator based on the number of subscriptions per household within the community; and an index ratio of new monthly subscriptions to households by community type. Summative evaluations are performed periodically to adjust performance measures for changes over time in membership to the participant and nonparticipant groups.

Known limitations to the indicators discussed above include ensuring that comparison communities have similar demographic characteristics, the appropriateness of emphasizing residential subscribers for penetration indicators over total subscribers which includes higher-use commercial customers, and the lack of data on purchasers of renewable energy credits (RECs) outside the CTCleanEnergyOptions program. While a demographic comparison of communities was not performed, Connecticut is largely an urban/suburban state with limited rural areas for which the combination of household signup and penetration indicators was developed. Unfortunately, reliable energy consumption data by sector are not available because signup data and energy consumption data are collected separately, but a conservative estimation of residential energy consumption (at 700 KWh per household) shows that residential energy consumption is at least 80% of total energy consumption as of December 2006 for 98% of the signup points. Therefore, to best account for the potential impact of the CTCleanEnergyOptions Program by energy consumption, signup points is the preferred indicator over signups; moreover, a large majority of signups are composed of 100% signups. Additionally, Connecticut ratepayers are permitted to purchase RECs outside of the CTCleanEnergyOptions—which is especially attractive to large electricity purchasers—but the data are largely unreported. What the impact of the CCEF's community-based initiatives is on those transactions is unclear, but a review of those purchasers prior to April 1, 2005 showed limited energy consumption and purchasing.

Analysis

Since the launch of the CTCleanEnergyOptions program, signups to the program have increased regularly until the end of 2006, even after a strong first quarter signup surge after the launch of the program. Figure 1 shows how signups have progressed over time; signup points track very closely to signups. As of December 31, 2006, signups to the CTCleanEnergyOptions program totaled 11,263 accounting for 10,060 signup points, or 8,857 signups at 100% and 2,406 signups at 50%. As Figure 1 also shows, subscriptions are nearly entirely derived from the residential sector, tracking at 98% of total signup points over time.

[4] Ratepayers could elect to purchase clean energy credits for 50% or 100% of their monthly electricity bill.

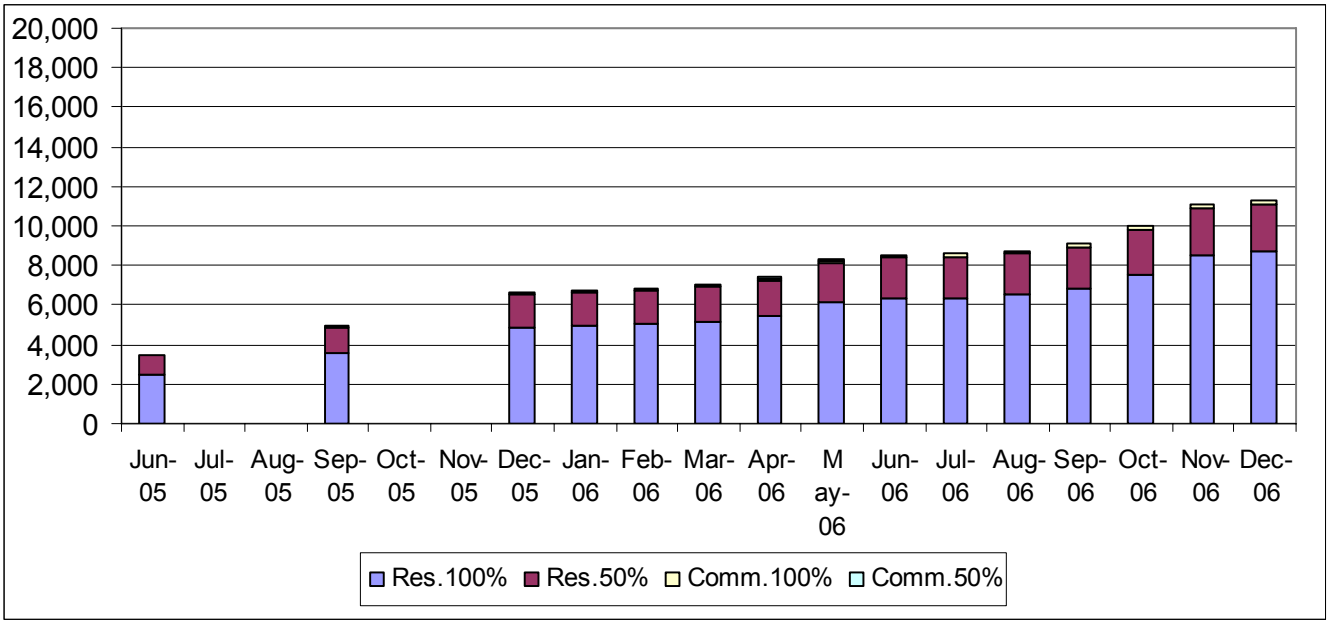

Figure 1: Total Signups over Time, Cumulative

Signup Indicators by Community Participation

As of December 31, 2007, the top municipality in total signup points had 701, with the runner-up at 675 (both are Connecticut Clean Energy Communities). Ten municipalities had 200 or more signup points; and twenty-three communities have over 100 signup points. Also at the conclusion of Q4 2006, the 17 Connecticut Clean Energy Communities (CCECs) represented only 10% of all municipalities, but 43% of total signup points. Typical of all quarters, during Q4 2006, participating communities (SmartPower 20% by 2010 Communities, CCECs and Community Innovation Grant recipients) accounted for a disproportionate amount of new monthly signups relative to the number of households found in their communities, with a ratio of the percentage of quarterly signup increase to percentage of Connecticut households of 2.1 to 1, 2.6 to 1 and 2.4 to 1, respectively. Table 2 presents a comparison of community participants and nonparticipants by signups and signup points:

Table 2: Total Signup Points for Connecticut Clean Energy Communities

	Number of Municipalities (Percent of Total)	**Residential Signup Points (Percent of Total)**	**Commercial Signup Points (Percent of Total)**	**Total Signup Points (Percent of Total)**
Clean Energy Communities	17 (10%)	4,249.5 (43%)	73 (41%)	4,322.5 (43%)
Nonparticipants	149 (90%)	5,632 (57%)	105.5 (59%)	5,737.5 (57%)
Totals	166 (100%)	9,881.5 (100%)	178.5 (100%)	10,060 (100%)

As shown in Table 3, of total signup points, the top 20 municipalities include 15 of thirty four 20% by 2010 Campaign participants, 15 of 17 qualifying Connecticut Clean Energy Communities and nine of 17 municipalities that have received Community Innovation Grants. The top 20 (of 166) municipalities in signup points represent 49%, 45%, and 49% of residential, commercial, and total signup points, respectively.

Table 3: Top 20 Connecticut Municipalities in Total Signup Points

Rank	Municipality	Smart Power 20% by 2010 Campaign Joined	Connecticut Clean Energy Community Qualified	Community Innovations Grant Awarded	Total Signup Points
1	West Hartford	Jan-05	Jun-05	Oct-06	701
2	New Haven	Feb-04	Jun-05		675
3	Fairfield	Feb-05	Nov-05	Jul-06	303.5
4	Glastonbury	Jan-06	Jan-06		281.5
5	Hamden	Jul-05	Oct-05	Sep-06	271.5
6	Branford	Mar-06	Apr-06		265
7	Middletown	May-05	Jun-05	Jul-06	255.5
8	Stamford	Apr-05	Nov-05	Dec-06	232.5
9	Mansfield	Jul-05	Feb-06	Sep-06	219.5
10	Manchester				203.5
11	Portland	Nov-04	Jun-06	Jun-06	187
12	Milford	Jan-05	Jan-06	Sep-06	172
13	Cheshire	Aug-05	Nov-06		171.5
14	Hartford	Feb-06	Feb-06		162.5
15	Guilford				150
16	Greenwich				146.5
17	Stonington				145
18	Bethany	Aug-05	Nov-06	Aug-06	131
19	Norwalk				123.5
20	Canton	Apr-05	Nov-06		109
	Top 20 (of Total 166 Eligible Municipalities)	**15 (of 34 Participating Municipalities)**	**15 (of 17 Qualifying Municipalities)**	**9 (of 17 Recipient Municipalities)**	**4,906.5 (of 10,060 Total CT Signup Points)**

Household Penetration by Community Participation

Of the 11,263 signups, 11,074 are residential signups, representing 98% of all signups. Therefore, commercial subscribers to the CTCleanEnergyOptions program are very few and penetration rates, based on residential data alone, serve as a valuable useful proxy—especially as an indicator for less densely populated municipalities. As shown in Table 4, the 17 CCECs have an average household penetration rate of 2.4% while the remaining 149 nonparticipating communities have an average household participation rate of 1.0%.

Table 4: Average Household Penetration for Connecticut Clean Energy Communities versus Nonparticipants

	Number of Municipalities (Percent of Total)	Average Household Penetration	Total Households (Percent of Total)
Clean Energy Communities	17 (10%)	2.4%	319,159 (24%)
Nonparticipants	149 (90%)	1.0%	1,017,515 (76%)
Totals	166 (100%)	1.1%	1,336,674 (100%)

As shown in Table 5, the top 20 municipalities in household penetration tend to be smaller communities, with an average of 4,875 households, compared to the top 20 municipalities in signup points, with an average of 19,802 households. While the top 20 municipalities in household penetration represent 26% of residential signup points they only account for 7% of eligible Connecticut households.

Table 5: Top 20 Connecticut Municipalities in Household Penetration

Rank	Municipality	Smart Power 20% by 2010 Campaign Participant	Connecticut Clean Energy Community Qualifier	Community Innovations Grant Awarded	Households	Household Pene-tration
1	Norfolk	Aug-06		Sep-06	687	8.3%
2	Bethany	Aug-05	Nov-06	Aug-06	1,798	7.5%
3	Portland	Nov-04	Jun-06	Jun-06	3,483	6.1%
4	Canaan				458	4.6%
5	Mansfield	Jul-05	Feb-06	Sep-06	5,576	4.4%
6	Lyme				886	4.1%
7	Chester	May-06		Nov-06	1,628	4.1%
8	Cornwall				655	3.4%
9	Canton	Apr-05	Nov-06		3,767	3.2%
10	West Hartford	Jan-05	Jun-05	Oct-06	24,999	3.0%
11	Glastonbury	Jan-06	Jan-06		12,619	2.4%
12	Ashford				1,634	2.3%
13	Old Lyme				3,079	2.3%
14	Goshen				1,148	2.2%
15	Branford	Mar-06	Apr-06		12,692	2.1%
16	Essex	Feb-06		Oct-06	3,034	2.1%
17	Salisbury	Dec-06			1,824	2.1%
18	Guilford				8,220	2.0%
19	Sharon				1,278	2.0%
20	Stonington				8,030	2.0%
	Top 20 (of Total 166 Eligible Muni's)	**11 (of 34 Participating Muni's)**	**7 (of 17 Qualifying Muni's)**	**7 (of 17 Recipient Muni's)**	**97,495 (of 1,336,674 Total HHs)**	

The top 20 municipalities include 11 of thirty four 20% by 2010 Campaign participants, seven of 17 qualifying Connecticut Clean Energy Communities, and seven of 17 recipients of Community Innovation

Grants.

Time Series of New Signup Activity

In order to compare changes on a monthly basis for participants across the various community programs, an index was developed to show how community participants compare to nonparticipants, adjusting for month-to-month changes in membership to the various community programs. The index, calculated for each category of communities, is a ratio of the percentage of the monthly increase in signups to the percentage of Connecticut households found in each category of communities. For example, in July, 2006, Connecticut Clean Energy Communities accounted for 66% of the monthly increase in signups but only 21% of the households in Connecticut, resulting in an index score of 3.1 (66% / 21% = 3.1). Figure 2 presents the index over time for all valid data by month since January 2006. If CCEF programs had not impacted participating communities, we would expect every community group to account for a percentage of monthly signup increases roughly equal to the percentage of Connecticut households found in that group of communities (i.e., a ratio of approximately 1:1). The data in Figure 2 clearly demonstrates that this is not the case, as participating communities account for a disproportionate number of signups relative to the number of households found in their communities in nearly every month.

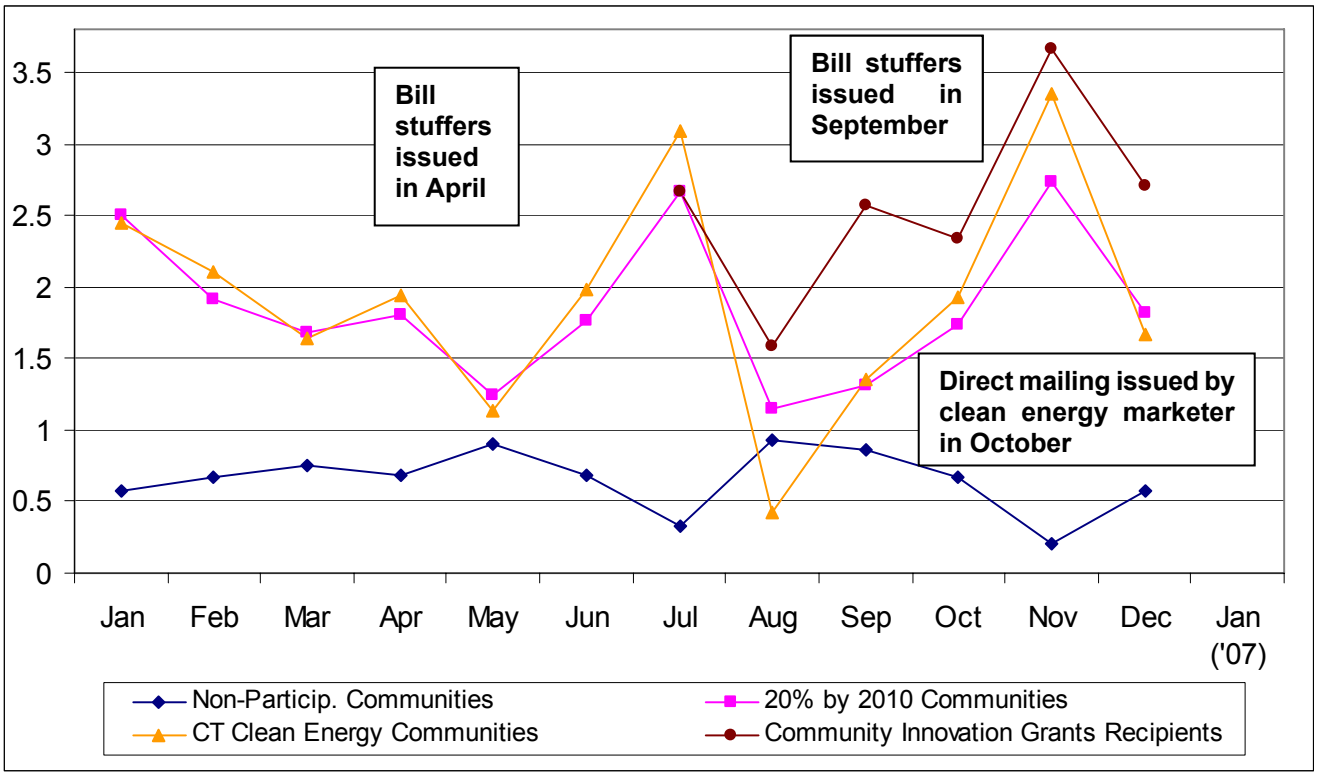

Figure 2: Index of Signup Growth, Adjusted for the Number of Households

In summary, 20% by 2010 Communities, Connecticut Clean Energy Communities (CCECs), and Community Innovation Grants recipients account for disproportionate numbers of new signups each month over time with a few exceptions, notably May and August of 2006. In November of 2006, the participating communities increase sharply compared to the nonparticipating communities group. These variations in the performance metric can be accounted for as follows:

- May 2006 – In May, the month following the issuance of bill stuffers, the rate of increase in signups in nonparticipating communities greatly exceeded that in participating communities for the first time in 2006, indicating that the impact on nonparticipating communities was considerably higher than in participating communities. This also indirectly underscores the effectiveness of the community participation programs in obtaining more steady growth in participation rates over time. Bill stuffers increase awareness of the CTCleanEnergyOptions program in all communities. However, because awareness of the program, and how to sign up, is likely to be relatively lower in nonparticipating communities, the impact of the bill stuffer is higher in nonparticipating communities than in participating communities. Because awareness of the CTCleanEnergyOptions is likely to be higher in participating communities, monthly increases in signups are higher in participating communities except when bill stuffers are issued.
- August 2006 – Three variables largely explain the changes in signup points and signups accounted for in August compared to other months:
    - First, fewer SmartPower 20% by 2010 Communities and CCECs experienced increases in the number of signups in August (13 and five, respectively) than, for example, in July (15 and eight, respectively).
    - Second, of those SmartPower 20% by 2010 Communities and CCECs that experienced increases in signups, fewer experienced relatively large increases of five or more in August (four and two, respectively) than, for example, in July (six and five, respectively).
    - Third, the number of nonparticipating communities that lost signups in July was aberrantly high (43 nonparticipating communities lost a total of 73 signups in July) accounting for the decline in the index of signup growth in July. The number of nonparticipating communities that lost signups returned to more normal levels in August (15 nonparticipating communities lost signups in August), and the number of nonparticipating communities that increased their signups was essentially unchanged from July to August as 52 nonparticipating communities increased their signups in July compared to 54 in August.
- November 2006: This month does not represent a deviation from the expected pattern as much as a spike due to marketing efforts by one of the clean energy marketers outside of the CCEF program; however, the marketing efforts heavily targeted the CCEF's participating communities.

Discussion

The clean energy program was launched in April 2005, and after only five months, subscriptions exceeded total subscriptions to an earlier green power purchasing program that failed to deliver a sustainable subscription base for market development after 2.5 years from 2000 to 2003. Since the first three months after the launch of the CTCleanEnergyOptions Program, the fundamental indicators tracked, or signup points and household penetration by municipality, show that participating municipalities have consistently outperformed nonparticipating municipalities. The Connecticut Clean Energy Fund's community-based programs showed markedly different rates of signup and penetration in the first quarter of program eligibility, and have overall maintained that difference since the launch of the program.

A number of alternative hypotheses were developed to explain this rapid program startup, including timing of bill stuffers marketing the program, advertising impacts, returning customers from the previous failed program, and broad-based increases in awareness of the climate change issue. All alternative hypotheses were rejected in favor of the conclusion that the community-based initiatives had a powerful effect on jump-starting the market for clean energy in CT, and on delivering clean energy subscriptions at

nearly double the rate of nonparticipating communities, even as community participation and subscription rates have climbed over the last 18 months. The alternative hypotheses are as follows:

- A TV, radio, and print advertising campaign conducted by SmartPower from March to May 2005 was heavily concentrated on the Hartford-New Haven corridor. Pre-post surveys by SmartPower, however, did not show a significant increase in awareness of clean energy over that period; moreover, survey research by NMR showed that awareness of the option to purchase clean energy was lower than other states with such programs. The greatest increases in signup points during this period occurred in municipalities that had joined the 20% by 2010 campaign prior to the CTCleanEnergyOptions program launch, which delivered three qualifying CCECs within the first three months of the program—the first three municipalities to exceed 100 signup points, suggesting a backlog of signups in anticipation of the CTCleanEnergyOptions due to CCEF's programs.
- By order of the DPUC, to ensure adequate marketing investments were made in CT to market the CTCleanEnergyOptions, the clean energy marketers were required to deliver a minimum number of signups to the program for the first three quarters following the CTCleanEnergyOptions' program launch. Whether or not the clean energy marketers actually met their minimum marketing requirements cannot be determined, because the DPUC's required reporting standards do not support such an assessment. This hypothesis, however, was rejected because stakeholders consistently report that the clean energy marketers did not initiate or actively participate in direct marketing activities within the state during the 2005 period.
- Both clean energy marketers included key staff with experience, and possibly prior contact data, from the previous Connecticut green power program, suggesting that the rapid startup may have been due to effective targeting efforts toward previous customers. This hypothesis was rejected, however, because the signups tended to concentrate around the 20% by 2010 towns and not where the previous programs were located. Moreover, the rapid growth of the CTCleanEnergyOptions by December 31, 2005 program exceeded the previous program by 50%, well in excess of the previous program's total participant base[5].
- The recent increase in awareness of the global warming issue and the associated press coverage it receives suggests that since the previous programs closed in 2003, natural market effects are driving the subscriptions to the CTCleanEnergyOptions program. Reinforcing the basic participant/nonparticipant comparisons, we also conduct regular surveys in Connecticut and annual surveys across the United States on key clean energy awareness issues. The CCEF's program logic includes key elements relating to delivering program signups by raising public awareness. As Figure 3 shows below, a time-series comparison of awareness of grid-delivered clean energy in Connecticut compared to the United States, and other states with similar programs, shows that Connecticut started below the United States as a whole and CESA (Clean Energy States Alliance) states, but awareness of the issue has progressed steadily over time. This change over time shows further evidence that something home-grown in CT is increasing awareness rather that from outside of the state.

[5] www.eren.doe.gov/greenpower, September 25, 2005.

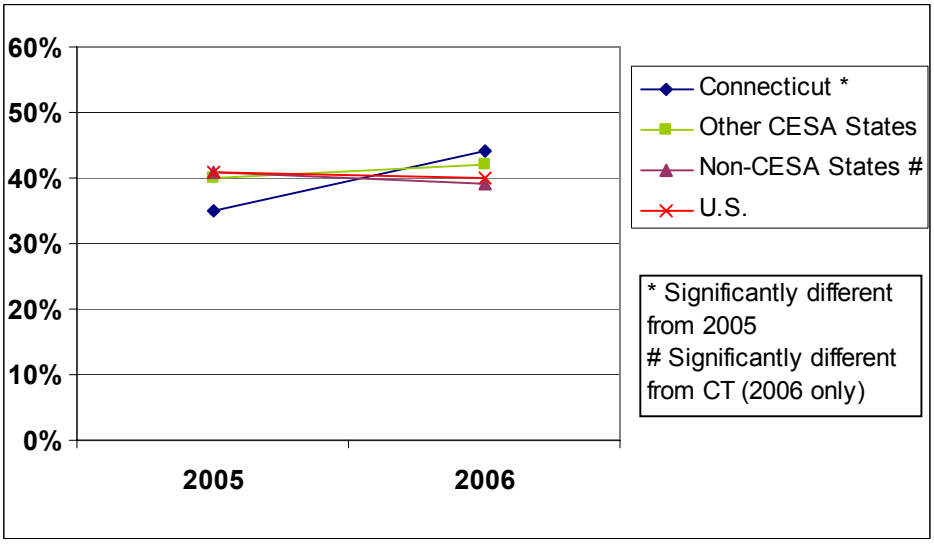

Figure 3: Awareness of Grid Delivered Clean Energy[6]

Conclusion

Increasingly, policies for reducing demand and/or peak load include renewable energy portfolio standards and the creation of associated voluntary clean energy purchasing programs to prime the pump for local renewable energy technology investments. Market penetration levels, however, are often too low in voluntary clean energy purchasing programs to provide sufficient data on actual participants to discern reliable customer targeting information. This forces program managers to innovate and adopt alternative implementation strategies to make their voluntary programs relevant and successful. The implications of this evaluation research are broadly applicable to any clean energy program trying to leverage limited marketing resources for programs that have long time-horizons, slow adoption rates, barriers to startup, or community-based programs in general.

The community-based programs in this study have resulted in substantial differences in subscription levels between participating and nonparticipating communities. The differences primarily rest in the early pre-launch promotional efforts, and continued collaborative efforts across the state have sustained those differences. It remains unclear whether or not, as the CTCleanEnergyOptions program becomes more mainstream, the CCEF can continue to influence the market as it has done in the past. At the same time, household penetration levels are in many cases sufficiently low that substantial potential for continued increases remain.

In conclusion, the community-based approaches by the CCEF are meeting the basic objective of getting subscriptions to the CTCleanEnergyOptions program, but the grander objective—attracting clean energy power developers based on having a sustainable and attractive voluntary market for clean energy purchasers — cannot yet be determined. The time horizon for getting clean energy technologies installed and brought online is longer than the two year period of the voluntary marketing program. The investment by one of the clean energy marketers to directly market households—focusing heavily on participating communities—is perhaps the best indicator that the community-based programs are having success in

[6] Respondents were asked the following question to determine awareness of grid delivered clean energy. "Some clean energy can be generated right at people's homes, from things like solar photovoltaic systems or fuel cells. But other clean energy sources can be used to generate large amounts of electricity at a central location—electricity that is then sent over regular power lines to individual homes like yours. Were you aware that it is possible to deliver clean energy to individual homes over regular power lines?"

attracting and retaining customers, and continues to offer potential for further growth both within the existing participating communities and for future participating communities. It is also an indicator that CCEF's programs are accelerating internal market development; however, whether the clean energy marketers' activities and marketing investments would continue without the CCEF program's sustained support is unclear.