United Technologies

Climate | Controls | Security

Upstream Rebate Programs
UC Davis Meeting 5-15-2017

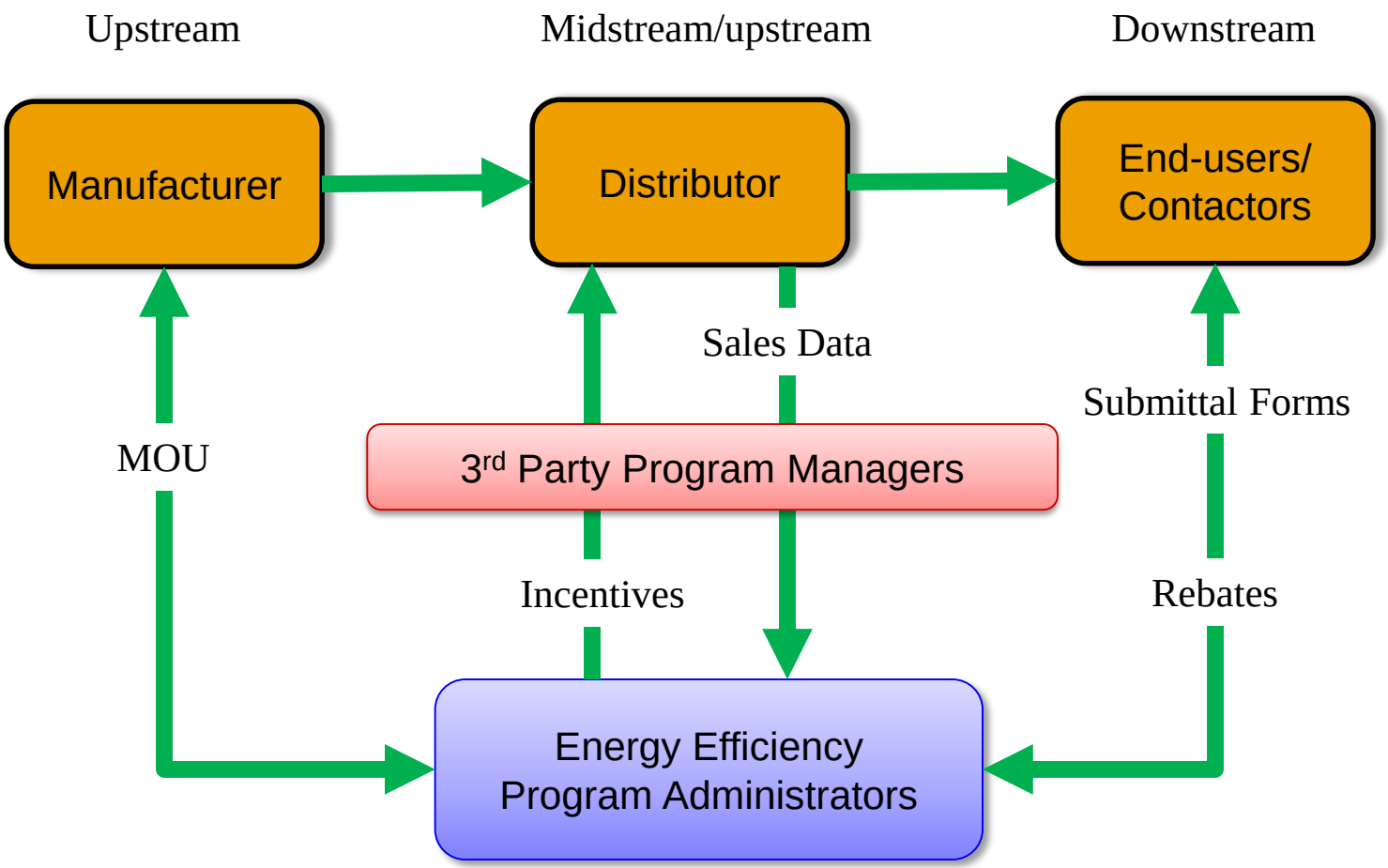
Richard Lord
Climate Controls and Security – Carrier
Innovation and Research
Sr. Carrier Fellow, ASHRAE Fellow

Introduction

Objective of this presentation is to review the following;

1. Overview of upstream rebate programs
2. How are they being used by utilities
3. What do manufacturers think of the up-steam rebate programs
4. What impact have they had manufacturers and distributors
5. What would manufacturers like see considered in rebates programs

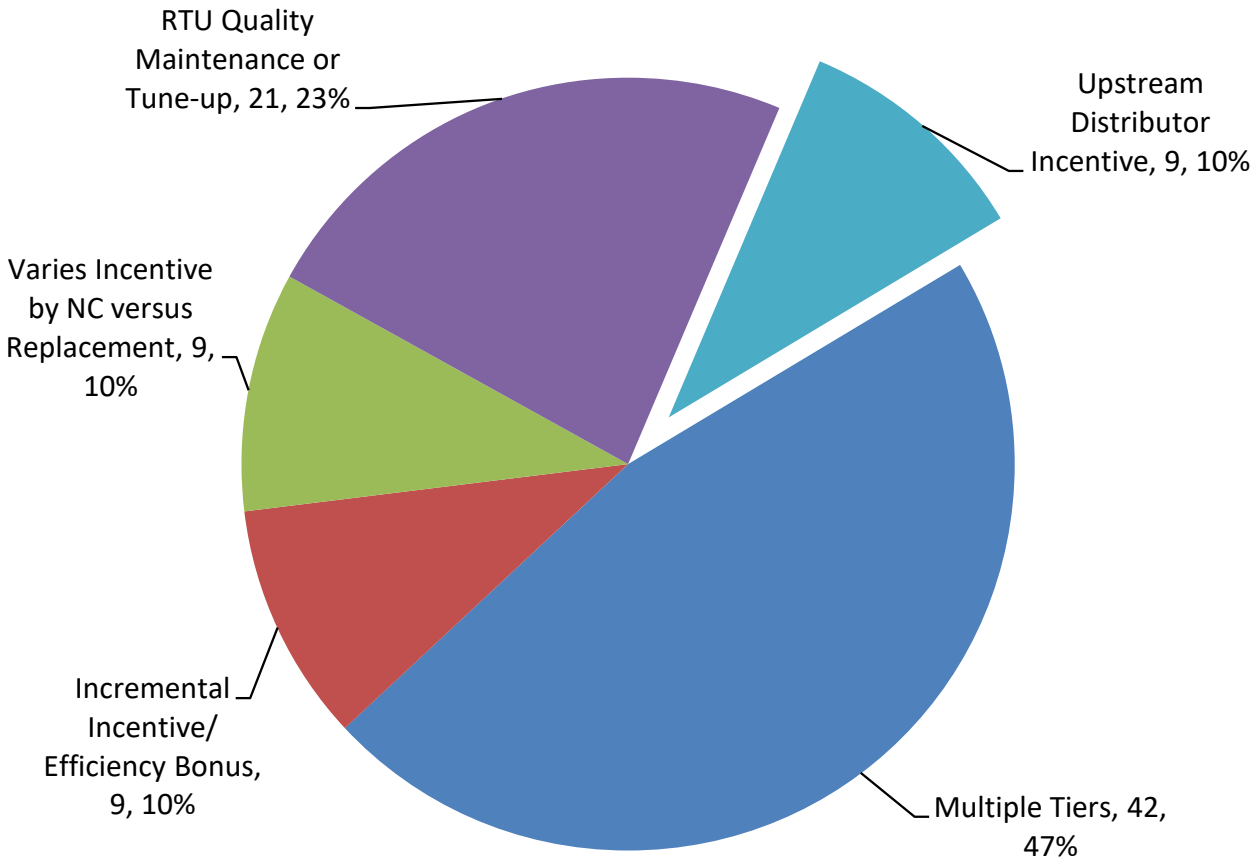
Rebate Program Overview



Source: Graphic reprinted from Sondhi 2013b.

Upstream Rebate Programs

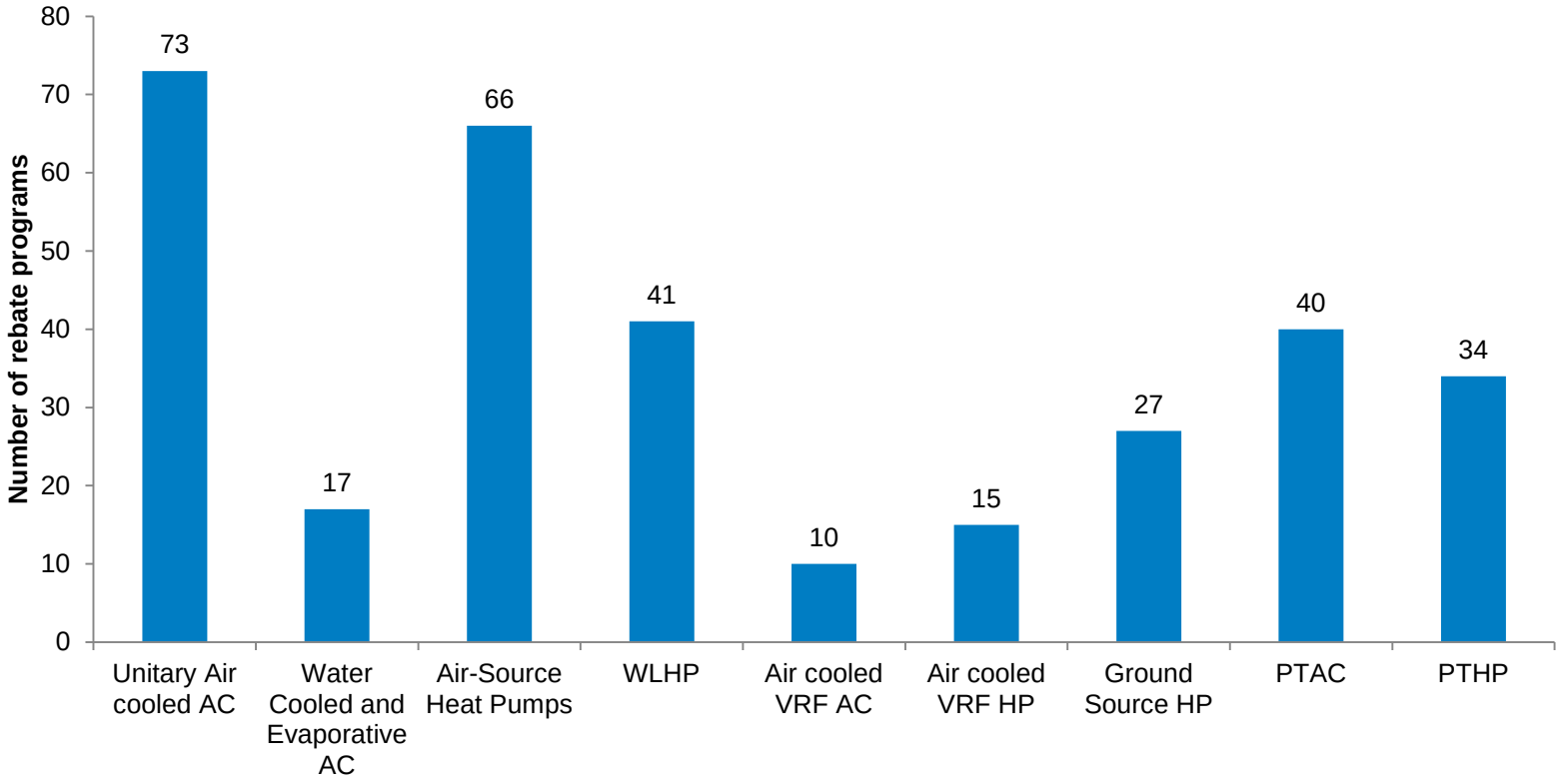
According to a tracking report from Consortium for Energy Efficiency there are 9 active Upstream Commercial rebate programs but they are growing



Source: CEE_Commercial_ACHP_Program_Summary_Final.xls

HVAC Product Rebates

CEE also tracks rebates by type of HVAC product

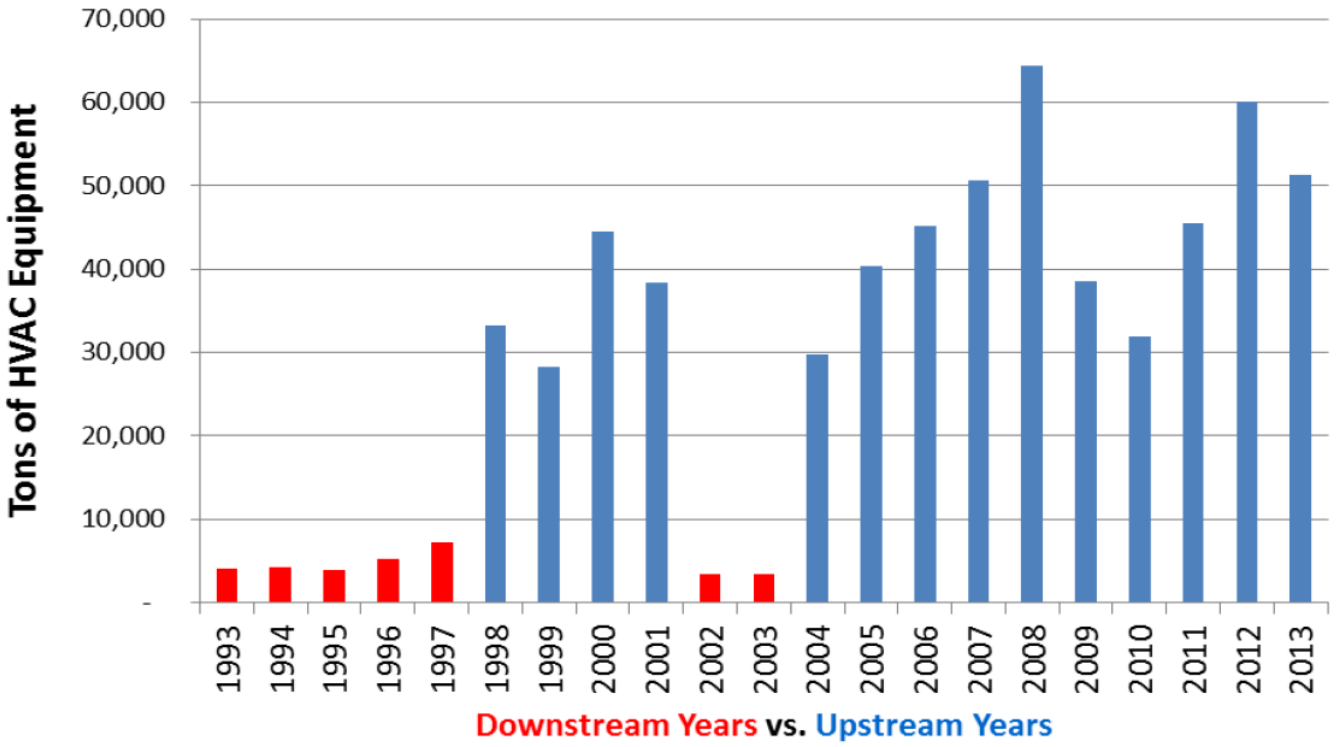


Source: CEE_Commercial_ACHP_Program_Summary_Final.xls

Upstream Rebate Program Benefits

The following chart shows the historical impact of upstream rebates at a distributor level based on PG&E which is one of the first upstream rebate programs implemented

Figure 2 | PG&E Commercial HVAC Program Results: 1993-2013



Source: Graphic provided by Jim Hanna, Energy Solutions (Hanna 2014).

Manufacturer Impact and Comments

- We checked with our local California distributor and they have seen positive benefits from the upstream rebate programs
  - Encourages salesmen to sell higher efficiency products
  - Changing stocking plans for distributors to stock higher tier products
  - For residential we see upstream rebates primarily used in new construction and not in replacement market which is 60% to 80% of the sales
  - We do strongly support and would like to see them expanded
  - We would like to see higher level rebates programs to focus on annualized efficiency and full system efficiency including connected equipment and diagnostics
  - We would also be open to discussions at the manufacturing level in addition to distributor level

Equipment and System Efficiency

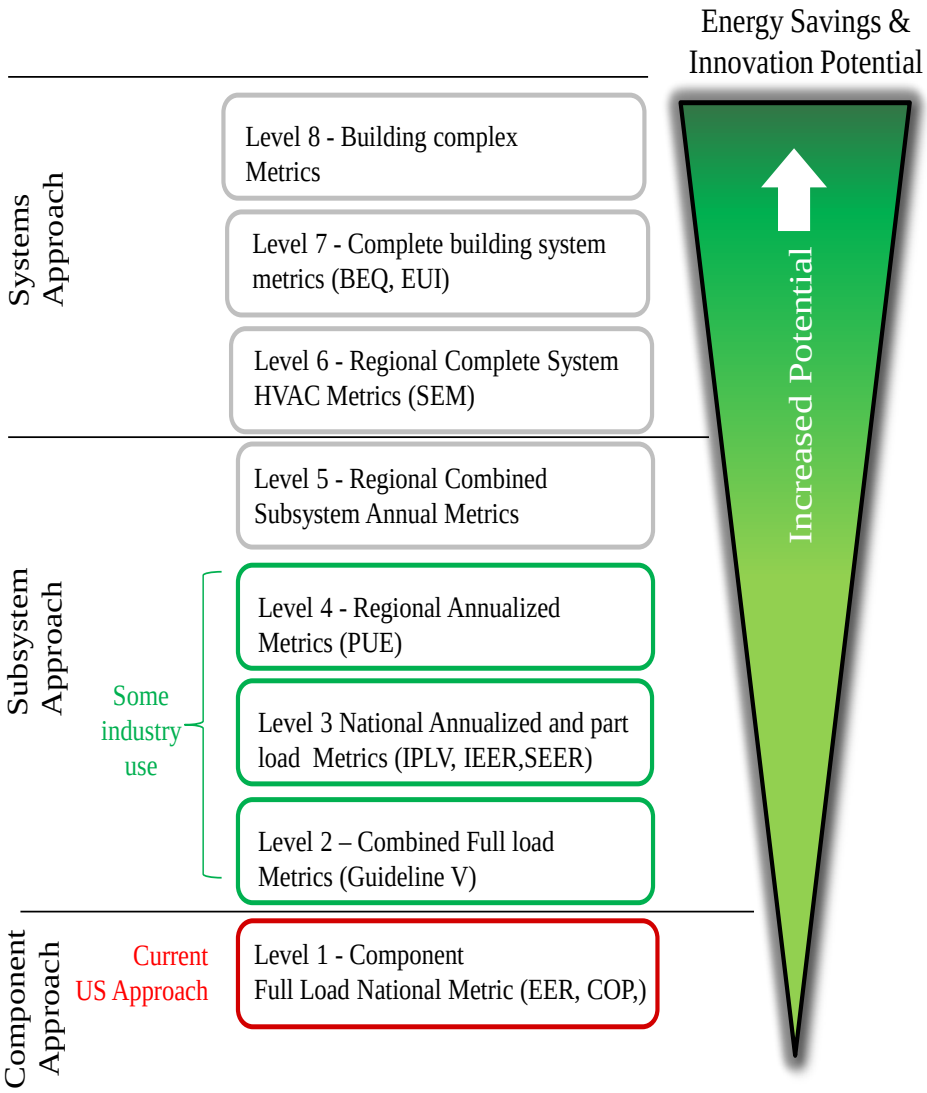
Historically most minimum efficiency levels and rebates levels have been at level 1

The industry has started to move to annualized metrics and part load metrics like IPLV, IEER, SEER, SEER2 etc. which are more representative of energy savings

There are additional opportunities for significant energy savings at higher system levels but these will take new approaches for metrics and tools

There are also significant opportunities for post commissioning and recommissioning and the use of connected equipment

There are opportunities for rebates and we are exploring these with organizations CEE



Reference Documents

There is a very good summary report on Upstream Rebates that will provide further background (SWEEP).

http://www.swenergy.org/data/sites/1/media/documents/publications/documents/Upstream_Utility_Incentive_Programs_05-2014.pdf

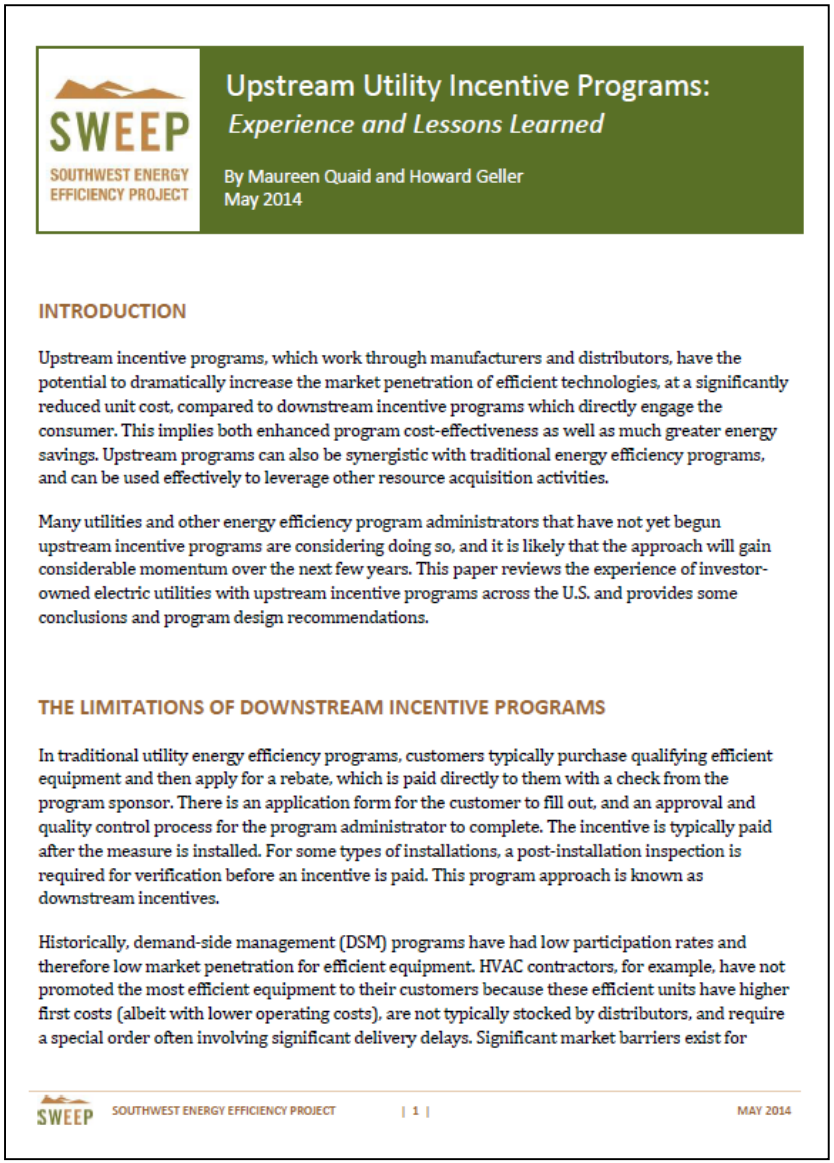
CEE also has some very good data and information on rebate programs

CEE 2016 Commercial Air-conditioning and Heat Pumps Program Summary:

https://library.cee1.org/content/2016-cee-commercial-air-conditioning-and-heat-pumps-program-summary.

Program summaries for other HVAC equipment covered by CEE initiatives can be found here:

https://library.cee1.org/content/2016-cee-commercial-air-conditioning-and-heat-pumps-program-summary



SWEEP
SOUTHWEST ENERGY EFFICIENCY PROJECT

Upstream Utility Incentive Programs:
Experience and Lessons Learned

By Maureen Quaid and Howard Geller
May 2014

INTRODUCTION

Upstream incentive programs, which work through manufacturers and distributors, have the potential to dramatically increase the market penetration of efficient technologies, at a significantly reduced unit cost, compared to downstream incentive programs which directly engage the consumer. This implies both enhanced program cost-effectiveness as well as much greater energy savings. Upstream programs can also be synergistic with traditional energy efficiency programs, and can be used effectively to leverage other resource acquisition activities.

Many utilities and other energy efficiency program administrators that have not yet begun upstream incentive programs are considering doing so, and it is likely that the approach will gain considerable momentum over the next few years. This paper reviews the experience of investor-owned electric utilities with upstream incentive programs across the U.S. and provides some conclusions and program design recommendations.

THE LIMITATIONS OF DOWNSTREAM INCENTIVE PROGRAMS

In traditional utility energy efficiency programs, customers typically purchase qualifying efficient equipment and then apply for a rebate, which is paid directly to them with a check from the program sponsor. There is an application form for the customer to fill out, and an approval and quality control process for the program administrator to complete. The incentive is typically paid after the measure is installed. For some types of installations, a post-installation inspection is required for verification before an incentive is paid. This program approach is known as downstream incentives.

Historically, demand-side management (DSM) programs have had low participation rates and therefore low market penetration for efficient equipment. HVAC contractors, for example, have not promoted the most efficient equipment to their customers because these efficient units have higher first costs (albeit with lower operating costs), are not typically stocked by distributors, and require a special order often involving significant delivery delays. Significant market barriers exist for