

Tier 1 Advanced Power Strip Program Proposal

Illinois TRM Stakeholder Advisory Group

December 16, 2015



Agenda

Overview of Proposed Measure

- Tier 1 APS Overview
- Illinois TRM

Delivery Approach

- Tier 1 APS Program Proposal
- Success in other jurisdictions



Overview of Proposed Measure

- Tier 1 APS
- IL Statewide TRM

Tier 1 APS

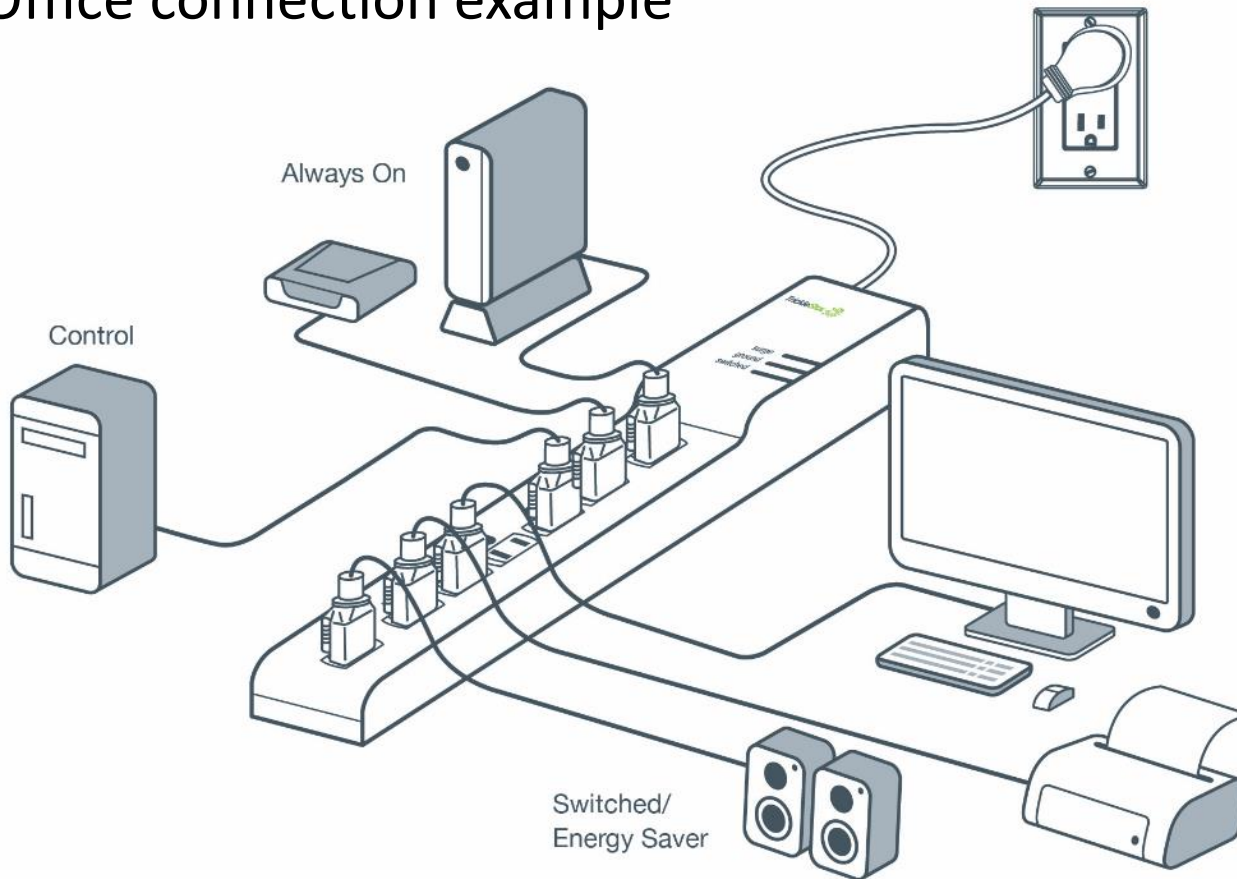
“Tier 1” Advanced Power Strips or “APS” manage standby power waste by removing power to devices connected to a number of switched outlets that are triggered by a device plugged into a control outlet.

For example, a PC computer or workstation may be the “control device,” and printers, monitors, powered speakers, or a scanner may be the switched devices. Hard drives or cable/DSL modems would plug into the “always on” outlets.

For Home Entertainment, the TV would be the control device, while DVD players, powered speakers, and audio devices are the switched devices. DVRs and cable boxes are always on.

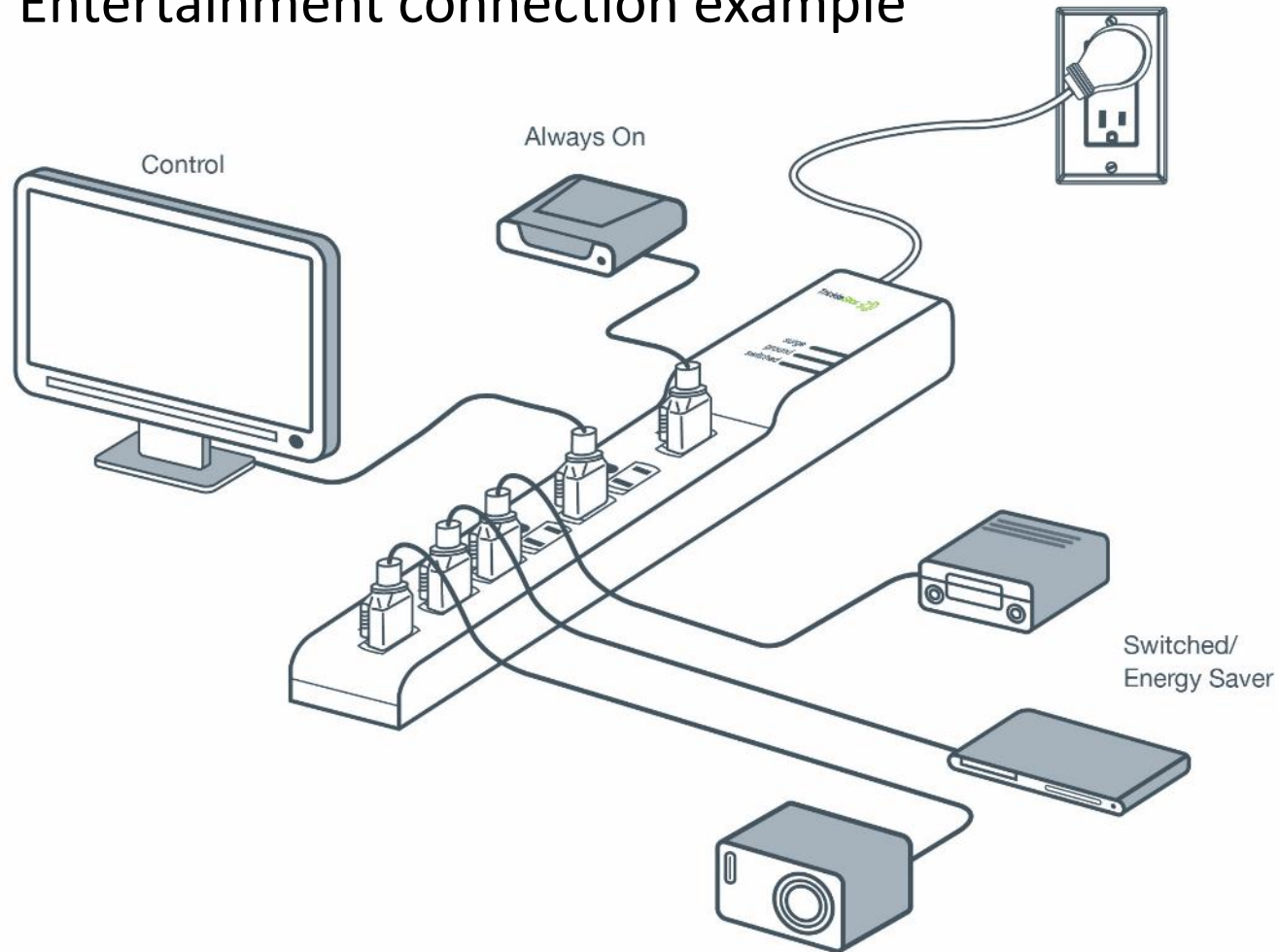
Tier 1 APS (cont.)

Home Office connection example



Tier 1 APS (cont.)

Home Entertainment connection example



Tier 1 APS (cont.)

Tier 1 APS are approved for programs in several state TRMs, including Illinois:

- Arizona, Arkansas, California Municipal TRM, Mid-Atlantic TRM (Maryland, Delaware, District of Columbia), Northwest Regional Technical Forum (Idaho, Washington, Oregon, Montana), Illinois, Indiana, Maine, Massachusetts, Michigan, Pennsylvania, and Vermont.

Savings values vary between 22.6 kWh/yr. in Indiana to 241.7 kWh/yr. in Arkansas for a home entertainment Tier 1 APS.

IL Statewide TRM

Illinois Statewide Technical Reference Manual - 5.2.1 Smart Strip

5.2 Consumer Electronics End Use

5.2.1 Smart Strip

DESCRIPTION

This measure relates to Controlled Power Strips (or Smart Strips) which are multi-plug power strips with the ability to automatically disconnect specific connected loads depending upon the power draw of a control load, also plugged into the strip. Power is disconnected from the switched (controlled) outlets when the control load power draw is reduced below a certain adjustable threshold, thus turning off the appliances plugged into the switched outlets. By disconnecting, the standby load of the controlled devices, the overall load of a centralized group of equipment (i.e. entertainment centers and home office) can be reduced. Uncontrolled outlets are also provided that are not affected by the control device and so are always providing power to any device plugged into it. This measure characterization provides savings for a 5-plug strip and a 7-plug strip.

This measure was developed to be applicable to the following program types: TOS, NC, DI.

If applied to other program types, the measure savings should be verified.

DEFINITION OF EFFICIENT EQUIPMENT

The efficient case is the use of a 5 or 7-plug smart strip.

IL Statewide TRM (cont.)

Illinois Statewide Technical Reference Manual - 5.2.1 Smart Strip

CALCULATION OF SAVINGS

ELECTRIC ENERGY SAVINGS

$$\Delta\text{kWh}_{5\text{-Plug}} = 56.5 \text{ kWh}^{791}$$

$$\Delta\text{kWh}_{7\text{-Plug}} = 103 \text{ kWh}^{792}$$

103 kWh/yr.

SUMMER COINCIDENT PEAK DEMAND SAVINGS

$$\Delta\text{kW} = \Delta\text{kWh} / \text{Hours} * \text{CF}$$

Where:

Hours = Annual number of hours during which the controlled standby loads are turned off by the Smart Strip.

$$= 7,129^{793}$$

CF = Summer Peak Coincidence Factor for measure

$$= 0.8^{794}$$

$$\Delta\text{kW}_{5\text{-Plug}} = 56.5 / 7129 * 0.8$$

$$= 0.00634 \text{ kW}$$

$$\Delta\text{kW}_{7\text{-Plug}} = 102.8 / 7129 * 0.8$$

$$= 0.0115 \text{ kW}$$

Delivery Approach

- **Tier 1 APS Program Proposal**
- **Energy Savings Opportunities**
 - **DI**
 - **TOS**
 - **KITS**

Tier 1 APS Program Proposal

TrickleStar submitted a Tier 1 APS Program Proposal (agnostic to manufacturer) and Savings Workbook which focuses on three program types:

- Time of Sale (TOS)
- Direct Install (DI)
- Kits (KITS)



Tier 1 APS Savings
Workbook



Tier 1 APS
Program Proposal

Energy Savings Opportunities

Direct Install (DI) Program

- Tier 1 Advanced Power Strips are available for a cost of \$18 per unit. The average cost for the direct installation is \$18 to \$23 this may vary by installation contractor/partner.
- Based on a ramping up approach, the expected budget would be: \$72,300 in YR1, \$122,500 in YR2, and \$144,600 in YR3 (this does not include the direct utility costs but does include 10% for marketing, 30% for administration and \$23 per unit for the direct installation) .
- For an early stage-program, taking a ramp-up approach that starts by targeting 1,500 units in YR1, moving to 2,500 units in YR2, and then to 3,000 units in YR3 within the participating utility service territory seems within reason.
- Based on the ramping-up approach noted above, the expected kWh/yr. savings would be: 134,415 kWh in YR1, 224,025 kWh in YR2, and 268,830 kWh in YR3.
- Optimally this effort would be combined with other direct install efforts. For example the addition of Tier 1 APSs to the Ameren multifamily direct install program would offer additional reductions in energy costs for tenants and/or landlords participating in that offering. This could also be paired with programs like the ComEd Energy Assessment program, increasing the potential per-visit savings by 103 kWh for only the incremental cost of adding the installation of the Tier 1 APS to the visit. Combining or adding the Tier 1 APS to an existing direct install effort also allows for any QA/QC and EM&V on the APS to be rolled into existing efforts for Illinois utility direct install programs.
- First year cost per kWh = \$.537, lifetime cost per kWh = \$.107 per kWh, this assumes a stand alone program with the device savings bearing the full cost of the direct installation of the measure at a five year measure life.

Energy Savings Opportunities

Time of Sale (TOS) Program

- Tier 1 Advanced Power Strips are available for a cost of \$18 per unit. Programs can buy down the cost or offer rebates direct to customers. For the purposes of this proposal, we have estimated marketing at 10% of total program cost and administration at 30% of total program costs.
- Based on 5,000 units per year with a \$5 rebate, the expected budget would be \$42,000 per year which includes 10% of marketing, and 30% for administration. An additional option is to take the buy-down approach being used by jurisdictions like MA that provide an incentive equal to the wholesale cost the retailer for a budget of \$98,000 for 5,000 units sold.
- This effort could be combined with existing lighting programs. Working with the same retailers and channels as lighting programs could save on program administration costs.
- This program would most likely be promoted through retail channels. A buy-down model is currently successfully operating in Home Depot stores in Massachusetts. Other DIY stores as well as hardware stores would be a good fit for this program.
- Based on 5,000 units per year, 80% ISR and 80% NTG, the expected savings would be 329,600 per year. The IL TRM has no provided value for ISR and NTG 80% represents a conservative estimate. When customers invest in a purchase they are far more likely to install than with a free measure (as validated by numerous evaluations studies) and given the unique nature and relative unknown of APSs and their lack of availability at purchase absent programs, free ridership is assumed to be quite low.
- First year cost per kWh = \$.437, lifetime cost per kWh = \$.087, this assumes a stand alone program with a \$5 rebate and \$16 incremental cost, with 80% installation rate and 80% NTG at a five year measure life.

Energy Savings Opportunities

Direct Mail Kit (KITS)

- This program would focus on the direct mail of Tier 1 Advanced Power Strips as a part of an energy saving kit to residential homes within participating electric utility service territories.
- Tier 1 Advanced Power Strips are available for a cost of \$18 per unit. The average cost for the direct mail kits is about \$60 not including measure costs (the \$60 does include all administration and marketing although it should be noted this may vary by kit contractor however based on our experience this is within the range of what can be expected for this type of effort). Kits typically include lighting (LED bulbs), aerators, etc.
- Budget is based on the incremental cost for adding the APS to an existing direct mail kit program which is estimated to be the \$18 per strip plus a small incremental fee for adding the strip to the kits for a total of \$20 per unit.
- By adding Tier 1 APSs to a direct mail kit the savings per kit can be increased by 103 kWh per kit.
- This effort would have to be combined with an existing kit program to be cost effective. Adding an APS to offers like the Ameren Moderate Income direct mail kit program increases the per kit savings by 103 kWh for only the incremental cost of adding the Tier 1 APS to the kit.
- First year cost for the APS and incremental cost to a kit program is per kWh = \$.26, lifetime cost per kWh = \$.05 per kWh, this assumes 103 kWh and an installation rate of 75% with an \$18 APS cost and an incremental cost to the kit delivery of \$2 per kit. This assumes a 5 year measure life.

Tier 1 APS Success in Other Jurisdictions

KITS Program Examples

Holland Board of Public Works, Holland, Michigan

Kit program administered by AM Conservation featuring a Niagara Tier 1 Advanced Power Strip.



KITS Program Examples

Consumer's Energy Michigan kit program featuring a Tier 1 APS product by CyberPower. Kit program administered by AM Conservation.



KITS Program Examples



Public Service Company of Oklahoma kit program featuring a Niagara Tier 1 APS.

Program administered by AM Conservation.



Tom Kovalak @
AM Conservation

KITS Program Examples



Efficiency Vermont energy savings kit featuring a TrickleStar Tier 1 APS.

Program administered by Resource Action Programs.



Rodney Shelton at
ource Action Prog

Online (TOS) Program Examples

Hawaii Energy
YOUR CONSERVATION & EFFICIENCY PROGRAM

TechniArt
—ENERGY EFFICIENT LIGHTING—

Save Energy and Save Money. Get your Home Energy Kit Today!

FREE
HOME ENERGY KIT
(\$24 value)

Kit Includes:
3 LED bulbs (A19)

\$10
HOME ENERGY KIT
(\$53 value)

Kit Includes:
"Smart" Power Strip
3 LED (BR30) bulbs

BROUGHT TO YOU BY: **Hawaii Energy**
YOUR CONSERVATION & EFFICIENCY PROGRAM

Offer valid while supplies last.

Your shopping cart contains the following:

Qty		Item	Price	Total
1	Remove	FREE Home Energy Kit	\$0.00	\$0.00
1	Remove	\$10 Home Energy Kit	\$10.00	\$10.00
Subtotal:			\$10.00	\$10.00

[Checkout](#)

Offer Information

- Limit one (1) FREE home energy kit and one (1) \$10 home energy kit per residential address.

Hawaii Energy kit program through online delivery by TechniArt and featuring a TrickleStar Tier 1 APS paired with LED light bulbs.



Adam Tardif @
TechniArt

Online (TOS) Program Examples

Home / Advanced Power Strips

Purchase Limit: 2 APS per customer.

PRICE

\$0.00 - \$9.99 (1)

\$10.00 and above (2)

FILTER

MANUFACTURER

TrickleStar (3)

CURRENT SENSING

Yes (3)

MOTION SENSING

No (2)

Yes (1)

INFRARED SENSING

No (3)

SEARCH: Search entire store here...

ACCOUNT CART

efi

LIGHT BULBS ADVANCED POWER STRIPS

SORT BY: Name ↑ VIEW AS: [Grid] [List]

3 Item(s) SHOW: 12

COMPARE PRODUCTS

You have no items to compare.

Product Name	Regular Price	Your Price	Action
TRICKLESTAR 12-OUTLET APS	\$30.95	\$18.95	ADD TO CART
TRICKLESTAR 7-OUTLET APS	\$46.95	\$4.95	ADD TO CART
TRICKLESTAR 8-OUTLET APS	\$27.95	\$15.95	ADD TO CART

Add to Wishlist

Ameren Missouri online store portal for Tier 1 APS program featuring TrickleStar product and administered by EFI.

<http://www.energyfederation.org/amerenmissouri/advanced-power-strips-2.html>

Online (TOS) Program Examples

Lighting and Water Saving Products FREE if you are an Ameren Missouri customer and you have an electric water heater. Pay \$4.95 and also receive an Advanced Power Strip (\$20 value).

Choose from these two options:

Option One:

The FREE Energy Efficient Products Kit Includes:



- (4) 13W CFL Bulbs (60w replacement)
- (2) 10W LED Bulbs (60w replacement)
- (1) Water Saving Showerhead
- (1) Plumbing Tape
- (2) Kitchen & Bath Faucet Aerators
- (1) 12' of Pipe Insulation



CFLs will last about 10 times longer than incandescent light bulbs, and use only about 1/4th as much energy to produce an equivalent light.



This advanced power strip reduces the amount of standby energy consumed by computer and TV peripherals.

Option Two:

The \$4.95 Energy Efficient Products Kit Includes:



- (4) 13W CFL Bulbs (60w replacement)
- (2) 10W LED Bulbs (60w replacement)
- (1) Water Saving Showerhead
- (1) Plumbing Tape
- (2) Kitchen & Bath Faucet Aerators
- (1) 12' of Pipe Insulation
- (1) Advanced Power Strip



This efficient WaterSense® rated showerhead will save you an average \$40 per year on energy and water costs.



Pipe insulation will help to reduce heat loss by up to 80% through hot water pipes and will stop sweating on cold water pipes.

Ameren Missouri online kit promotion page by EFI.



Jed Crawford @
EFI

<http://amerenmissouri.efi.org/>

Retail (TOS) Program Example



**7 OUTLET
ADVANCED POWER STRIP**
2160 JOULES / 144,000 AMPS
FIREPROOF SURGE PROTECTION
ADJUSTABLE THRESHOLD

\$8.88

Special pricing brought to you by Cape Light Compact.

Mass Save program
featuring TrickleStar Tier 1
APS administered by
Lockheed Martin.



Daniel Krasowski
@ LM

Pop-up Retail (TOS) Program Example



- EVENT MARKETING MEETS BRICK & MORTAR STORE
- ENGAGE CUSTOMERS IN OFFICE BUILDINGS, MALLS, EVENTS & MORE
- SELL ADVANCED POWER STRIPS, LED LIGHTING, WATER-SAVING PRODUCTS, EFFICIENCY KITS & MORE
- TRAINED SALES STAFF EDUCATE CUSTOMERS ON PRODUCT FEATURES, ENERGY EFFICIENCY BENEFITS, & UTILITY PROGRAMS

Pilot program for Sacramento Municipal Utility District (SMUD) sold 1,000 units of Tier 2 APS at 15 events. Program administered by TechniArt.

Contact TrickleStar

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