

How do Upstream Buy-down Programs Work and How You Can Make a Good One: 80 PLUS® Great Results and Lessons Learned

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ABSTRACT

In March 2004, Ecos embarked upon an ambitious program called 80 PLUS, and announced the initiative's launch during the American Council for an Energy-Efficient Economy (ACEEE) Market Transformation Symposium. Research showed that energy consumption of all desktop computers and desktop-derived servers could be reduced by 15 to 25 percent by improving power supplies efficiency to at least 80 percent. Simultaneously, ENERGY STAR® was planning to update Version 3.0 for desktop computers, a specification that hadn't changed since July 2000. Despite the significant energy savings opportunity, the market supply-chain wasn't in place to take advantage of innovations. It was a perfect opportunity for a market intervention effort.

Within 6.5 years of the launch of the 80 PLUS initiative over 3,200 power supplies from over 70 manufacturers were certified 80 PLUS. At the high point, 14 sponsors across North America were offering over \$5 million in incentives major original equipment manufacturers (OEMs) joining the program (HP, Dell and Lenovo), as did numerous small regional value added resellers (VARs). Subsequently, ENERGY STAR included the 80 PLUS standard level specification in its Version 4.0 desktop specification.

This paper will provide some historical perspective on how the program was implemented and additional insights into lessons learned from the last time 80 PLUS was presented at ACEEE in 2008. Also included is a background on 80 PLUS (what worked and what didn't) and other upstream buy-down programs, as well as 80 PLUS program results and suggestions on implementing innovative upstream buy-down programs similar to 80 PLUS.

Background on Upstream Buy-down Programs

What does upstream buy-down mean?

As the name suggests, the primary goal of an upstream buy-down program is to offer incentives (most often from electric utilities) "upstream" in the market channel to manufacturers to "buy down" a portion of the incremental cost for the targeted intervention strategy. The intended outcome is to decrease the incremental cost low enough to encourage a higher rate of manufacture and market adoption than would have otherwise occurred with no incentive intervention. As with 80 PLUS and similar program models, utility incentives serve an integral need and purpose within upstream buy-down programs.

Background on the 80 PLUS Program

By 2004, ENERGY STAR had not updated its specification for desktops in four years while initial research of internal power supplies indicated significant inefficiencies (45-65 percent efficiencies were not uncommon). This same research showed that much greater power supply efficiency was possible, and it was becoming apparent that the market was ready for an intervention. The California Energy Commission, Pacific Gas & Electric Company (PG&E), and the U.S. Environmental Protection Agency (EPA) commissioned Ecos Consulting (now Ecova) and the Electric Power Research Institute (EPRI) to develop a power supply efficiency testing methodology. After completion of this study later in 2004, Ecos Consulting (Chris Calwell of Ecova and Mark Hamilton, a principal at Triple Point) designed the 80 PLUS program to test and certify market ready power supplies and promote the market adoption of the most efficient models into desktop personal computers (PCs) and servers. By the end of 2004, the Northwest Energy Efficiency Alliance (NEEA) became the first funder of 80 PLUS to support this unique upstream buy-down program for desktops (laptops not included¹), the first of its kind in the computer industry.

The original 80 PLUS specification for desktop PC power supplies required 80 percent efficiency across the entire load spectrum. Over the following years, the program added new certification levels to push the market toward higher efficiencies, labeled as Bronze, Silver, Gold, Platinum, and Titanium. These additional levels provided manufacturers with further opportunities to differentiate their products in the marketplace.

The high point of market participation was in 2007-09 when utilities serving 17 percent of the US population were participating in the 80 PLUS program by providing upstream incentives to manufacturers to encourage increased adoption and integration of 80 PLUS power supplies into desktop product lines. The most prominent of these entities included NEEA, PG&E, Southern California Edison (SCE), Xcel Energy, Efficiency Vermont, NSTAR, and National Grid. While this was a significant participation rate, program staff acknowledged that additional leverage points would be necessary to ensure programmatic success, including support from the EPA.

Throughout 2006, Ecova's research and policy staff, NEEA and other market actors encouraged the EPA to incorporate the 80 percent efficient power supply requirement into ENERGY STAR standards for desktop PCs. In 2007, the EPA adopted the 80 PLUS standard as part of the ENERGY STAR 4.0 requirements for desktop PCs. The latest ENERGY STAR 5.0 desktop PC specification, which went into effect in July 2009, requires an 80 PLUS Bronze equivalent power supply.

By January 2010, NEEA phased out incentives for 80 PLUS desktops and introduced incentives for ENERGY STAR servers containing 80 PLUS power supplies. In order to focus the market on higher levels of efficiency, NEEA offered incentives for only ENERGY STAR qualified desktops and servers sold within the Northwest region through 2011. Other utility programs across the country continue supporting the 80 PLUS and other Plug Load Solutions consumer electronics programs to varying levels and degrees.

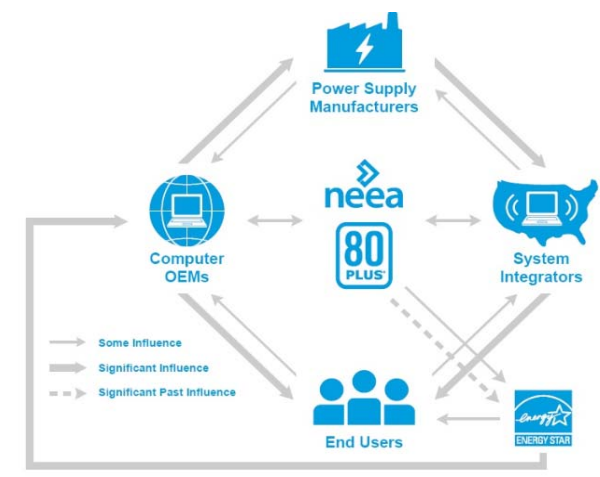
¹ Energy efficiency has long been a higher priority in laptop design than desktop PC design, as manufacturers have sought to reduce component sizes and heat, and increase battery life as much as possible. Nearly three-quarters of laptops sold in 2009 met the ENERGY STAR 5.0 specification, indicating that the market for energy efficiency in laptops has effectively been transformed (ENERGY STAR 2010).

Structuring Upstream Buy-down Programs

Successful upstream buy-down programs rely upon leveraging all major stakeholders. By creating targeted value propositions to each market actor that resonate with respective business objectives and creating market pull, the wheels are sufficiently set in motion to overcome key barriers and challenges. Locking in (either voluntarily compliance or assisting regulatory organizations) new levels of energy efficiency that are feasible and cost-effective, and then finding an organization or entity who will maintain stewardship of the persistence of change is a means to success for this kind of programmatic approach.

Key market actors that the 80 PLUS initiative works with are as follows: 1) Power Supply Manufacturers (PSMs), 2) Computer makers including OEMs and System Integrators (SIs), 3) End users, 4) Program funders (i.e. NEEA), and 5) EPA's ENERGY STAR program. Figure 1 illustrates the interactive effects of market actors on one another in order to ensure the success of an initiative like 80 PLUS. The program served as the catalyst for change by sharing research results from power supply efficiency analysis with the EPA, which then influenced the adoption of a component level efficiency standard for power supplies in upcoming ENERGY STAR desktop specifications. This resulted in increased pressure on the industry to integrate more efficient power supply designs into desktop product lines.

Figure 1. 80 PLUS Market Actor Causal Diagram



The 80 PLUS Conundrum

Prior to the 80 PLUS program, it was not uncommon to have conversations with OEMs who would say that end customers were not asking for an energy-efficient PC, and that PSMs didn't have the needed technology. At the same time, similar conversations were taking place with the PSMs, who indicated that OEMs weren't asking for or willing to pay the premium for the added level of efficiency for power supplies. While this classic supply and demand scenario was playing out within the industry, large commercial purchasers were working from the assumption that their consumer electronics purchases were already efficient enough; at least those associated with purchases of ENERGY STAR Version 3.0 desktops. As with the Version

3.0 desktop specification, most efforts had been focused on putting machines into a sleep mode after a period of inactivity, rather than addressing component level efficiency, thus increasing the need for 80 PLUS program intervention.

It seemed like a catch 22 until the program was able to provide a credible testing methodology with which the PSMs could reference and compare against their competitor's. For the first time, PSMs had a testing methodology and certification process that would set the industry on equal footing. This put into motion the notion that PSMs could then differentiate themselves from their competition by having a reputable third party verify performance. Once the test methodology had been finalized by Ecova and EPRI, the program relied heavily on industry veterans such as Doug McIlvoy to recruit PSMs and gain industry acceptance of the test methodology. OEMs would receive utility incentives for installing efficient power supplies and had the confidence that they were getting products that were certified (and later ENERGY STAR compliant) in a cost-effective manner. Customers could leverage a trusted brand of ENERGY STAR to have the confidence to purchase PCs with the peace of mind and security of knowing that they are getting efficient products. The 80 PLUS program was the engine fueling the value proposition for all key market actors. By late 2010 ENERGY STAR adopted this process as a standalone protocol, thereby eliminating the need for industry to re-test power supplies at the component level associated with the implementation of EPA's third party product verification program implemented in January 2011.

Another good example of where an approach like this, that combines stakeholder coordination with establishing test methods, was used was for residential windows from 1997 through 2001 (a program that NEEA and SCE funded to transform the window market). This cooperative partnership with window manufacturers was key to the success by providing incentives, top-down marketing materials, creating midstream market pull through retailers and distribution, and to a much lesser extent the leverage of the ENERGY STAR brand. This program helped window manufactures realize that they could produce better performing windows for the same or less price by simply renewing their manufacturing lines. Once market pull was created by midstream actors most window manufactures converted their lines in less than two years. The ENERGY STAR brand had some pull, but the brand was young and didn't have much cache'. In fact, baseline awareness of the logo and name was around 30 percent mostly as a result of the regional clothes washer program in 1997. It rose to around 50 percent by the end of 2001. This gave retailers and consumers the assurance that the products were better performers than similar products in a side by side comparison.ⁱ

Retail consumer electronics programs impacting the TV industry is the latest example of market transformation in motion. Utilities across the country partnered closely with ENERGY STAR by providing midstream funds to retailers which in turn demanded higher energy efficient products which forced rapid technological development in the TV industry. TV manufacturers now more closely follow upcoming ENERGY STAR TV specification changes to stay ahead of retailer product assortment requests. As of early 2012 TVs are now 60% more efficient now than when the initiative launched in 2009.

Details of the 80 PLUS Program

Figure 2. 80 PLUS Market Diagram



Source : Ecova Program Management

As illustrated in Figure 2, 80 PLUS was chartered with a holistic approach of building and facilitating relationships with major market actors to ensure programmatic success. The following details several primary areas that program staff focused on to ensure a successful launch of the program.

1) **Creating a Power Supply Specification and Test Protocol, Establishing a Third Party Testing Verification Process and Getting the PSMs to Engage**

Ecova and EPRI (the third party independent test firm to the 80 PLUS program) co-authored the *Generalized Internal Test Procedure* in 2004², a document that was the first of its kind to evaluate the manner in which internal desktop and non-redundant server power supplies should be tested. Ecova also created and currently maintains a database and website of tested, market available power supplies. As mentioned previously, this testing methodology was adopted by the EPA's ENERGY STAR program at the end of 2011, negating the need for industry to re-test power supplies at the component level.

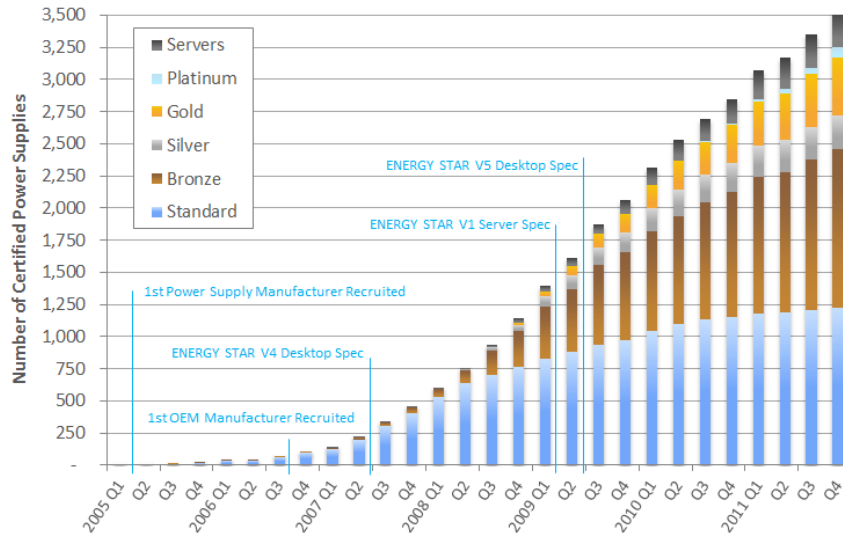
In order to encourage participation from early market adopters of the 80 PLUS specification, Ecova dedicated approximately \$50,000 in seed funds to test and list certified power supply results on an Ecova sponsored website³ at no cost to the PSMs. In February 2005, Seasonic became the first manufacturer to receive the 80 PLUS certification, a signal to the industry that meeting the rigorous 80 PLUS specification was within reach for market ready products. As illustrated in Graph 1 below, the rate of power supply certification growth was

²http://efficientpowersupplies.epri.com/pages/Latest_Protocol/Generalized_Internal_Power_Supply_Efficiency_Test_Protocol_R6.5.pdf

³ www.80plus.org

modest from that first certification, but with the intervention of ENERGY STAR desktop specifications in 2007 and 2009, certifications have accelerated dramatically. This created a unique market demand for PSMs to have their products tested, certified, and listed on the 80 PLUS website, and they now have to pay to participate in this process. To date, Ecova maintains an ever growing data base of over 250 power supply manufacturers with more than 3,600 power supply certifications and counting.

Graph 1. 2005-2011 80 PLUS Power Supply Certifications by Quarter



Source : Ecova Program Management

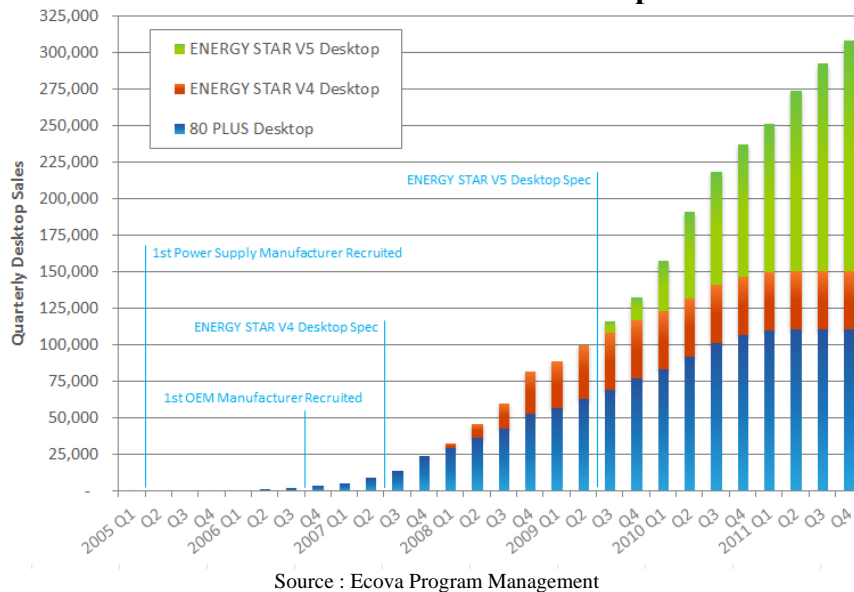
2) Recruitment of Industry Partners

Even with the increasing number of qualifying power supplies entering the market, PC manufacturers were reluctant to incorporate a premium priced product with limited stock and availability. As with Seasonic’s first power supply certification, the program needed early adopters to commit to the program and demonstrate that manufacturing desktops with 80 PLUS power supplies was feasible and profitable. With utility incentives and a modest number of certified 80 PLUS power supplies in hand, the program approached local system integrators (SIs) to participate in 80 PLUS. These smaller, more nimble counterparts (such as CTL, Nor-Tech, Reason, Northern Micro, and Seanix) to the large OEMs, like HP and Dell, showed genuine interest in the program as a way to differentiate themselves from competitors. Power supply availability was less of a concern, as system integrator desktop volumes were low enough to be fulfilled by power supply early adopters like Seasonic. The program served an integral role in bringing these industry partners together, with utility incentives serving as the financial glue to offset enough of the incremental cost to encourage the integration of 80 PLUS power supplies into existing desktop product lines.

OEM recruitment was another story. Considering the razor thin margins that this industry was accustomed to, these large market actors required more assurance that the PSMs could meet their volume demands at a competitive price, while not putting themselves at a financial disadvantage from competitors. The program heavily engaged large Tier 1 PSMs supplying product to OEMs to encourage testing of their power supplies, while leveraging the upcoming

release of ENERGY STAR’s Version 4.0 desktop specification as additional pressure to submit products for testing. As mentioned previously, much of the program’s successful deployment was due to its relationship with the EPA and influencing ENERGY STAR desktop specifications to include a requirement for power supplies. By October 2006, the EPA announced that power supply requirements were going to be an element of the upcoming Version 4.0 desktop specification. This announcement provided enough influence to push large Tier 1 PSMs and computer OEMs over the edge to participate in the 80 PLUS program. HP officially signed as a partner by the end of 2006, and Dell followed shortly after in early 2007. Even with these major milestones achieved, it is important to recognize that product cycles need time to catch up with new product mandates and specifications as evidenced in Graph 2, representing 2005-11 desktop sales in the Pacific Northwest. For perspective, the Northwest region has averaged overall sales of approximately 200-250K desktops per quarter. Graph 2 reflects cumulative year over year sales since the beginning of the program in 2005.

Graph 2. Cumulative 80 PLUS and ENERGY STAR Desktop Sales for NEEA region



3) Creating Market Demand and Partnering with Industry Organizations

Up-time, reliability and cost are key elements for information technology (IT) procurement decision makers. While customers want to make the soundest environmental choice, most see energy as a minor component on the selection criteria. This feedback was gathered in the early stages of the program, as program staff engaged in dialogue with large commercial, governmental and institutional end customers in the Northwest in an effort to increase market demand of qualifying products. With most “green computing” organizations focusing on other decision criteria elements of the IT market (sustainability, recycle content, etc), it was important to work with these partners (Climate Savers, Green Grid, and EPEAT) to align the industry on 80 PLUS criteria and related ENERGY STAR specifications. As Ecova and utilities aligned on messaging with these industry partners, the initiative gained traction in driving end customer visibility to power supply efficiency and savings related to the ENERGY STAR Version 4.0 desktop specification. And with the ENERGY STAR Version 4.0 specification requiring efficient desktop purchases in the government sector, commercial

purchasers seemed to be less confused and better understood the value proposition of purchasing ENERGY STAR Version 4.0 and 80 PLUS desktops. However, this demand side element of the program continued to be a weak link, as commercial end users and consumers were only motivated to a certain degree.

Ecova has continued to foster relationships with many industry associates, including Climate Savers, in order to provide a unified voice to industry for the direction of power supply efficiency in commercial and residential electronics. By working with industry and a consortium of manufacturers, the program is able to express an ongoing, influential voice in the potential direction of future energy-efficient power supply and system standards.

A recent report from IDC indicates that the government specification requiring ENERGY STAR for all computers appears to have a significant impact even though government sales are not a dominate number of total sales. OEMs and their contract manufactures are driving towards fewer SKUs and they are informing IDC that the additional cost to be ENERGY STAR compliant is not as great as it used to be. Therefore they are making more SKUs ENERGY STAR compliant than before.

4) Locking Down Standards and Integrating Improved Efficiency Standards

As described previously, by demonstrating to the EPA that better efficiencies can be obtained while creating a market for more cost-effective solutions (integrated chip sets for power supplies), ENERGY STAR was able to update their specification that included 80 PLUS as a standard.

5) Building a Regional or National Effort to Represent Sufficient Market Share

80 PLUS gained more traction with the OEMs and PSMs when the pool of utility funds was large enough to get their attention. At the high point, 17 percent of the U.S. utility market was providing incentives to the program. This was a key element of success to ensure enough money and market share to make it worth the while for organizations like Dell and HP. The small to medium SIs were key players early on in disrupting the market place because they had more of a regional and local focus and could capitalize on the incentives by modifying their products.

Challenges for Implementing the 80 PLUS Program

Early on in the program, it was difficult for PSMs to see the value of getting their power supplies tested and certified due to the effort and expense involved for a service of which they had previously never had oversight (and the added expense of additional components). In addition, some manufacturers were marketing unsubstantiated savings claims, and 80 PLUS leveled the playing field, as the testing and certification process made it very clear on how to compare product performance.

OEMs were reluctant to purchase more expensive power supplies due to the increased bill of material (BOM) cost that couldn't be passed on to buyers. Many of the PSMs were not certifying the low-cost, high-volume power supplies because major contracts were won and lost by mere pennies. OEMs also didn't see the value of adding the cost to product lines even if some areas of the country were providing incentives. It is difficult to change power supplies if only 17

percent of the utility market is providing offset incentives for more energy-efficient power supplies to OEMs. At times it was a wait and see approach with OEMs – they didn't want to be the first if their competition wasn't providing product to the market place. From the beginning of the program, Apple Computers has had 80 PLUS and ENERGY STAR compliant products but elected not to participate in the program and/or take advantage of the incentives. They put more emphasis on their design rather than bragging about their performance.

Getting sales data from OEMs has always been a challenge, as sales information is closely guarded and often the largest OEMs aggregate sales information across divisional or product lines especially to a granular enough level to satisfy utilities Evaluation requirements. The 80 PLUS program required that the OEM provide sales information by model, shipment date and end user ZIP code. The end user ZIP code data point was a compromise with the OEMs, as the program had originally required end customer name and address details, which OEMs were unwilling to provide. The regional SIs were more inclined to sharing greater customer details and presented little resistance when this information was requested. For the SIs, their efforts were more focused on establishing reporting systems to provide required sales data.

Participation by utilities and regional Energy Efficiency NGOs was at times challenging because it was an upstream program that didn't fit into normal demand side management DSM programs, or timing with their approval of tariffs by their Public Utility Commissions. Some utilities had challenges centered on the type of sales information provided by the OEMs. Some utilities had concerns about leakage and split service territories within a ZIP code, and OEMs were unable to ensure that ZIP+4 details could be provided to allay these concerns. The regional nature of the NEEA effort eliminated that problem for that initiative because boundaries were focused on state lines (OR, WA, ID and western MT) and thus did not split zip codes.

Another challenge for the program is the fractured nature of the computer manufacturing market. This personal computer (PC) market does not have classic distribution channels, which have changed over time. Early in the initiative many customers purchased products through value added resellers (VARs). This changed to direct purchase with major OEMs and SIs, which later migrated toward web-based purchases. IT purchasing are often implemented in a variety of ways: central purchasing by large corporations, directly by the IT staff and sometimes individually. Most purchasing is now done over the web and recommendations come from reviews, the blogosphere and what is convenient. Websites vary on what is presented relating to specifications, standards, corresponding model numbers, and similar models offering differing features, so it is challenging to determine which products are energy-efficient. Based on feedback from engagement with end users early in the program and interviews gathered in all the Market Progress Evaluation Reports (MPER), the key purchasing drivers for PCs has been reliability and cost, while efficiency has been of less concern. This seemed to be true across all market sectors (government, institutional, and large Commercial).

In an attempt to address the demand side, program staff approached large corporations, mostly in the financial markets, to adopt purchasing specifications that would support and promote 80 PLUS. After many discussions and meaningful dialogue with these institutions, it became apparent to Ecova and NEEA staff that while procurement managers at these institutions liked the idea of supporting the purchase of efficient consumer electronics, the devil was in the details. Getting IT procurement officers to focus on energy was difficult at best. They are measured on up-time, reliability and cost. Purchasing organizations focused on cost and ease of product procurement. The value proposition for strong pull from large organizations was not

there until later in the program (mid 2007) when ENERGY STAR required that 80 PLUS be part of the certification.

The 80 PLUS program has been successful in not only driving industry awareness to power supply efficiency but also increasing visibility and encouraging product line offerings of ENERGY STAR desktops and servers. One barrier that arose in January 2011 was ENERGY STAR's introduction of its 3rd party independent testing process for all qualifying products. This presented a significant barrier and challenge to the industry, because of the time and expense required to have every model configuration of desktop and server products tested under this new protocol. Due to the time and expense involved, some manufacturers have more recently indicated a preference or shift back to the original concept of the 80 PLUS program where these partners would focus more attention on 80 PLUS power supply integration and less on meeting the ENERGY STAR standard and testing protocol guideline. This may potentially translate into a decreased number of qualifying ENERGY STAR desktop and server models in the future. Current 80 PLUS utility partner funders have taken this potential shift under advisement, and are currently providing two incentive streams moving forward: one that continues to incent manufacturers for desktops equipped with more efficient 80 PLUS power supplies (i.e. Silver, Gold, Platinum), and another that supports higher incentive levels for ENERGY STAR compliant desktops and servers. To protect against this potential market backslide, Ecova is engaging with current and past utility partners to increase incentive funding to keep manufacturers committed to increasing the market share of 80 PLUS and ENERGY STAR products.

Evaluation and Recommendations for improvements from Market Progress Evaluation Report (MPER)

The key four elements for evaluation of upstream buy-down programs are as follows:

- 1) **A well-defined Logic Model.** With the understanding that it may require modifications and adjustments, is important for the initiative to have as guiding principles.
- 2) **Appropriate and strong market progress indicators.** Clear market progress indicators or the different phases of an initiative are crucial for assessing whether the program has achieved its goals. It focuses the implementation on the right direction at the right time.
- 3) **A solid market characterization.** A clear understanding of the naturally occurring baseline is key to measuring the impact that the initiative has made to the market. It is imperative to have reliable data sources that will capture information, market actors entering or exiting the market, and/or if codes and standards are put in place. Such market understanding enables the initiative to deploy adaptive management to ensure the success of the initiative. NEEA uses a simple adoption "S" curve to define projected market penetration, but often face challenges in the ability to collect all the data consistently over a long-term initiative, particularly in instances where the relevant parties are reluctant to share confidential data.
- 4) **Regular recommendations.** As part of any evaluation program, the program must be dynamic and open to feedback from outside evaluators. Initiative managers need to review and incorporate the recommendations as appropriate.

There have been four MPERs for the 80 PLUS program provided to NEEA. These were completed in 2006, 2008, 2010, and 2012. The recommendations fall into the following general categories: 1) Build awareness and demand in the marketplace through education of decision makers and purchasing departments to promote 80 PLUS and ENERGY STAR PCs, 2) Adjust and graduate the incentives to align more closely with the incremental costs for improved efficiency levels, 3) Expand program to include other IT products (servers, monitors, other network appliances and server virtualization), 4) NEEA, other funders and other market actors (Climate Savers, Green Grid and EPEAT) should stay involved and aligned in promoting ENERGY STAR and drive to minimum standards applied to PC power supplies.

All of these suggestions are consistent across all four MPERs and were deemed by NEEA as the core activities to focus on to ensure the market transformational success of the program. Ecova has been extremely flexible as an implementer to allow funders to offer more customized solutions. In general the success of a national program such as this should take recommendations as a whole and modify the program in a uniform fashion. More focus could have been placed on creating more targeted messaging to build better awareness and education of IT specialists, procurement agents and purchasing organizations.

Results of the 80 PLUS Program

Over the life of the program, 80 PLUS has influenced all major OEMs (Dell, HP and Lenovo), a majority of all PSMs worldwide, 22 utilities across North America, and has succeeded in strongly influencing the power supply criteria for ENERGY STAR desktop specifications since 2007. As cited in the fourth NEEA MPER cited from an IDC report commissioned by NEEA, 80 PLUS and ENERGY STAR (versions 4.0, 5.0 and soon 6.0) has increased procurement of commercial desktop greater than 70 percent of the market nationally. It is NEEA's perspective that the 80 PLUS program was a key transformative agent in the desktop and to a lesser extent the server (including edge and storage) market. Additionally, benefits have surfaced in other markets such as gaming consoles, dedicated industrial PCs, and a general awareness of the opportunity for AC/DC power conversion power supplies. It has created a specification and testing criteria that is used in the IT space as well as potentially other markets. Ecova and NEEA are exploring the development of other testing and certification specifications for products such as industrial power supplies and lighting ballasts.

Suggestions for Introducing Similar Upstream Buy-Down Programs

80 PLUS has been a great success, and while NEEA believes the market has been transformed sufficiently to focus on other products, other utility programs across the country have continued their support of 80 PLUS and ENERGY STAR consumer electronics incentives. With all upstream buy-down programs, market interveners encounter unforeseen challenges and need to deploy adaptive management to address some of the barriers. The list below provides a summary of key 80 PLUS program elements as well as others implemented by NEEA and other market transformation organizations. Keep in mind this is only the foundation; interested program implementers may have other requirements when structuring such a program.

TABLE 1 Key elements for the success of 80 PLUS and other Upstream buy-down programs

- Good understanding of the market and the employment of a logic model
- Work closely with key manufacturers, market leaders and change agents
 - Identify early on the leaders, innovators and mavens
 - Understand the tipping point
- Incent, reward and acknowledge targeted market actors
- Have sufficient funding early on to overcome cost barriers
 - Financial commitment by the program implementer is essential, as market transformation often takes much longer than expected
- Design a straightforward program with clear value propositions for all market actors that resonates with their business models
- Create clear standards and measurements that are understood and can be evaluated
- Demonstrate that the energy efficient solution could be done at the same or less cost
- Align with a national brand (ENERGY STAR) ~ codes and standards will follow if necessary
- Leverage other regional and/or national programs (utilities and other NGO's)
 - Power in numbers and market share - Agree to have a unified approach
- Flexible and adaptive approach for program management and marketing
- Have pooled contractors providing the program management and the evaluation work for the initiative for all funders

Conclusion

The 80 PLUS program has proven to be an innovative endeavor that has experienced numerous successes despite the unanticipated length of time to reach the most critical successes in securing substantial energy savings for its utility funders. Despite these challenges, the program continues running strong well into its seventh year with solid utility support, collaborative partnerships with the largest computer and power supply manufacturers in the world, and expansion into the retail channel to garner additional energy savings from ENERGY STAR product sales.

It is anticipated that the program will continue to run in both the commercial and retail channels for some time to come, and as a result of the success from 80 PLUS, Ecova plans to continue to innovate new program concepts in the consumer electronics space for utilities seeking assistance with the ever-growing electrical load in commercial and residential environments. Ecova and market actors like NEEA will continue to explore related energy saving market intervention opportunities for a broad array of products, including: set top boxes, HVAC, windows, industrial products, consumer electronics, white goods, network appliances, datacenters, high-performance coatings and Cloud applications to name a few. As these kinds of upstream buy-down programs continue to evolve and program partner relationships deepen, the success of these initiatives will translate into significant energy savings for years to come.

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