

# Higher Education Collaboration for a Sustainable Community: 2-Years, 4-Years and Marketable Credentials

Webinar: 3/5/13

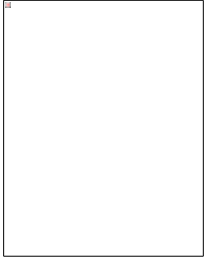




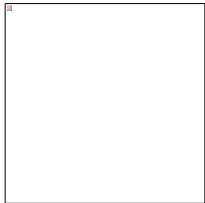
# Co-Sponsor: Building Performance Institute



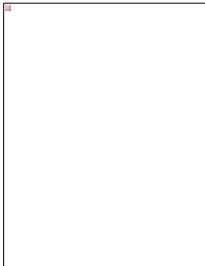
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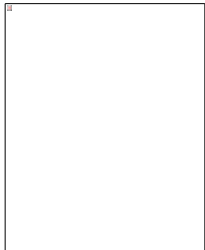
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**Jon Stallman, *Director, Energy X-Change***



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# “Chico Energy Pioneers” PG&E Innovator Pilot Program

- Chico Energy Pioneers Pilot Overview
- Community Education Program
- Workforce Development Training
- CSU, Chico Behavioral Analysis
- Scalable, Replicable, Sustainable



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# City of Chico

## Linda Herman



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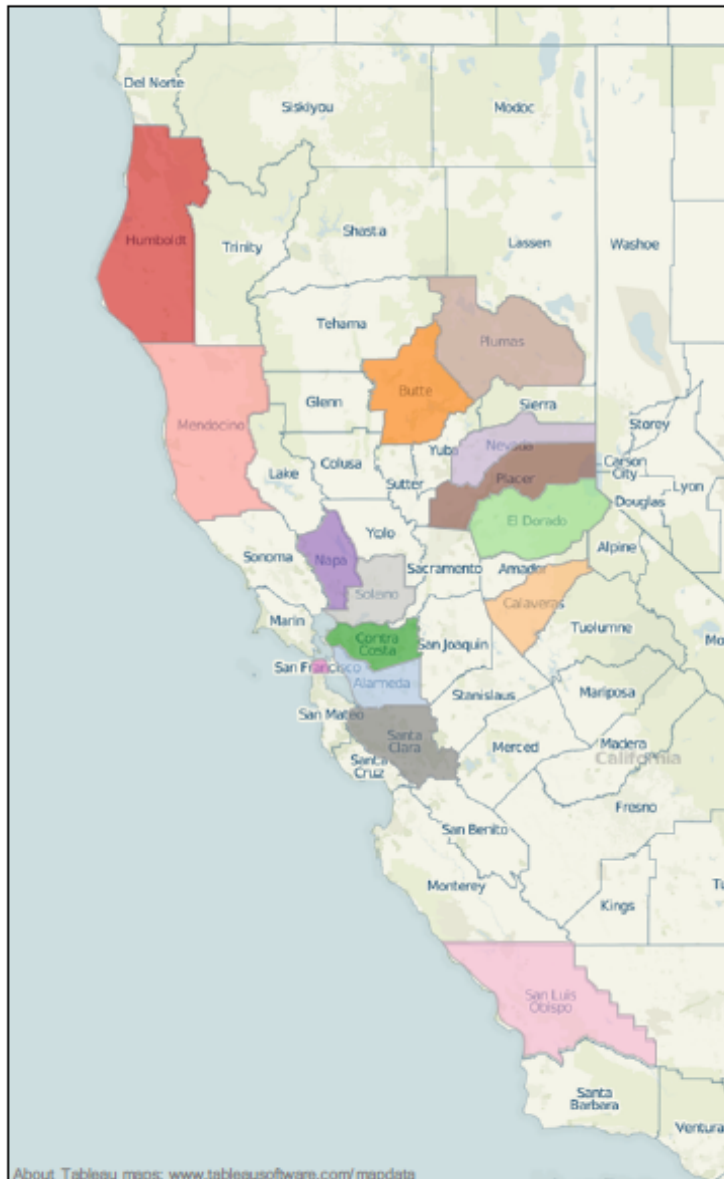




# Map of PG&E's Innovator Pilot Projects



**Innovator Pilots**  
Updated June 22 2012



## Innovator Pilots by County

Program Name	Alameda	Butte	Calaveras County	Contra Costa	El Dorado	Humboldt	Mendocino	Napa	Nevada	Placer	Plumas	San Francisco	San Luis Obispo	Santa Clara	Solano
Alameda County: Asset Rating and RECO Tools for Local Governments	●														
Alameda County: Leadership In Energy Efficiency Program (LEEP)	●														
Chico: Chico Residential Retrofit/Education		●													
East Bay: Quest Integrated Services	●														
East Bay: Quest Residential Tenant Landlord Policy Solutions	●														
East Bay: Small Cities Climate Action Partnership (SCCAP)	●			●											●
Humboldt County: Redwood Neighborhood Energy Challenge						●									
Mendocino County: Responsible Energy Awareness Practices Program (REAP)							●								
San Francisco: A Retirement Plan for Commercial Food Service Refrigeration												●			
San Jose: Silicon Valley Energy Watch (SVEW) Micro Grants														●	
San Jose: Silicon Valley Energy Watch (SVEW) Municipal Whole House Rehabilitation Project														●	
San Luis Obispo County: Small and Medium Business and Energy Dysfunction Prediction tool													●		
Santa Clara County: Correctional Facilities Innovator Project Proposal Benchmarking, Best Strategies, Pla..														●	
Sierra Nevada Region: SBC Green Prosperity Initiative			●		●				●	●	●				
Sustainable Napa County								●							

# Chico Energy Pioneers

## Project Goals

- Raise awareness about residential energy consumption.
- Understand how to achieve lasting energy efficiency and reduce GHGs through an integrated, two-phased approach:
  - Whole House Energy Assessment and Efficiency Upgrades.
  - Energy Management and Behavior Change.



# Chico Energy Pioneers

## Pilot Overview

- Project team: City of Chico, Butte College, The Training Place and CSU, Chico.
- Workforce Development: 30 trainees
- CSU, Chico: 5 Undergraduate Students
- Targeted 100 single-family participants

# Value of Partnerships to the City of Chico

- Limited staff available to implement a project of this magnitude (1 City staff person)
- Provided a high level of expertise and experience needed to complete the project
- Provided access to additional resources
  - For example: Butte College Workforce Development staff to make phone calls and coordinate classroom and facilities for workshops, students to meet with homeowners

# Value of Partnering with the City

- Access to grant funds that may only be available to government entities.
- Garner support of local officials.
- Grant administration duties (monthly status reports, invoicing to the utility etc.)
- Ability to provide funding for the program while waiting for reimbursement.
- Development of the contracts and agreements to complete the project and to provide for liability insurance and bonding (6 contracts for this project).

# Butte College, The Training Place

## Annie Rafferty



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# Community Education Program

## Recruitment

- Direct mail – door hangers
- 4 Evening and Saturday meetings held at local Elementary Schools
- Neighborhood Referral

## Homeowner Education

- 5 workshops held at Butte College, The Training Place on Evenings and Saturdays
- Structured to prepare homeowners for audit
- Hands on demonstration of audit procedure and equipment used
- Release forms and surveys to gather input on needs

# Workforce Training Building Performance Certification

## **Trainings Programs**

- Building Analyst
- Building Envelope

## **Participant selection**

- Information sessions and applications submitted to pre-screen and select candidates
- Traditional email notifications to Clean Energy mailing participants and posted information on the Butte College Training Place website
- Engaged local Contractor Association newsletters, emails and networking events.

# Workforce Training

## Building Performance Analyst / Envelope

### Participant Profiles

- 4 Realtors
- 3 University Graduates expanding certifications
- 8 Dislocated workers looking to build contracting skills
- 15 Professionals: 2 years – 30 years of experience
  - Licensed Contractors
  - Building Inspectors
  - Sub Trades
  - Engineers



# Workforce Training

## Building Performance Analyst / Envelope

### **Successfully trained 30 participants**

- 56 hours BPI classroom training
- 16 hours of BPI field demonstration
- 40 hours of Butte College technical training
- 24 hours technical training refresher higher performing students requested
- 30- 60 hours mentoring
  - commitment of 5 houses
  - higher performing students requested more houses

**TOTAL HOURS: range 166 – 196 per student**

# Workforce Training Building Performance Certification Written Exam Outcomes

**Building  
Analyst 90%  
pass rate**

<b>Building Analyst Exam</b>	
<b>Building Analyst</b>	<b>82</b>
<b>Concepts of Building Science</b>	<b>66</b>
<b>Building Science</b>	<b>83</b>
<b>Buildings and their Systems</b>	<b>82</b>
<b>Measurement &amp; Verification of Building Performance</b>	<b>73</b>
<b>BPI National Standards and Project Specifications</b>	<b>72</b>
<b>Analyzing/Optimizing Building Systems</b>	<b>78</b>
<b>Professional Ethics, Conduct, &amp; Communication</b>	<b>80</b>
<b>Total Class Average Score</b>	<b>88</b>

# Workforce Training Building Performance Certification Written Exam Outcomes

**Building  
Envelope  
95%  
pass rate**

<b>Building Envelope Exam</b>		
<b>Building Analyst</b>		<b>81</b>
<b>Concepts of Building Science</b>		<b>57</b>
<b>Building Science</b>		<b>85</b>
<b>Buildings and their Systems</b>		<b>64</b>
<b>Measurement &amp; Verification of Building Performance</b>		<b>78</b>
<b>BPI National Standards and Project Specifications</b>		<b>57</b>
<b>Analyzing/Optimizing Building Systems</b>		<b>89</b>
<b>Professional Ethics, Conduct, &amp; Communication</b>		<b>76</b>
<b>Total Class Average Score</b>		<b>84</b>

# Workforce Training

## Building Performance Institute

### Certification Field Testing Results

<b>1<sup>st</sup> Attempt</b>	
<b>Building Analyst</b>	<b>14</b>
<b>Building Envelope</b>	<b>14</b>
<b>2<sup>nd</sup> Attempt (after 24 hours refresher training)</b>	
<b>Building Analyst</b>	<b>5</b>
<b>Total Certifications</b>	
<b>Building Analyst</b>	<b>19</b>
<b>Building Envelope</b>	<b>14</b>
<b>Profile of Students Earning Certifications</b>	
<b>University Graduates</b>	<b>100%</b>
<b>General Contractors, Building Inspectors, Subcontractors, Engineers</b>	<b>86%</b>
<b>Underemployed/Unemployed</b>	<b>40%</b>
<b>Realtors – dropped out before testing</b>	<b>0%</b>

# Workforce Training

## Building Performance Analyst / Envelope

### **Participant Feedback**

- I should have been learning the concepts and application methods 27 years ago.
- Most difficult course... I have my masters degree and contracting experience.
- The whole house concepts are critical to our future of energy efficiency measures and retrofits to assist in a path to net zero.
- Thank you, Thank you, Thank you – This program will differentiate my business and homeowner confidence with certified professionals. I'm proud to become one of them!

# Workforce Training

## Building Performance Analyst / Envelope

### Instructor Feedback

- Design and organization of course is the best in the State to support the trainee success
- An excellent crossover of student profiles and backgrounds to collect learning performance data to determine optimal success for labor market.
- Basic math and sciences skill - required
  - Students with strong basic skills refreshed during theory portion of the training and accelerated during technical application training
  - Students without basic skills struggled during theory and further experienced frustrations during technical application of the training

# Energy X-Change

## Jon Stallman



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# Workforce Training

## Technical Training Design

### **Value of Field Mentoring**

- Hands on technical learner
- Service learning connects student with the community
- Soft skill development with real people
- Variation of technical exposure to the hard skills in practice at each home
- Repetition to develop proficiency and quality of work output

# Workforce Training

## Technical Training Design

### **Best Practices**

- Centralized Point of Communication
- Student proficiency assessment of basic skills, technical building experience, and level of soft skills
- Awareness of professional student work schedules
- Building trust with Homeowner - relationship and expectation of students in their home
  - Technical Education Credentialed Instructor and Program Manager Lead (dual role)
  - Only BPI Credentialed students in the home
- Qualifications of the test homes to prepare students for BPI test scenarios

# Workforce Training

## Technical Training Design

### **Best Practices**

- Quality of data collection by students -develop a process to review end of day reports
  - Did they capture it all?
  - Is the data accurate?
  - Are there photos to show the story?
- Technical software capacity
  - Excel and reporting skills
  - Process guides for students to use on site
- Build technical skills for data analysis
- Build professional customer skills

# Chico State University

## Dr. Scott McNall



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CSU, Chico

Behavioral Analysis

**What information and in what form was needed to act?**

- Participant demographics
- Prior level of engagement
- Initial barriers to change
- Preliminary findings

# CSU, Chico Student Experience

## Value for Chico State Students

- Learn how to do behavioral research and adjust the initial design to real-world barriers.
- Analyze data, test hypotheses, and provide valuable insights into the extent to which behavior can be changed.
- Student develop a skill set they can use in seeking jobs with corporations that have sustainability coordinators and those that deal in home-energy use.
- Participation in the project is not unlike taking another class, although one in social research.

# Scalable, Replicable, Sustainable Recommendations

1. Develop a broad education, industry, government and university partnership to draw on the knowledge and skills you will need to execute a similar project.
  - Leverage local community college workforce development training resources: training, established industry certification relationships, communication, facilities and scheduling
  - Promote values of a University partnership
  - Develop relationships with your city partners and seek a person from the city to dedicate to the project.
2. Establish methods to provide participants –students, workforce trainees. partners and homeowners with communication



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# QUESTIONS?

## Sustainability Across the Workforce

**Curriculum:** *How do you do it and what does it look like when it works?*

*April 10, 2013: Stay tuned to [www.theseedcenter.org](http://www.theseedcenter.org)*