

Tier 2 Audio Visual (AV)
Advanced Power Strips (APS)

Residential Program Application

Market and Market Definition

“There has been veritable explosion in the number of electronics, appliances and other equipment plugged into, or permanently connected to American homes. Most are consuming electricity around the clock, even when the owners are not using them or think they have been turned off. This energy use by inactive devices translates to approximately \$19 billion a year or \$165 per household in wasted energy consumption. This energy usage necessitates the running of 50 large (500 megawatt) power plants’ worth of electricity.” - NRDC Issue Paper on Home Idle Load May 2015

Few consumers will act unless they are alerted to energy waste and the steps to eliminate it. Tier 2 AV APS provide a unique opportunity for utility efficiency programs to address this wasteful energy usage beyond passive standby energy wastage whilst increasing consumer awareness of the problem and ways to curb it.

Tier 2 AV APS devices have demonstrated how more advanced sensing and control solutions can better analyze and control connected electronic devices delivering greater energy savings over earlier APS technologies.

Proposed Measure Over View

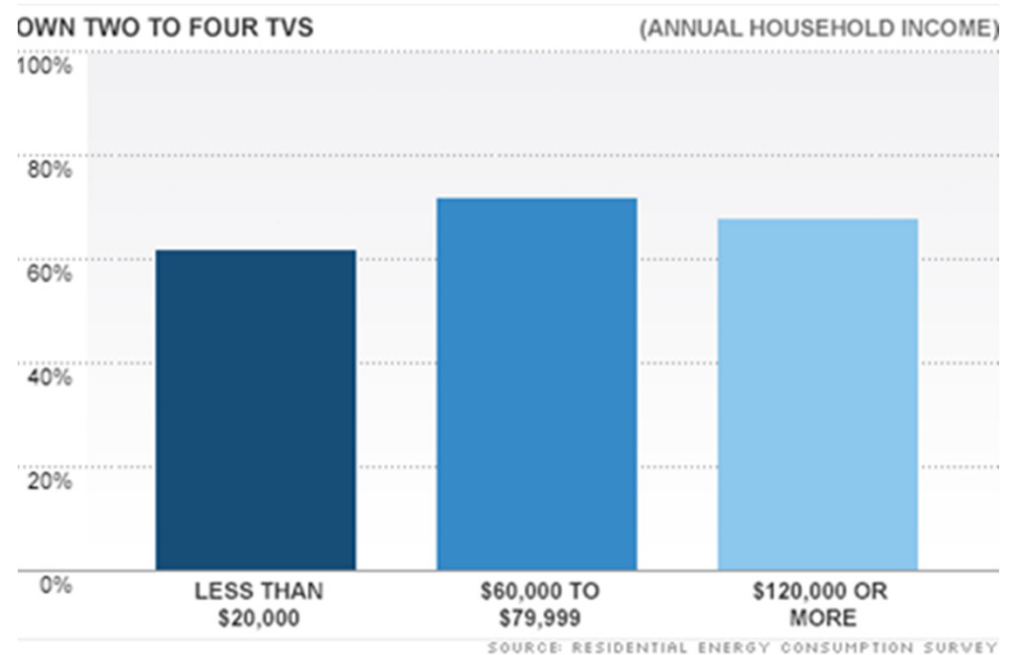
Current Tier 2 APS Products



Eligible Customers

The opportunity for tier APS in residential homes is ripe for utilities to help rate payers save energy and money, while achieving energy efficiency targets.

- Tier 2 APS is not bias to any given segment of households.
- Almost all homes have a television and through third party testing have demonstrated that the TV and partnering electronics are left on more often than not.
- In a recent report from CNN-Money, it was illustrated that around 60% of all households own 2-4 televisions irrespective of the annual household income.



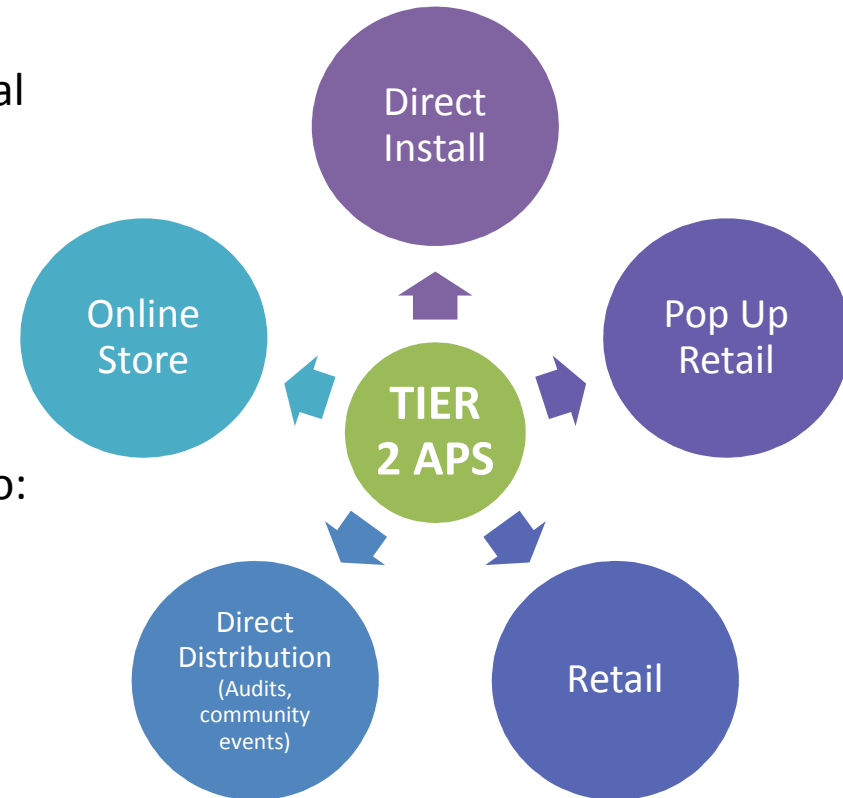
Proposed Delivery Approach

Tier 2 AV APS can be easily applied to many existing programs either as:

- A bundled measure in all existing residential programs to improve program cost effectiveness
- A replacement for less efficient APS technologies currently being deployed

There are numerous deployment options to consumers which include but are not limited to:

- Direct Install
- On line store(s)
- Promotion/Education Applications
- Traditional retail



Tier 2 AV APS are ideal for standard residential and multi-family programs, affordable housing, low income housing, manufactured housing and new construction.

Proposed Delivery Approach

Program Budget and Budget Applications as it applies to the variety of Tier 2 APS:

- The nature of the Tier 2 AV APS products vary based on the specification of the products and their features. The price range for products would be dependent on volume and are in the range of \$40 - \$50 per unit.
- In consideration of the Direct Install (DI) programs, the cost of labor for calculation purposes should be similar to the cost of Tier 1 APS labor costs ~ \$20 per unit installed.
- Using a 7 year measure life, the cost per kWh saved will be below \$0.03 providing a valuable cost effective solution for all programs offerings.

Energy Saving Opportunity

Below is a high level look at program options and their approximate costs per kWh saved.

	Program Type			
	Direct Install	Online Sales	Traditional Retail	Pop-Up Retail
Product Cost	\$ 45.00	\$ 45.00	\$ 45.00	\$ 45.00
Installation Cost	\$ 20.00	\$ -	\$ -	\$ -
Shipping Cost	\$ -	\$ 8.00	\$ -	\$ -
Marketing/Sales Margin	\$ -	\$ 5.00	\$ 22.00	\$ 25.00
Total Cost	\$ 65.00	\$ 58.00	\$ 67.00	\$ 70.00
In Service Rate	100%	70%	70%	70%
\$/kWh Saved (Year 1)	\$ 0.22	\$ 0.28	\$ 0.32	\$ 0.33
\$/kWh Saved (Lifetime 7 Years)	\$ 0.03	\$ 0.04	\$ 0.05	\$ 0.05

Energy Saving Opportunity

Based on numerous independent utility evaluations demonstrating a 50% Energy Reduction Percentage (ERP) and utilizing North East Base Load figures of approximately 600 kWh, an average of 300 kWh of energy saved each year per AV Environment can be achieved.

The IL TAC have understood the need to ensure products demonstrate energy savings due to variations in Tier 2 AV APS controls which will likely deliver varying ERP performance.

The Tier 2 AV APS work paper will clearly outline the independent data collection and testing requirements to validate the performance of Tier 2 AV APS seeking eligibility.

This performance will be categorized into Energy Reduction Percentage (ERP) bands from which annual kWh savings values can be easily derived.

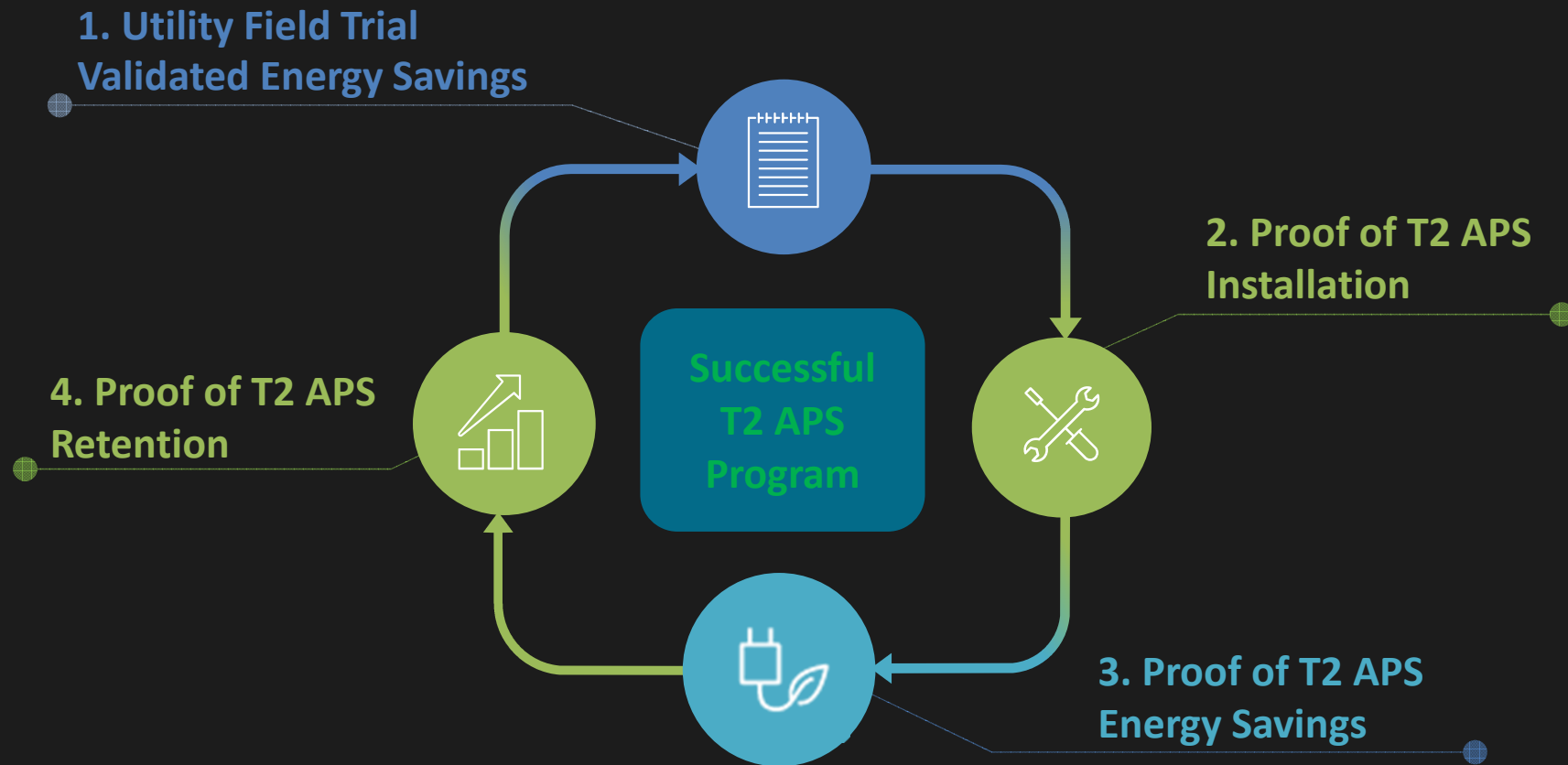
Proposed Marketing Strategy and Savings Opportunity

Marketing and Marketing Targets/Assumed Thresholds :

- Program marketing will be based on the participation and channels that ComEd and Ameren IL choose to implement and which already exist. On an assumption of reaching 100,000 homes through the multiple distribution channels, the savings would have a significant impact on achieving energy savings goals for the IL market.
- Based on 100,000 units, the equivalent savings would be approximately 30 million kWh in the first year alone.
- Education and marketing of the new program could take on several faces in the aspect of special events, kits, school programs and contest for schools through their STEM programs in middle and high school stages.
- The suggested 30% de-installation data point is not based on any one manufacturer but rather an international program including both Tier 1 and Tier 2 APS.
- De-installation has been proven to be a lot less in the north American market for Tier 2 APS. Variations in customer type, distribution strategy, training, and product performance will alter de-installation rates.
- Therefore de-installation should be evaluated on a program by program basis throughout program deployment.
- Whether distribution is through DI or Online Stores, the marketing impact will be minimal through simply adding Tier 2 APS to the existing programs.

Automated EM&V

Addressing all market barriers



Automated EM&V / Smart Device App



- Benefits Include:
 - De-risking programs through:
 - Educating customers on installation and usage via “how to install” and “how to use” videos via the Tier 2 APS app to enhance persistence rates; and
 - Validating installation, connected loads, ongoing usage and energy savings instantaneously via a web interface to enhance program cost effectiveness.
 - Validating installation, energy savings and retention rates across all program types automatically provides:
 - Instantaneous program assessment to ensure ISR and EUL targets are achieved and assists in improving overall program delivery; whilst
 - Providing greater program flexibility through innovative product delivery models to drive towards more cost effective programs.

Auto EM&V Benefits on ISR alone

- Automated EM&V will enable verification of installation to deliver an in-service rate of 100% across all program types.
- Improving the ISR from ~70% to 100% will aid in greater program cost effectiveness (as shown in the table below).

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Marketing/Sales Margin	\$ -	\$ 5.00	\$ 22.00	\$ 25.00
Total Cost	\$ 65.00	\$ 58.00	\$ 67.00	\$ 70.00
In Service Rate	100%	70%	70%	70%
In Service Rate - Auto EM&V	100%	100%	100%	100%
\$/kWh Saved (Year 1)	\$ 0.22	\$ 0.28	\$ 0.32	\$ 0.33
\$/kWh Saved (Lifetime 7 Years)	\$ 0.031	\$ 0.039	\$ 0.046	\$ 0.048
\$/kWh Saved (Lifetime 7 Years) with Auto EM&V	\$ 0.031	\$ 0.028	\$ 0.032	\$ 0.033

Concluding Points

- **Tier 2 APS is a key replacement/bundled solution for existing EE programs through all distribution channels to consumers**
- **Energy savings: Proven ERP of 50% delivering 300kWh per year in Illinois**
- **Primary Marketing Strategy** proposed:
 - Focus on direct install as a primary approach to market, however the multi faceted approach to market should include:
 - On line store, Pop Up retail, Kits and emerging approaches based on the market assessment.
 - Also the inclusion of Tier 2 APS in existing programs for the 2016 program years.
- Built in EM&V to mitigate IOU risk on emerging technology and enhance user, installer and IOU experience, as is sought after for thermostats and other home controls.

Supporting Slides

Marketing and Eligible Customers

Program Budget and Budget Applications as it applies to the variety of Tier 2 APS:

- By utilizing other channels such as:
 - Direct install: Has been so far a very successful option for confidence of installation and point of education for the end user. Tier 2 APS is an excellent add on for direct install programs like low income, single family, weatherization, multi family, as well as energy audit programs.
 - Residential Kits: This option could take the face of targeted neighborhood areas or targeted demographic/zip code areas and the kits would include a Tier 2 Advanced Power Strip, light bulbs and a possible water or other EE measure. This is a bundled service and can also be used through school channels as project in the middle school levels and can provide “kids driving the education process” within the home and can provide incentives to the schools while providing an educational tool for the utility .

Marketing and Eligible Customers

Program Budget and Budget Applications as it applies to the variety of Tier 2 APS:

– By utilizing other channels such as:

- **Direct Distribution:** During a simple energy audit or even a typical direct install program, the program representative qualifies the customer to see if they are interested in the device. If accepted the user is provided a brief explanation, the Tier2 APS is given to the user, and with leave behind materials are given for expectations, installation, and operation.
- **Pop up Retail:** This option allows for mobile education events where consumers may be purchasing other energy efficient products and TV and other home electronics. These events can also be conducted at office buildings, universities, home shows, public festivals and other community events. It allows for a one on one direct interaction with customers. In this channel, the customer learns about the technology prior to purchase. The cost of deploying a Tier 2 APS Pop Up Retail event would be between \$45-\$50 per unit(not including marketing or admin)

Marketing and Eligible Customers

Program Budget and Budget Applications as it applies to the variety of Tier 2 APS:

– By utilizing other channels such as-Continued:

- **ON Line Stores:** This would allow for the customer to bundle Tier 2 APS with other energy savings products for the ease of conversion of an “average energy house” to a “efficiency plus” home. The on line store could provide either constant exposure to Tier 2 APS with the inclusion of “limited time” promotions. This would allow the power of digital and social media to target the residential customer base. This would also serve to meet the educational aspect of new technology by hosting video and web content to drive adoption rates. While on line stores will remain constant, “limited time” promotions, would be 7-10 days only. The cost range for a APS Online promotion would be \$45-\$50 per unit. Key to the on line promotion is advertising, with that said the best form here is via email blast , which results in an open rate of 40%, 20% click through and 40% conversion rate. stores and special events, there will not be a labor component, however in regards to on line store and fulfillment there will be the appropriate postage cost. Special events will be strictly utility or utility implementer labor cost
- Another key component for the program would be the educational component that should run in parallel with all programs and will be a key component in the creation of “push-pull channels” to the consumer. Ideal time for special retail promotion are in the Fall and the Spring as it applies to AV products and applications.