

Upstream & Midstream Programs for the Commercial & Industrial Sector

Prepared for:

2013 Southwest Regional Energy Efficiency Workshop

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Presentation Agenda

- Energy Solutions' Background
- Why go Upstream/Midstream?
- Examples of Upstream/Midstream Programs
- Results
- Best Practices
- I Am Interested, Now What?
- Future Programs

Energy Solutions Background

Our Mission: Energy Solutions' mission is to create *large-scale* environmental benefits for our clients by implementing *market-based* solutions and developing policies that contribute to these goals.

- Founded in 1995, ~ 80 employees
- Clients and customers served:
 - Energy utilities
 - Water utilities
 - Efficiency Organizations
 - State and local government agencies
 - Federal and international government agencies
 - Universities and community colleges
 - United Nations
 - NGOs
 - Private sector- Some National Retail Chains, Commercial Property Managers



Energy Solutions Core Practice Areas



Energy Efficiency
Program Design &
Implementation



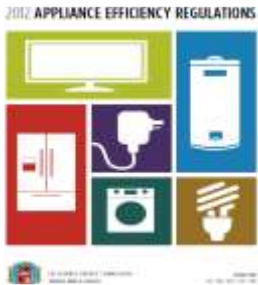
Emerging Technologies
and Early
Commercialization



Demand Response



State and Local
Government Services



Policy and Ratings,
Including Codes &
Standards



Information Systems
and Software
Development



Renewables, Storage,
and IDSM



Clean Transportation

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Upstream / Midstream Definitions for this Presentation

- Upstream
 - Manufacturers and Distributors
- Midstream
 - Contractors and Retailers



A Brief History

Prior to Upstream Programs in California...

Downstream (end-use customer) HVAC & motor rebate programs typically had very low participation compared to estimated annual sales...

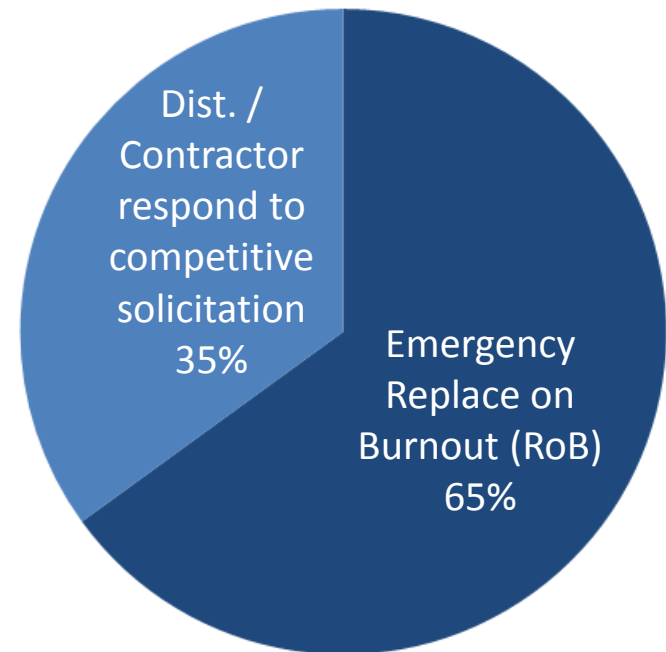
...hence, plenty of room for improvement.

Why do downstream HVAC approaches struggle?

Major driver is “first cost,” hence:

- Contractors do not promote EE HVAC
- Distributors stock cheapest units
- Premium HVAC is a “special order”
- “In stock” HVAC is installed

How Commercial HVAC Sales are Made



SOLUTION: UPSTREAM HVAC PROGRAM

What are upstream / midstream programs doing differently?



- **Leveraging** a few competitive actors to cover the market vs. lots of customers
- **Targeting** market actors that either control equipment **stocking** or can **influence** the largest number of equipment sales
- **Minimizing** downstream **markups** (first cost)
- Providing better customer service
 - Easier participation into utility rebate programs
 - More customers installing energy efficient equipment
- **Aligning w/** existing sales & marketing **process**

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Upstream Food Service

- Split incentive barrier
 - Equipment purchased/owned by bottling company (i.e., Coke, Pepsi, etc.)
 - End user pays electric bill
- Equipment is not rebated through existing programs (zero participation downstream)
- Upstream rebate provided to bottling companies



Midstream Signs Lighting

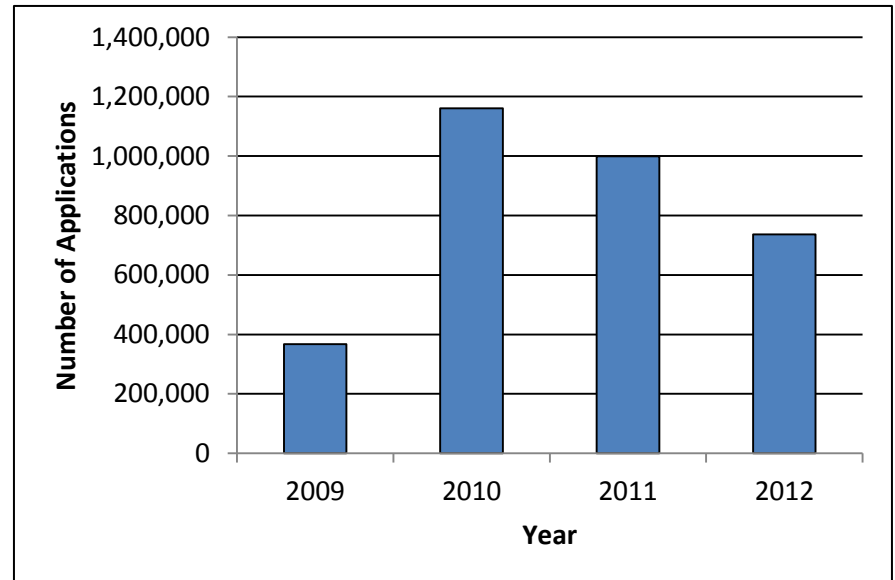
- LED modules go inside channel letter
- Electrical supply distributors sell LED modules and sign materials to contractors
- Contractors design and build signs
- Midstream rebates go to contractors



Midstream Consumer Electronics Program

- Residential program but applicable midstream retailer model
- Program design initially for distributors, but big box retailers control orders
- Big box retailers won't fill out hundreds of thousands of paper rebate applications

Televisions



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What is Possible?

What percent better do upstream
programs perform vs.
downstream?

What is Possible?

How about **15** percent better?

What is Possible?

No! Let's try **40** percent better?

What is Possible?

Still too low... Think **BIG**

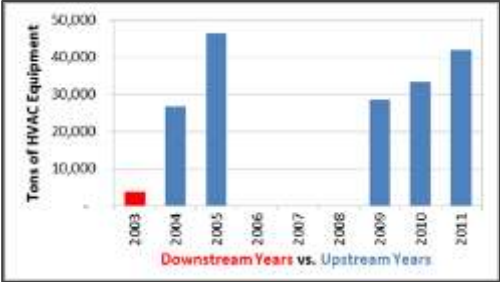
900 Percent Better Results!

HVAC

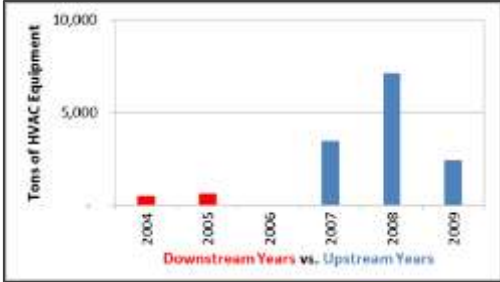
PG&E



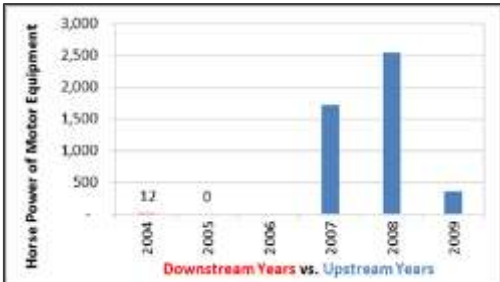
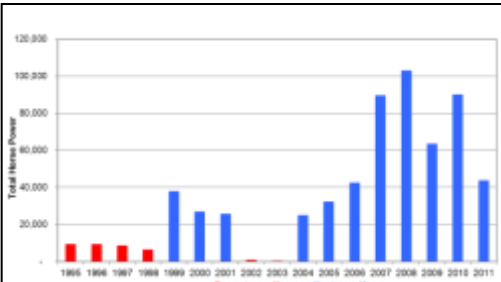
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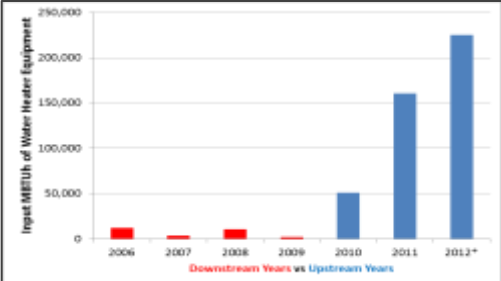
NV Energy



Motors

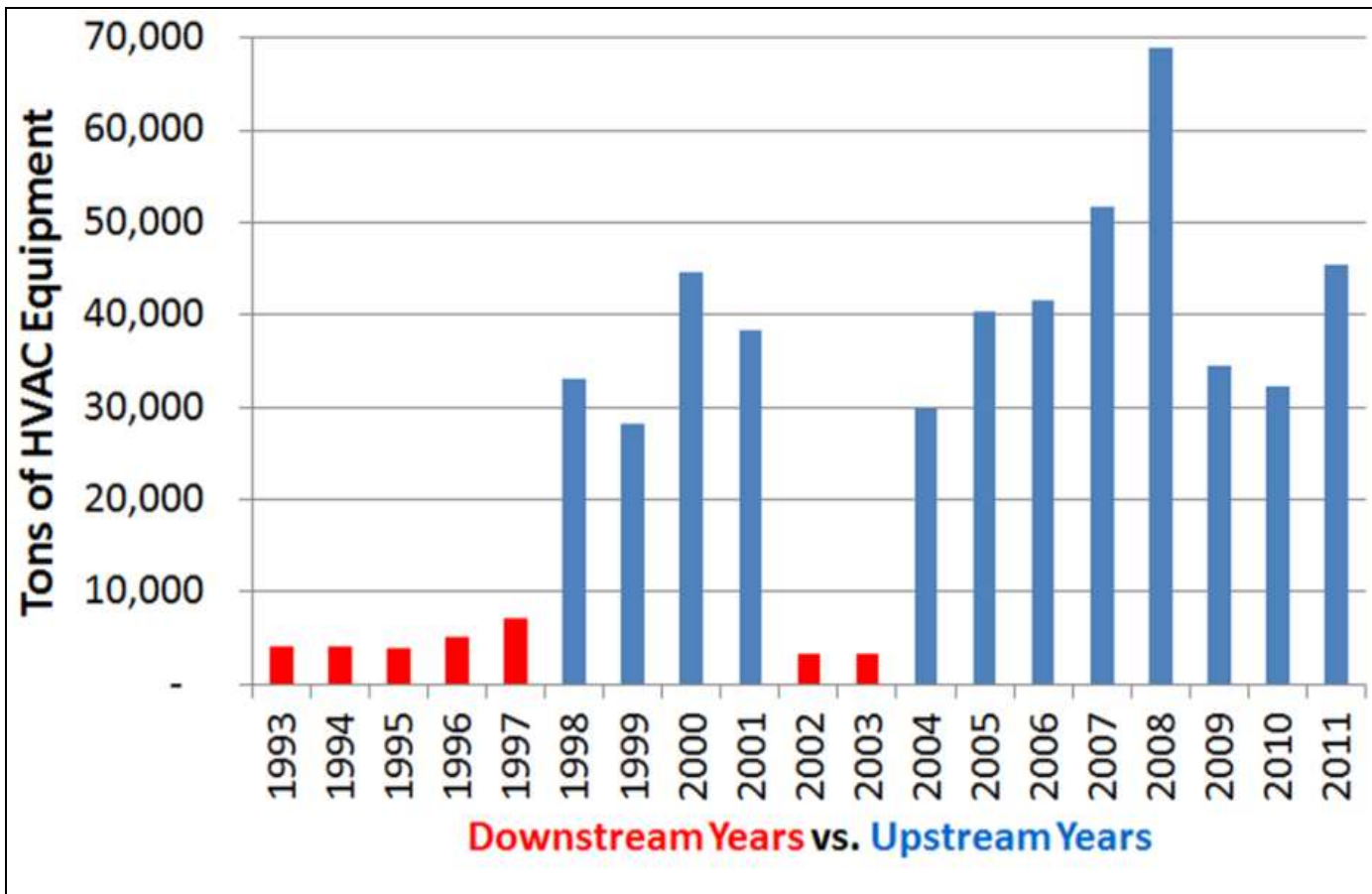


Water Heating



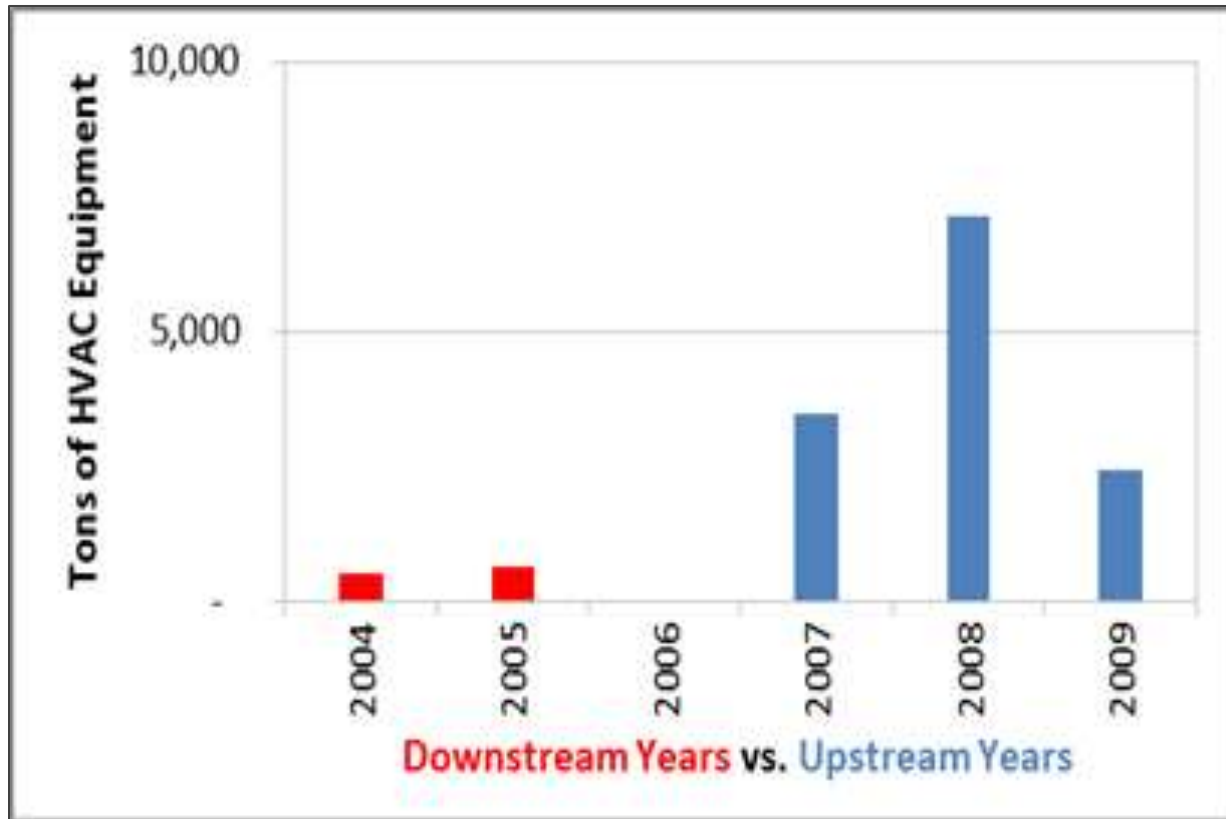
PG&E HVAC Program

Upstream vs. Downstream Performance



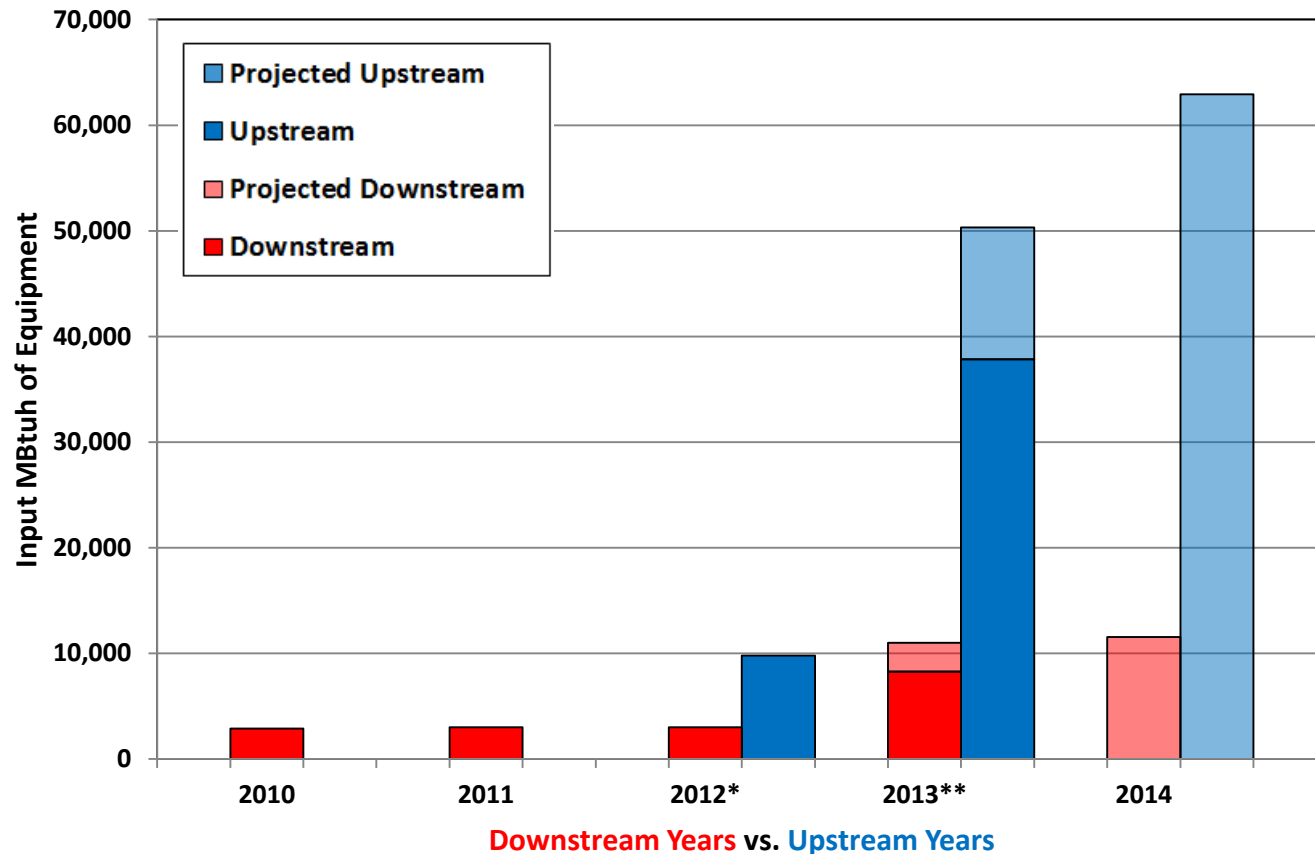
Note: The 2009-2010 drop-off can be linked to the US economic recession.

NV Energy Sure Bet HVAC Program Upstream vs. Downstream Performance



Note: The 2009 drop-off can be linked to the US economic recession.

SoCal Gas Water Heater Program Measure Comparison – Large Storage Water Heaters Upstream vs. Downstream Performance

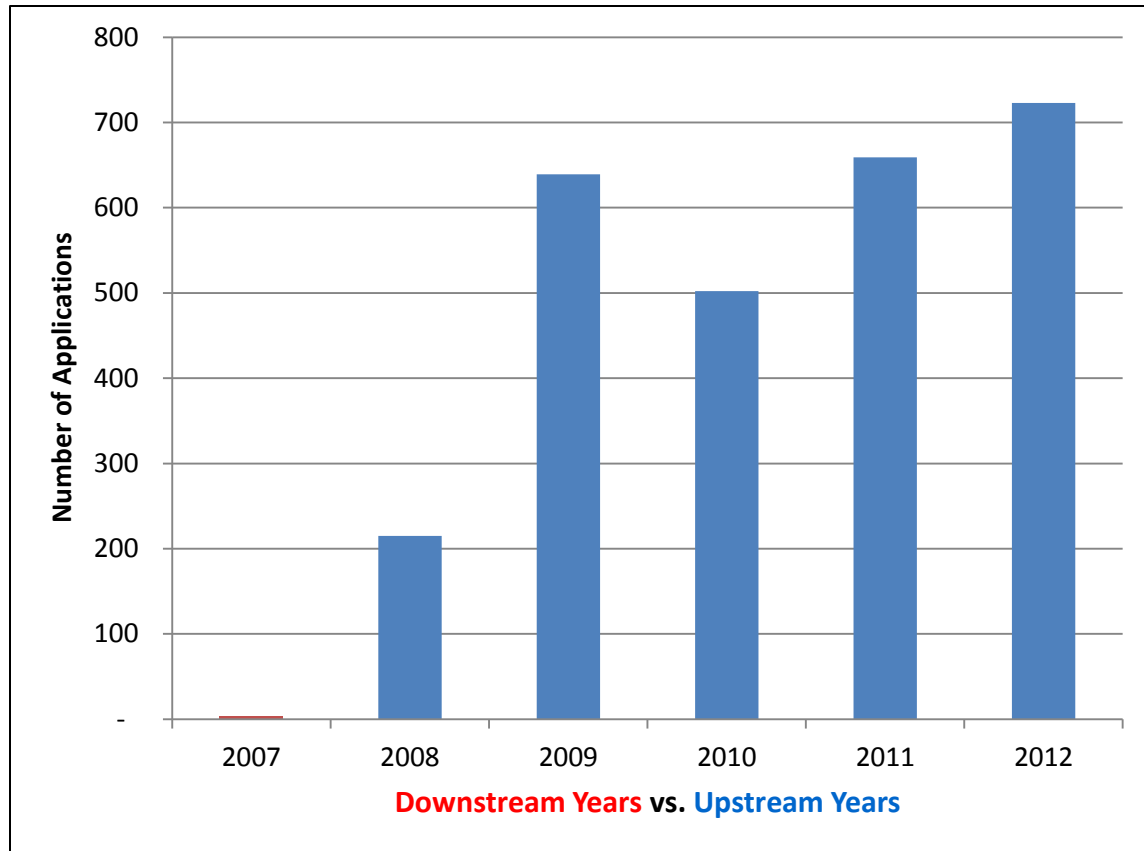


* Upstream launched 10/10/12

** Rebates increased 150%

Data as of 11/15/13

PG&E Midstream Signs Lighting Upstream vs. Downstream Performance



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900 Percent Improvement... how?

- Simplify program design
 - Require customer address, not service account #. Match service account # in the background
- Streamline incentive applications
 - Pay quickly
 - Use online rebate application system
- Include ALL measures, even ones that aren't as cost effective
 - Aligns w/ the market
 - Introduces emerging technologies, while maintaining cost effective program
- Offer tiered incentives
- Apply a market-based approach ... free the market

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I am Interested, Now What?

- Pick an underperforming downstream technology
- Determine which market actor "controls" the product offering
 - Market actors can be manufacturer, distributor, contractor or retailer
- Consider various program design options (next slide)
 - Cost effectiveness vs. maximizing participation

Program Design Options

| Scenario | Pros | Cons | Relative Cost |
|---|---|---|---------------|
| Add common measures; Set rebates based on \$/kwh | <ul style="list-style-type: none"> • Simple design • More participation than downstream • Most cost effective option | <ul style="list-style-type: none"> • Not aligned w/ market • Won't maximize participation | \$ |
| Add non-cost effective measures | <ul style="list-style-type: none"> • Rebating what market sells, thus ↑ participation • Overall program still cost-effective | <ul style="list-style-type: none"> • Not aligned w/ market • Won't maximize participation | \$ |
| Add online processing | <ul style="list-style-type: none"> • Eliminate paper rebate barrier • ↑ participation • Decreased processing cost | <ul style="list-style-type: none"> • Additional development cost | \$\$ |
| Set rebates based on IMC | <ul style="list-style-type: none"> • Maximizes participation • Aligns w/ market | <ul style="list-style-type: none"> • Higher cost compared to \$/kwh | \$\$\$ |

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Future Programs

- Upstream Auto Demand Response HVAC Program
- Midstream Early Retirement HVAC Program
- Midstream Retailer Smart Thermostat Program
- Midstream LED reflector lamp program



**Variable Refrigerant
Flow System**



Thank You For Your Time and Participation!

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ADDITIONAL SLIDES

Participating HVAC distributors

95% of the California HVAC market participates in the program



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Two types of Upstream Programs

- 1) Collect Customer Info (e.g., HVAC, LED replacement lamps)
 - Require Market Actor collect end-use customer installation address
 - Can be challenging for some market actors, but competition will spur participation
 - EM&V is more straightforward because customer is matched to utility service account
- 2) Don't Collect Customer Info (e.g., Upstream CFL Lighting)
 - Use retailer zip code to establish valid sales
 - Simpler program design
 - Easier participation for market actor

Upstream Implementation Process: Collect Customer Information

1. Recruit and enroll distributors in program
2. Distributors stock, promote and sell high efficiency equipment
3. Distributors ship equipment to customers for installation
4. Distributors enter equipment information into online application
5. Payments issued to distributors
6. A percentage of installed equipment is inspected