



Small Building Tune-up Pilot Program



Control
Service Center

Agenda

- Program Background
 - What is the Small Building Tune Up Program?
 - Why?
 - Who?
 - Process?
- Results
- What are the next steps?



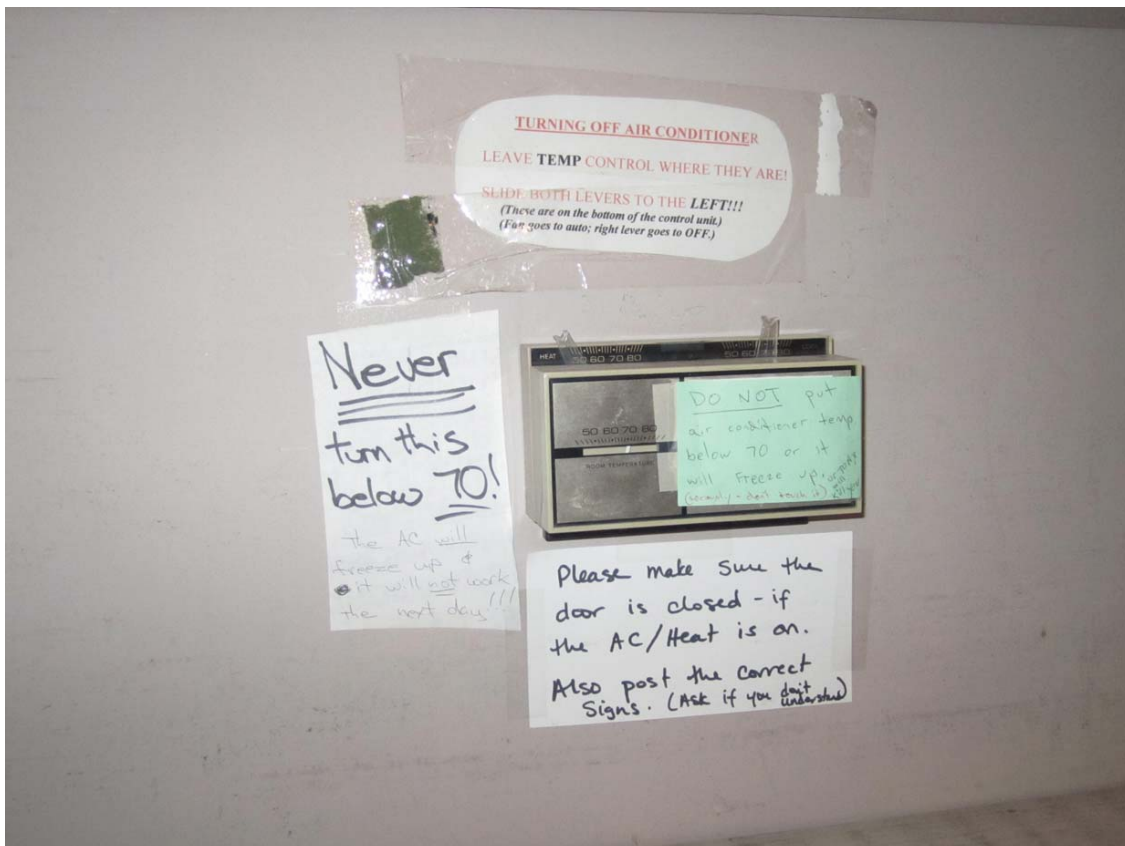
What is the Small Building Tune Up Pilot Program

- Launched in June 2010
- Tuning up Existing Buildings' Equipment and Controls
 - HVAC
 - Lighting Controls
 - Computer power settings
- Going beyond preventative maintenance
- Variety of building/system types
- Focus on buildings btw 5,000 and 50,000 sq feet
- Free for Pilot participants



Programming rooftop unit heating/cooling controls

Why the Small Building Tune-up Pilot Program?



Why the Small Building Tune-up Pilot Program?

- Most cost-effective path to efficiency
- Filling market gap
- Launched as Pilot to understand process, cost/savings and market needs



Who was Involved?

- City of Boulder
- Brendle Group
- Nexant, Inc
- Control Service Center
- Platte River Power Authority
- Boulder County Public Health
- City of Boulder commercial property owners



Flue gas analyzer



Control
Service Center

Pilot Design Process

- Determined participant selection criteria
- Evaluated energy-saving measures
- Projected costs and savings
- Developed program forms
- Evaluated specialized tools
- Developed field work process



Highland Cooling Units



How the Pilot Works in the Field

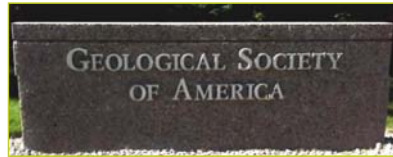
- Scheduling
- Site Visit Protocol
- Assessing Needed Measures
 - Common
 - Unique
- Implementation
- PC tablet and flow plate
- Reporting



Combustion analysis

Pilot Program Results

- 15 businesses participated
- Wide variety of findings



Pilot Program Results

Top Five Measures

1. Installing programmable thermostats
2. Scheduling programmable thermostats
3. Fixing economizers
4. Adjusting minimum outside air percentage
5. Adjusting domestic hot water temperature



Programming rooftop unit heating/cooling controls



Using tablet at Boulder Beer

Pilot Program Results

	Average	Total
Annual Electricity Savings (kWh)	9,468	113,620
Annual Natural Gas Savings (therms)	2,515	30,185
Annual Utility Cost Savings	\$1,995	\$23,941
Implementation Costs	\$3,346	\$50,195
Simple Payback (years)	1.7	2.1
Annual CO ₂ Emissions Saved (tons)	22	259



Case Study: Boulder Chamber

- Heating on warm days and during unoccupied periods
- Simultaneous heating and cooling
- Faulty economizer/no outside air during heating season
- Boiler tune-up
- Tune-up costs: \$5,000 (less than 3 year payback)
- Estimated annual savings: \$1,800; 1,540 therms; and 26,000 kWh; 31 tons CO₂



Case Study: 1245 Pearl Property

- Consolidated multiple manual thermostats
- Chiller programmed to run during unoccupied periods and in winter
- Improperly sized boiler regulator
- Tune-up costs: \$5,550 (payback: 7 years)
- Estimated annual savings:
\$800
1,220 therms
7 tons CO2



Lessons Learned...

- Every building is unique
- Realistic timeline for a small business
- Define preventative maintenance versus tune-up efforts
- Seasonal factors
- Success of PC tablet
- Refine savings estimate approach
- More to come...

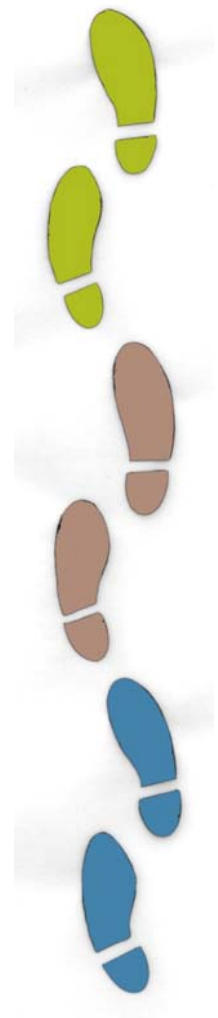


Next Steps

- Final reporting
- Customer survey to get participant feedback
- Integration into overall Commercial Energy Efficiency programs
 - Rebate Structure
 - Contractor Training
 - Program Offerings
 - Launch Spring 2011



Adjusting minimum outside air percentage



Testimonials

“Thank you very much! We look forward to both the smaller footprint and to the savings.”

-Richard Polk, Pedestrian Shoe Shops

“Inspirational!”

- KGNU



Relief dampers stuck open at Nvidia



Dust on dampers gives clues to issues

Questions?



Thank You!

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Next Steps cont.

Integration into overall Commercial Energy Efficiency programs

- Rebate Structure
- Contractor Training
- Program Offerings
- Launch Spring 2011



Testing minimum outside air percentage

