

Sustainability Forum for Greenhouse, Floriculture and Horticulture Customers

A Study Conducted by:



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The California Sustainability Alliance (the Alliance) is an innovative market transformation program funded by California utility customers under the auspices of the California Public Utilities Commission. The Alliance leverages action on environmental initiatives such as climate, smart land use and growth, renewable energy, waste management, water use efficiency and transportation planning to help the State of California achieve its aggressive energy efficiency goals more effectively and economically. In partnership with public and private organizations throughout California, the Alliance precipitates widespread market transformation by tackling major barriers to sustainability.

For information about the California Sustainability Alliance, go to:

www.sustainca.org

The project team gives special thanks to the following subject matter experts whose input and assistance were critical to the development of this forum:

- Cinzia Fissore, Assistant Professor, Whittier College
- Scott Nicholson, President, Plantel Nurseries
- Casey (President) and Monica Houweling (Sales Coordinator), Houweling Tomatoes
- Rudy Beltran, General Manager, Cervini Farms

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ABBREVIATIONS AND ACRONYMS

AE – Account Executive

Ag – Agricultural (used in reference to identifying the Agricultural segments)

AQMD – Air Quality Management District

ES – Energized Solutions, LLC

Growers – floriculture, nursery, and horticulture customers of SCG

ROI – Return on Investment

SCG – Southern California Gas Company

Background and Summary

The sustainability forum for Southern California Gas Company (SCG)'s agricultural customers in the nursery, floriculture, and related horticulture segments was developed and conducted in November 2013. SCG's primary goal of this forum was to better understand the challenges and business context of these customers in order to determine how best to provide energy efficient services. While SCG has significant experience with individual growers and a long history of service to California agriculture, the forum also relied upon recent research as a guide.

The California Statewide Agriculture Market Characterization study conducted in 2012-2013 by Navigant Consulting Inc. informed both the design and content of this forum.¹ The objective of that study was to help the state's investor owned utilities gain a better understanding of the struggles of farmers, ranchers, agricultural processors and dairymen in California.

This seminal study was based on more than two hundred telephone and field based interviews. The final report and executive summary of that study pointed out the need to consider all of the agricultural segments in more depth, especially the floriculture and related segments as:

- These related businesses represented approximately 29% of total gas sales within the agriculture sector and that within this segment the majority of gas was used for space heating;
- Relative to other segments, greenhouses and nurseries did not prioritize energy metrics or monitoring, presenting opportunities for increased deployment of energy management systems and greater uptake of related utility incentives;
- Growers within the segment communicate most frequently through grassroots networks that often share information about new technologies;
- While a few leaders within the greenhouse community have educated themselves and taken up a host of basic to advanced energy measures, there is a need for more technology demonstrations and other collaborative programs that could help the rest of the industry move forward.

The Alliance subsequently discussed the possible opportunity with SCG to plan and deliver a customized forum for Southern California Gas floriculture, greenhouse, and horticulture customers to:

¹ Navigant. *Market Characterization Report For 2010-2012 Statewide Agricultural Energy Efficiency Potential and Market Characterization Study*. May 2013.

- A. Identify and share Best Practices related to natural gas and water usage;
- B. Discuss the need and opportunities for Energy Management Systems and other control systems; and to
- C. Identify program and other emerging technology approaches to accelerate and deepen energy savings with the targeted customer segments.

The Alliance subsequently held a forum to address the aforementioned areas and related concerns and opportunities for the floriculture, nursery, and horticulture customers which will be identified as the “*growers*”.

The forum was held on November 6, 2013 in Santa Barbara, CA. Fourteen participants from twelve growing operations participated at the forum. The half-day forum agenda (see Appendix A) included a presentation by a soil scientist on “Soil and Sustainability, three Best Practices presentations by growers, a break-out session with three groups of growers, a feedback and final remarks by SCG staff.

The primary goal of the forum was to “listen” to the growers, A) determine what is their current level of use and acceptance of energy efficient practices, and B) assess which of their needs are opportunities that SCG could address.

A roster of the core areas where SCG could offer additional value to the growers includes:

1. Streamline the paper work and reduce the processing time needed to qualify for and receive SCG rebates and incentives for currently supported energy efficient improvements, including heat curtains, energy efficient boilers, pipe insulation and other energy efficient products and technologies
2. Provide more technical and design information, including pre-engineering support, and increase financial support for advanced energy efficient boiler systems, advanced drip irrigation applications, water booms, water pipe insulation, and biologically sensitive basins; as several growers noted, “It’s all about water”
3. Provide more support to qualify cogeneration and alternative energy projects with design support, financial incentives and facilitation with regulatory agencies

4. Increase SCG Account Executive (AE) support to work with smaller growers and provide a dedicated “call-in” number for growers seeking information on SCG programs and services
5. Offer regular grower forums but customize them for specific grower types (i.e. hydroponic) and promote with and engage more with grower associations and equipment vendors
6. Team up pump and irrigation specialists with SCG AEs to conduct more audits and field operation reviews
7. Provide help to perform financial analysis of break-evens and ROI for energy efficiency projects
8. Provide options for longer term gas by providing “bundled tariffs” and variable rates that consider seasonally impacted operations

The remainder of this report details the methodology, key findings, and conclusions.

Methodology

The Alliance determined that a forum should be held in the “heart” of the growers area which is primarily located along the Highway 101 corridor and ranges from Arroyo Grande/Nipomo to the Oxnard/Camarillo area, a distance of approximately 125 miles. The Alliance team subsequently identified, contacted, and recruited the growers with the aim of securing a confirmed roster of growers that would number at least twelve and not more than twenty as the goal was to enable as much discussion as possible in a setting conducive to information sharing. The initial plan was to schedule the forum for late October or early November as this period was seen as being the most attractive to growers given their operational cycles.

In the interest of broadening the target grower roster and securing enough participants the Alliance team broadened the “grower” prospect roster to include selected SCG customers from the mushroom and field crops segments. Collectively, the list potential forum participants was approximately one hundred and fifty distinct growers, as several of the growers had multiple service accounts. Alliance recruiting targeted growers with natural gas consumption ranging from 50,000 to over 100,000. This range allowed the Alliance to include small, medium and large operations in the forum.

The collective participant recruitment efforts resulted in the confirmed attendance of fifteen distinct growers, including the following three who agreed to share their Best Practices in a presentation:

1. Scott Nicholson, President, Plantel Nurseries
2. Monica Houweling, Houweling Tomatoes
3. Rudy Beltran, General Manager, Cervini Farms

The forum agenda was finalized after coordination between the Alliance team members and SCG. The team determined the primary goal of the forum was to provide an opportunity for the growers to help educate and update SCG on their approaches to energy efficiency, their assessment of SCG’s current programs and support services, their interest in new technologies and applications and their potential interest in serving as demonstration partners for new programs and technology trials.

The final forum agenda was structured to take one-half a day given the very busy schedule and operational needs of the growers and had four main sections:

- Overview of the science and nexus of soil and sustainability
- Best Practices presentations by three growers to share innovative energy efficiency and related practices

- Break-out sessions to collect input from growers on what works and what support and tools are needed to increase adoption of sustainability
- Input from SCG Account Executive on program and service support

The final agenda for the forum is provided in Appendix A.

All participants were registered and provided a registration packet that included:

- Confirmation of contact information
- A Sustainability Forum Evaluation Form with questions related to forum's overall value, indication of interest in serving as a demonstration site, and most important take-aways (see Appendix B)
- Release form for use of photos and video

Outcomes and Significant Findings

The grower forum was held on November 6th in Santa Barbara, CA. The forum began as scheduled at 8 AM and ended as scheduled at 1 PM. Twelve of the fifteen growers who registered in advance attended the forum and one grower who had not registered in advance also attended. All of the participants were engaged throughout the forum and remained until the conclusion that ended with lunch and break-out group reports. Appendix C contains a roster of forum participants.

The following sections summarize the most significant findings and outcomes of the event based on the break-out session discussions, feedback on written evaluation forms, and post-event telephone interviews.

Break-Out Session Summaries

At the conclusion of the Best Practices presentations the growers were asked to participate in a break-out session to consider a common set of discussion items. Three break-out groups took approximately forty-five minutes to address the common set of discussion items. This section summarizes the common themes and responses associated with each of the discussion items.

- *What does “sustainability” mean to you as a grower?*
 - The single thread across all three break-out groups was “doing what we need to do to stay in business” and ensuring that growers have a future market and business by doing what is economically feasible to beat the odds
 - Sustaining soil health and optimizing water usage by primarily considering and using natural gas as a traditional “farm fuel”
 - Recycling everything possible, especially water resources
 - Responding to consumer demand to be perceived and valued as “sustainable”
 - Growers believe that the public pays more attention to “green washing” than what constitutes a genuine “sustainable” effort

- *What are the biggest issues facing greenhouses and nurseries in Southern California related to energy use?*
 - It’s really all about water in respect to the cost and energy needed to pump, store, heat, and recycle water, especially when associate with the need and ability to develop viable “cogeneration” models that make business sense for both energy use, sustainable practices, and long term competitiveness; several growers commented that the issue of CO2 production is a major

hurdle as it is more economically feasible to run boilers at night than daytime when they don't need the heat contribution

- Growers, with deep and long connections to Europe, commented that SCG and other regional utilities lag behind Europe in respect to dealing with regulatory agencies and introduction of new technologies which results in growers having to accept whatever manufacturers want to push to them
 - Major concern expressed about lack of coordination and cooperation between SCE and SCG in respect to working with agricultural customers in these segments
 - Given the precarious nature of this group of agricultural customers any energy efficient project must be low risk and have a real ROI
 - Not enough time, given the flat organizational structure of this business, to keep track of developments and innovations in this business or perform energy audits
 - The need to respond quickly to weather and related environmental changes that require quick action (i.e. replacing heat curtains and irrigation systems damaged as a result of violent or dramatic weather changes)
 - Related to previous comment, most of the growers in these related segments only have major energy demand for part of the year given seasonal variations which sets them apart from the majority of other businesses
 - The extensive processing requirements to apply, qualify, and receive rebates and incentives as information provided via the SCG on-line sites is not readily understood and the required time and resources to respond are very restrained
 - Related to above concern is the grower belief that once applicants for current incentive programs exceed energy efficiency measures that they are then "disqualified" from seeking additional support
 - The lack of financing and long ROI periods for new system and equipment upgrades given that typical pay-back expectations are two years or less
 - The reluctance by some growers to share the broad operational aspects of "Best Practices" rather than the specifics of "how and what" was done
 - As noted above, one of the most formidable issues is that of regulatory compliance and the need to deal with the increasing demands of the growing number of regulatory agencies that make it increasingly difficult to operate in California
- ***What current Southern California Gas Company programs and services do you provide the most value for your operation and what could be done to make those programs and services better?***
 - Great value associated with rebates and incentives on boilers, heat curtains and other energy efficiency products and technologies; SCG must recognize that many of the incented products have short life cycles and that frequent

change-outs (i.e. heat curtains) are needed due to the impact of other energy efficiency technologies, such as the impact of air conditioning systems on single poly curtains

- Reduction of time needed to process rebates and incentives (frequently referenced)
 - Growers want some form of “early” pre-engineering and approval process to determine if it makes sense to invest more time to qualify for a new program or service
 - Significant value associated with SCG Account Executives but need for more of them to work with more growers and be more available in the fields
- ***What new resources, programs or assistance would help you most?***
 - Design, technical, financial, and permitting support for cogeneration projects
 - Design and financial support for alternative energy sources, specifically solar and wind
 - Need for programs that focus on hydroponics over soil based businesses
 - Lobbying support from SCG to influence regulatory agencies, specifically AQMD, soil erosion, water replenishment, and other agencies
 - ***Based on what you have heard today from fellow growers, what new energy-related programs and services would benefit your operation in the next few years?***
 - Advanced irrigation and water recycling programs
 - Support for cogeneration and alternative energy programs
 - Longer term natural gas pricing options
 - ***Would you be willing to work with Southern California Gas Company to pilot a new program or service or demonstrate a new technology in your operation if Southern California Gas Company provided financial and technical support?***
 - All but one grower responded “yes”.

What Can SCG do to Help Growers?

The evaluation form asked attendees “*Is there anything The Southern California Gas Company, can do for you that wasn’t covered today?*” This question generated the following responses listed organized into five categories, the first three of which have direct bearing on SCG’s energy efficiency programming:

1. More frequent SCG field visits with the growers, specifically growers who are both managers and operators; suggestions included:

- Assigning additional experienced and agriculture-oriented SCG Account Executives to support mid to smaller sized customers seeking to implement and/or enhance sustainable growing strategies
- Participating at meetings of the [Central Coast Greenhouse Growers Association](#) (annual member meeting December 5, 2013) and continued participation at events sponsored by the [Santa Barbara County Flower & Nursery Growers Association](#)
- Teaming pumping and irrigation and specialists with Account Executives to help with operational field reviews to improve energy/water efficiency
- Developing and issuing a print and/or on-line “Grower Newsletter” that focuses on Best Practices and availability of SCG supported incentive programs and technical services
- Consider a dedicated “call-in” number for growers to request a field visit by SCG Account Executive or other SCG field support

Summary: growers desire more contact with SCG account representatives in order to understand rebate and incentive options. However, this increased contact would have to take place on the growers’ terms and within the seasons of planting and harvest.

Recommendation: develop a low-cost outreach program that relied on junior staff to attend grower events, on regular basis, to raise awareness and understanding of SCG energy efficiency offerings. These junior staff would counsel growers and solicit custom project proposals. In addition, these staff members would “triage” questions and proposals so that senior staff could focus only on those custom project proposals of merit.

2. Identification and support of new technologies specific to the greenhouse industry, including:

- Advanced drip irrigation systems, water booms, water pipe insulation, and biologically sensitive basins
- VFD applications for pumps, fans, and other operating systems
- Subsurface warming technologies as referenced by Plantel and other growers
- Water process treatment (including ozone sterilization), and recycling systems
- Improved heat covers, curtains and panel technologies
- Nutrient testing technologies
- Hydroponic fodder systems and balanced nutrient tanks
- Energy efficient forced air and infrared heater systems
- Energy Efficient boiler and solar systems to provide hot water when needed

- Financial viability and operation requirements of triple function cogeneration systems (energy, heat, water)
- Program focused on labor saving technologies, including automated energy management and monitoring systems.

Summary: growers are interested in a host of technologies only some of which relate to energy efficiency. Of the technologies that may benefit energy conservation, growers lack an understanding of how SCG programming might enable adoption.

Recommendation: In addition to the outreach recommended above, SCG should conduct a scanning activity of energy efficiency measures in other greenhouse and nursery growing areas such as Oregon, North Carolina, British Columbia and the Netherlands. This scanning activity would identify commercially available energy efficiency measures in those locations that have not readily accessible in California. SCG could make the results of this scanning activity available to growers along with guidance as to how custom programs could offer rebates for installation.

3. Proactively support development of new and/or alternative energy efficiency energy sources (e.g. solar and wind) for growers by:
 - Providing simplified guidelines on eligibility requirements
 - Expediting processing of grower submissions for incentive support
 - Providing or helping with financial analysis of break-evens and Return on Investment.
 - Identifying and/or co-securing financial support for new installations
 - Offering seminars with panels and demonstrations by alternative energy providers and irrigation/water specialists
 - Providing longer term natural gas procurement options to

Summary: growers have diverse interests regarding renewables energy. However, there is limited understanding or interest in energy management systems that would first, develop baselines against which to measure and optimize energy use, and second, integrate energy from renewable sources.

Recommendation: As a route to integrating renewables, SCG could work with growers to develop energy management metrics and management systems to optimize their existing operations and maximize energy efficiency. By focusing on efficiency first, growers could size their investment in renewables accordingly for the best return on investment.

4. Provide options for longer term natural gas “bundled tariffs” and variable rates to facilitate long term budgeting of operational expenses with options to decrease demand if qualified energy efficient sustainable practices are adopted and to minimize fluctuations in natural gas costs.

Recommendation: While there are no direct energy efficiency aspects to this category, SCG’s account managers and customer service department should be aware of this interest and be prepared to respond to such requests.

5. Facilitation with regulatory agencies by serving as an “organizing force” for growers to regional and state regulatory agencies, including air quality, soil erosion, flood control, waste water, and other agencies that have a major impact on grower operations and reporting requirements.

Recommendation: As with the previous category, SCG’s energy efficiency efforts cannot address this category. SCG should acknowledge this interest on the part of the growers and refer them to a department or organization that could help offer the facilitation that they request.

Future Planning

The evaluation form asked attendees “What would you like to see in the future?” This topic elicited a range of responses ranging from streamlining the rebate and incentive process to more forums. The responses are arranged below from most cited to least:

- Streamline the paperwork/process for EE rebates and incentives; seven of the twelve growers cited prior participation with SCG rebate and incentive programs and all but one indicated that the processing requirements were burdensome and excessively time consuming and that their organizations were typically flat and required their personal involvement to the detriment of running their business
- Increase the number of forums and Best Practices presentations (also referenced earlier in Section 4, Item 1) with additional recommendations to:
 - Plan and deliver customized agriculture forums for specific types of growers (i.e. greenhouse, plug growers) preferably within a 30 mile radius of grower operations that can be delivered early in the morning and which would last less than three (3) hours in duration given the need to stay on top of operations
 - Increase Best Practices portion of program as growers learn from and believe fellow growers
- Do a better job of advertising/promoting SCG agriculture forums and support programs and services by:

- Engaging recognized agricultural opinion leaders and gate keepers to help coordinate future forums/sessions
- Seeking participation of agricultural customers in case studies focusing on sustainability and energy efficient implementations
- Providing information and seeking collaboration and co-sponsorship for future forums/events with the Central Coast Greenhouse Growers Association and Santa Barbara County Flower & Nursery Growers Association
- Providing at least sixty (60) day advance notice of planned forums and events (this forum had a forty-five (45) day planning and execution cycle)
- Informing Account Executives and agricultural specialists of other serving utilities (SCE, DWP, PGE) about planned forums and events
- Focus on coastal growers for these agricultural customers as going inland does not work from a business perspective

After reflection and input it was evident that the final question on the evaluation form was too broad and should be made more specific if future forums are held for this or other segments

Willingness to Implement Sustainable Practices

The evaluation form asked attendees *“Will you look into implementing anything you learned about today? Why or why not?”* Ten of the twelve growers indicated that they would consider implementing one or more of the sustainability practices discussed in the Best Practices presentations or discussion at the break-out groups.

There were two sustainability areas that were most frequently cited as meriting current consideration. The most cited sustainable practice was the improvement of water recycling and irrigation systems, and specifically the consideration of boom irrigation over hand watering. Closely linked to the need to improve the of efficient irrigation systems was the interest in higher efficiency boiler systems, including the potential use of solar water heating systems. The subsurface use of heated water to prevent frost loss was also referenced by several of the growers.

In respect to “why or why not” growers would consider implementing new sustainability practices the consistent response was lack of financing and the longer ROI on projects requiring significant equipment purchases. In this respect growers also cited the desire for help from SCG to help with the calculations for custom projects eligible for rebates or incentives. Once again, this was especially the case with considering a cogeneration or higher efficiency boiler project.

What Attendees Learned from the Forum

The evaluation form asked attendees *“What did you learn today at this forum?”* Seven of the twelve growers responded to this question by commenting that it was evident that SCG wants to listen to them and help. As noted by one of the respondents, *“SCG is open to find out from the grower what the needs are”* while another grower commented *“That the Gas Co. and PUC are interested in providing some assistance to the agricultural industry”* and finally that the *“Southern California Gas wants to help us. If we come up with ideas they are willing to look into ways to help us move forward.”* Other growers’ comments echoed this sentiment.

Other grower take-aways from the forum included:

- *“We need permitting and technical assistance, including design, in order to justify and support co-gen projects that have long pay backs and lasting sustainable results”*. This area also generated the most questions and discussions following the presentation by Monica Houweling about the many issues and delays associated with their planning and implementation of their cogeneration project that resulted in a three year delay between delivery of equipment and approvals for installation and operation
- *“Economy of scale factors can be an impediment for the ROI on projects”*
- *“Ideas from the growers of their sustainable efforts”*
- *“Better water recycling systems and the need to improve irrigation systems and the more efficient use of water/energy”*
- *“Every operation is unique and individual attention is needed for each specific operation”*
- *“Picked up information to improve operations from comments made by other growers”*

It is evident from the grower responses to this question and the discussion generated by the Best Practices presentations that all of the growers were interested in learning more about how to improve energy efficiency in their current operations, specifically in respect to the nexus of water and energy. In this respect, the Best Practices presentation by Scott Nicholson of Plantel generated a number of *“aha”* moments by fellow growers regarding energy efficiency applications that could be generally undertaken and often facilitated with SCG support. Yet, it was the Best Practices presentation by Monica Houweling, that included a major focus on their cogeneration project, that led to significant discussion on how SCG and other utilities could help with the design, planning, and implementation of cogeneration projects that require major design, financing, operational, and regulatory support.

Overall Assessment and Interest in Future Sustainability or Case Study Efforts

The evaluation form asked participants whether they would be open to partnering with SCG on future sustainability and efficiency efforts including serving as a case study. There were fourteen respondents representing twelve growers who filled out the form at the conclusion of the forum and all but one grower indicated that they would be willing to participate with SCG in future sustainability efforts and to serve as a case study.

The evaluation form also asked participants to rate the forum in terms of learning about sustainability using a scale of 1 to 10 where 1 means “not at all informative” and 10 meaning “very informative”.

As noted above there were twelve growers in total who attended the forum and the breakdown in scores is provided below:

- 1 grower with a score of 3 (same grower who declined future participation with SCG on sustainability projects)
- 1 grower with a score of 6
- 4 growers with a score of 7
- 5 growers with a score of 8
- 1 grower with a score of 10

While not a statistically large sample the mean was 7.25 and if the one grower with a score of three was removed given the significant deviation from the other scores the mean would have been 8.4. It appears that the growers found the forum of value given their ratings and the expressed interest by all but one to participate with SCG in future sustainability programs or to participate in a case study.

All of the growers were contacted via phone after the event to thank them for their attendance and to ask if they had any additional comments or recommendations to make. Every grower, including the one who rated the overall event at a 3, expressed their surprise and appreciation for the willingness of SCG to listen to them and that they hoped that this would be a regular (at least annual) event that would be rotated to different grower regions. The growers clearly know and communicate with each other and almost universally stated that they would encourage fellow growers to attend SCG forums/technology sessions based on their participation at this event.

In addition to the participant input on the evaluation form, interns took notes during the break-out sessions. Only one grower articulated a negative comment in the breakout session about his participation at the forum. The same grower rated the forum at a “3” and expressed significant dissatisfaction with the paperwork associated with reimbursement on energy saving projects.

Conclusions

A primary outcome of this roundtable forum was that the growers almost universally stated that it was a genuine pleasure to be “listened to” by SCG and that this forum approach should be a regular program. The growers were fully in concert that the Best Practices presentations were excellent and that they would appreciate similar forums and workshops in the future.

While all of the growers agreed that they try to operate in a “sustainable” manner the reality is that sustainability means doing what it takes to stay in business tomorrow and the day after and that while the current scope of SCG programs are generally known and utilized that the programs require too much “processing” and that the processing requirements to receive rebates and incentives need to be streamlined.

In respect to pushing the envelope of sustainability it was evident that all of the growers would like to self-generate energy to support their operations given that they have the space and need for alternative energy generation. The growers indicated that they would welcome support for SCG and other utilities to navigate through the regulatory process, design and implement the “best” alternative energy solution, and, most of all, would welcome financial support given the much longer ROIs associated with alternative energy projects

While the growers uniformly appreciate the willingness of SCG to listen to them, they also suggested that SCG spend more time with them in the field to gain a fuller understanding of the fact that every grower has unique considerations and that more customized solutions are required to fully embrace and implement the most viable and energy efficient sustainable approaches.

The following roster summarizes the most critically and frequently cited grower areas where SCG could add value to energy efficiency efforts in grower operations:

1. **Increase awareness of SCG programs**, particularly custom programs, through regular outreach such as:
 - Offer regular grower forums but customize them for specific grower types (i.e. hydroponic) and promote with and engage more with grower associations and equipment vendors.
 - Provide a dedicated “call-in” number for growers seeking information on SCG programs and services.

- Team up pump and irrigation specialists with SCG account executives to conduct more audits and field operation reviews.
- Provide help to perform financial analysis of break-evens and Return on Investment for energy efficiency project

While it would be easiest to provide this outreach primarily to large growers, SCG should allocate resources to **increase SCG account executive support to work with smaller growers**. Without a deliberate focus, smaller growers tend to be “left behind” and miss opportunities to pursue energy efficiency within their operations.

2. **Streamline the paper work** and reduce the processing time needed to qualify for and receive SCG rebates and incentives for currently supported energy efficient improvements, including heat curtains, energy efficient boilers, pipe insulation and other energy efficient products and technologies
3. **Provide more technical and design information**, including pre-engineering support, and increase financial support for advanced energy efficient boiler systems, advanced drip irrigation applications, water booms, water pipe insulation, and biologically sensitive basins; as several growers noted “It’s all about water”

In summary, SCG’s opportunity to address energy efficiency needs among the floriculture sector starts with greater outreach, in order to increase awareness and understanding, and includes technical assistance, to identify key opportunities, and will eventually conclude with more program-supported projects.

Appendix A: Forum Agenda

8:00 AM » Check-in and Breakfast

8:30 AM » Welcome, Introductions and Goals

9:00 AM » Soil Science and Sustainability – Cinzia Fissore, Ph.D.

9:30 AM » Best Practices at Plantel Nurseries – Scott Nicholson

10:00 AM » Best Practices Mini-Presentations

10:30 AM » Break

10:45 AM » Breakout Sessions

11:30 PM » Wrap-up

Noon » Lunch and Networking

Appendix B: Forum Evaluation Form

Sustainability Forum Evaluation Form
Your feedback will help us plan for future.



Name: _____
Organization: _____

Are you open to partnering with the Southern California Gas Company on future sustainability and efficiency efforts including serving as a case study? Yes No

How informative was this forum in terms of leaning about sustainability on a scale of 1 to 10, where 1 means "not at all informative" and 10 means "very Informative?"

_____ Rating

What did you learn today at this forum?

Will you look into implementing anything you learned about today? Why or why not?

Is there anything The Southern California Gas Company, can do for you that wasn't covered today?

What would you like to see in the future?

Appendix C: Roster of Participants

| Organization | Participant(s) |
|------------------------------------|---|
| Sunshine Floral | Anthony Vollering |
| Seaview Nursery | Bob Bell |
| Ball Tagawa Growers | Steve Siri |
| Ocean Breeze | Rene Van Wingerden |
| Plantel Nurseries | Scott Nicholson |
| Maximum Nurseries | Winifred Wingerden |
| Growers Transplanting/Rocket Farms | Kyle Harmon |
| DoRight's Plant Growers | Dudley Davis |
| PanAmerican Seeds | Rob Landreth |
| Cervini Farms | Rudy Beltran |
| Cal-Orchid, Inc. | James Rose |
| Houweling Tomatoes | Monica Houweling |
| Por La Mar Nursery | Ron Caird |
| Southern California Gas Company | Carlo Gavina, Program Manager Jeff Catanzaro, Senior Account Manager |
| Navigant Consulting | Amul Sathe, Associate Director Rob Russell, Associate Director |
| Energized Solutions | Daniel Duran, Ph.D., Principal Chiray Koo, Project Manager Maria Kirkhuff, Project Manager Ivan Jimenez, Intern (Rio Hondo Community College) Lillian Licon, Intern (Rio Hondo Community College) Anastasia Zamora, Intern (Rio Hondo Community College) |