
1.0 GENERAL

ADVS-technologies (“ADVS”) is a young and ambitious company specializing in the development of innovative proprietary technologies with an extensive portfolio of Patented technology in the areas of illumination systems, power distribution systems, pharmacy, store automation, and transport systems.

The objective of ADVS is to provide effective and efficient environmentally friendly solutions with the intent of improving quality of services.

The next several paragraphs include:

- Introduction to patented and patent-pending products being developed by ADVS
- Brief description of deficiencies of old technologies previously installed, and inefficiencies of some of technologies being currently used
- Proposal to resolve numerous noted problems by introducing innovative technologies in-process of being developed by my company

2.0 INTRODUCTION

2.1 *ParallelView*[™] Intelligent LED Lighting Systems

2.2.1 PROBLEM with EXISTING LED Lighting

For several years LED's been clearly recognized as superior light producing devices vs. existing incandescent and fluorescent illumination technologies.

The advantages of LED's include: superior efficiency and longevity.

The current trend of converting to LED lighting is primarily based on replacing existing light bulbs with LED based products, which do fit into the same AC powered sockets. This approach is not the best solution.

2.1.1.1 KEY points

- Presents potential **safety hazard**, as practically every DC powered LED light is connected to the existing AC power through an add-on AC-DC converter. As result, AC power distribution with exposed hot wire leads behind the walls remains, despite that it is no longer needed.
- **Inconsistent quality**, as each electrical connection is performed manually on-site under a number of potentially unfavorable conditions, including surrounding ambient environment (temperature, light, rain, snow, etc.). Compliance to NEC and other regulations maybe compromised.
- **Poor quality control**, as it is practically impossible for city inspector (or anybody) to verify quality of each electrical connection made
- **Environmentally not friendly**, as AC-DC converters will generate EMI, and considering amount of them to be installed, may present a health hazard
- **Inadequate quality**, as a vast majority of existing light fixtures, and newly designed LED lights have no water-proof rating of any grade
- **Unnecessary complications in providing emergency lighting** upon loss of electricity. Current method of wiring LED lights to existing AC lamp sockets makes this task far more complicated, as batteries produce DC power only.
- There is **no real-time diagnostics** to maintain the product and the environment within specifications

2.1.1.2 DETAILS

The vast majority of LED based lighting solutions, just as the conventional lighting preceding it, shines its full illumination straight into the eyes of an observer looking at the light. It prevents people looking at their ceilings when the lights are on, because the direct light produced by the lights installed into the ceiling is making them blind.

Some LED products have made a significant progress. Still, vast majority of these products are powered by AC power distribution of voltages 90-130VAC. In addition, the design of these products is far too complicated, which is reflected in the pricing.

With all these products, the addition of AC-DC converters to provide required DC power for LED lighting, impacts the energy efficiency, as converters are not ideal, and as a result, have efficiency factors below 100%.

The addition of components to accommodate LED lamps to mechanically fit into existing AC sockets, and/or to be electrically compatible with the existing AC power distribution systems, lowers reliability of the product installed.

The vast majority of existing LED lighting products lack self-diagnostics, such as monitoring the operating ambient environment. Regulating power to LED devices to avoid overheating, would sustain product longevity defined by product specifications. LED devices, when operated within the environment listed in their specifications, are projected to last at least 50,000 hours of continuous use.

The opportunity to switch to DC power distribution is sacrificed for the convenience of retrofitting existing AC lighting fixtures. As result, safety hazards associated with the presence of AC power remains.

2.1.2 PROPOSED SOLUTION: *ParallelView™* Intelligent LED Lighting Systems

ADVS Patent pending application No. US 61,902,124.

ABSTRACT:

Application describes apparatus intelligent parallel view LED light comprising: controller, sensors, LED's, interfaces, enclosure.

Sensors comprising: ambient light, proximity, temperature, voltage, current.

Operator and remote controller interfaces include: wireless, INTERNET. LED's configurations include: single color, multicolor, flexible PCB.

Enclosure configurations include: water-proof, recess and surface mounting.

Control configurations include: setting sensor trigger points; defining real-time control algorithm based on sensor status; time based controls; operating limits; acceptance criteria. Operating limits include: illumination intensity; energy consumption; internal temperature.

Control algorithm includes real-time diagnostics and controls to achieve criteria set by configuration. Apparatus configuration stored in non-volatile memory. Enclosure configurations include: light retaining and reflection; hidden magnets for latch-in mounting.

Discrete LED's not visible by observer, produce illumination parallel to the viewing surface.

Apparatus powered by low AC/DC, compatible with plug and power distribution. Apparatus in compliance with local and national regulations.

Applications: residential ceilings, walls, floors; furniture; appliances; lamps; aquariums; billboards; backlighting art.

The *Parallel-View*[™] Intelligent LED Lighting Systems include state of the art configurable *MagicLight*[™] modules, which are compatible with DC *Plug-n-Power*[™] distribution systems.

For illustration purposes two types of modules are presented below.



FIG. 1: *MagicLight*[™] Model ML0-600-T-1-RDM

ML0-600-T-1-RDM Specifications

Dimensions	6" overall diameter with <i>Parallel View</i> [™] illuminated dome for recess mounting; 0.5" overall height
Enclosure	Water-proof NEMA 4 rating
LED source	Single color warm white flexible LED strip attached along the entire inner perimeter inside the housing (15 discrete LED's for 6" diameter)
Power interface	12VDC, 0.2A, 12VDC <i>Plug-n-Power</i> [™] distribution compatible cable
Environment	-10 to 50°C
Mounting	Light-weight construction. The mounting base configured with hidden magnets for snap-to metal bracket. Four mounting holes are optional. Recess mounting: ceilings, walls, furniture, appliances. Installation time – 20 minutes, max.
Longevity	50,000 hours of continuous use
Warranty	One year
Estimated cost	Unit price \$10 in quantities 1K+. Installation costs \$10-30.
Application	General lighting, super low cost (simple mounting), high efficiency, snap-in installation

NOTE: The overall diameter of the MLX-600 series is 6". Other models with different diameter and/or shape are described in the Patent-pending application, and can be developed as needed.



Remote Control
X=C, RGB color model

FIG. 2: MagicLight™ ML5-600-X-1-RDM

ML5-600-X-1-RDM Specifications

Dimensions	6" overall diameter with <i>Parallel View™</i> illuminated dome for recess mounting; 1.5" overall height.
Enclosure	Water-proof NEMA 4 rating
LED source	X=C RGB color X=T Warm white color X=W Cool white color Flexible LED strip attached along the entire inner perimeter inside the housing (15 discrete LED's for 6" diameter)
Power interface	12VDC, 0.4A, 12VDC <i>Plug-n-Power™</i> distribution compatible cable
Environment	-10 to 50°C
Mounting	Light-weight construction. The mounting base configured with hidden magnets for snap-to metal bracket. Four mounting holes are optional. Recess mounting: ceilings, walls, furniture, appliances. Installation time – 30 minutes, max.
Controls	Operator remote 24 functions IR controller (controller included). Wireless interface for remote controls by computer, mobile device. Real-time self-diagnostics, with visual indications of status. Real-time monitoring of ambient environment, and reporting to host controller, LAN, INTERNET.
Longevity	50,000 hours of continuous use
Warranty	Three years
Estimated price	Unit price \$18 in quantities 1K+. Installation costs \$25-50.
Application	General lighting with built-in diagnostics, intelligence, with remote controls for added safety, security

3.0 Future Home Design Ideas and Technologies

For illustration purposes, an image FIG. 3, which is available from the link below, will be used

<http://www.energystar.gov/index.cfm?fuseaction=popuptool.atHome>

3.1 Current Methods

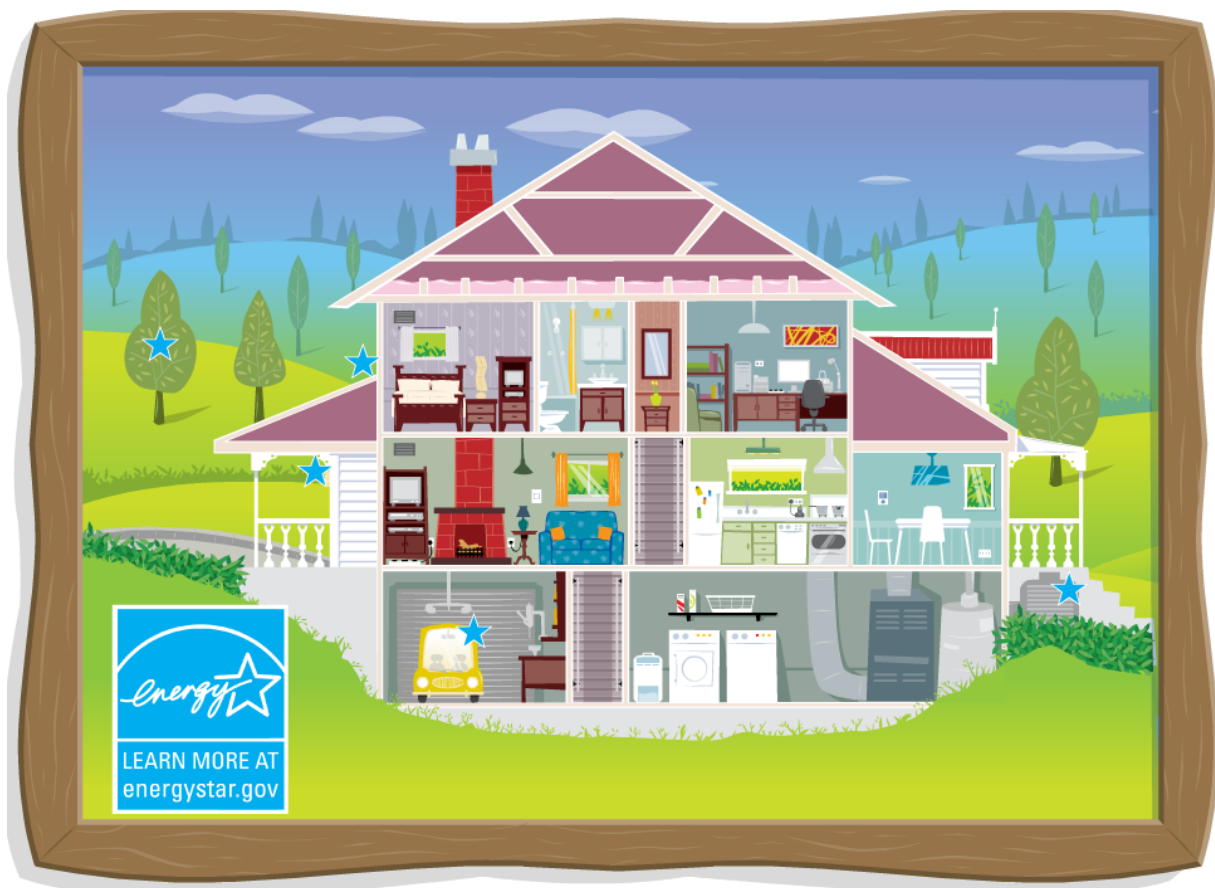


FIG. 3

The above illustration references a number of very valuable energy conservation measures, recommended to the occupants of the house.

3.1.1 Original electrical power distribution method

The entire house, starting from the basement and all the way up to the roof line, is wired using 115VAC and 230VAC power distribution circuits. Each electrical component such as wall mount receptacles and switches – are installed and wired to 115VAC using manually stripped and installed cabling, the method which has not changed much over the last 30+ years.

3.1.2 Current lighting method

In respect to house lighting, assuming modest modernization, the illumination will be provided:

- Garage and basement area
Fluorescent 115VAC light fixtures
- Rooms
Ceiling 115VAC light fixtures
Desks 115VAC powered lamps

NOTE: If there are LED lamps for general lighting, most likely the lamps are designed and installed into existing 115VAC sockets originally installed for incandescent light bulbs.

3.1.3 CONCLUSION

Measures recommended by the “energystar.gov” will improve energy conservation to a point.

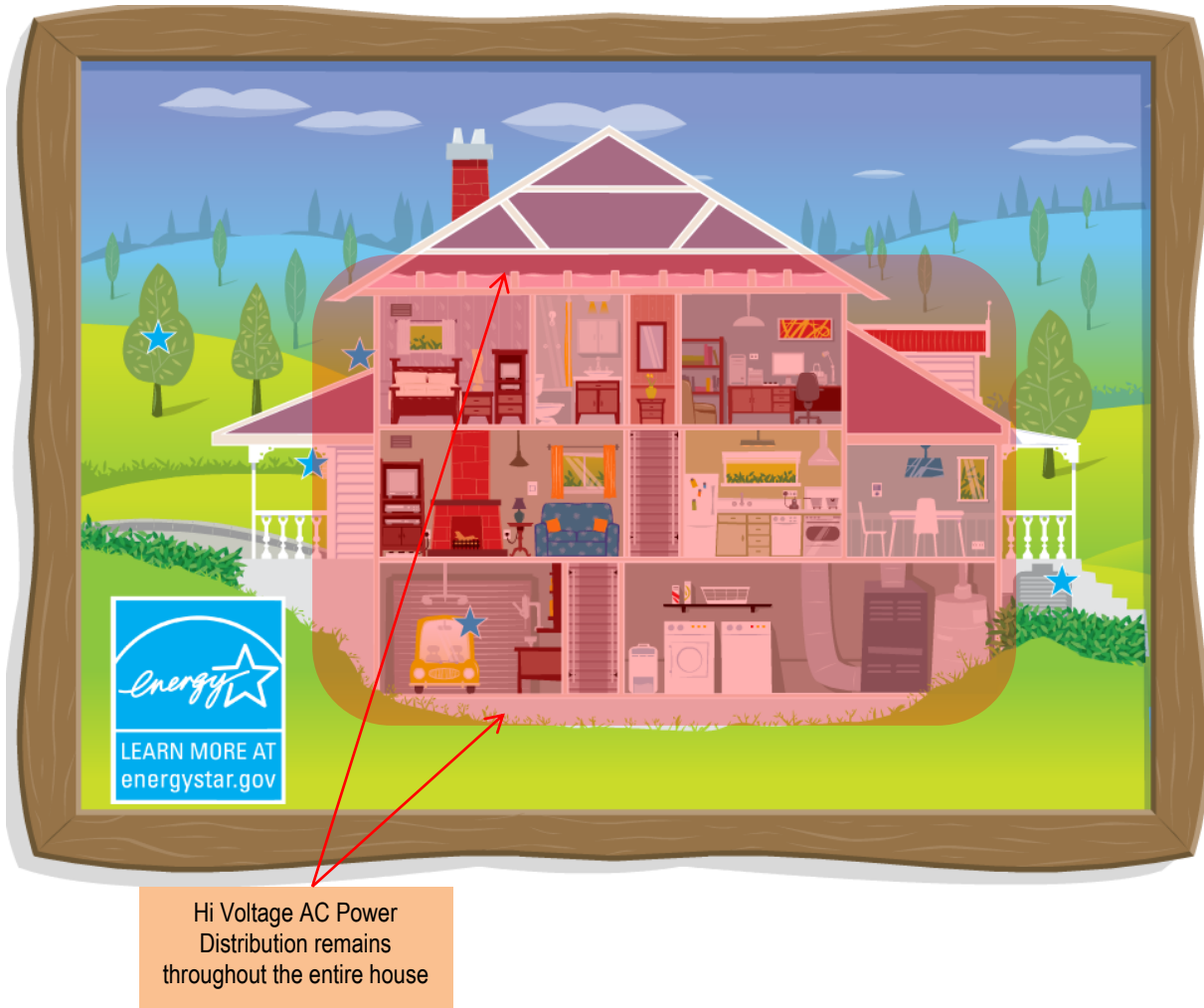
The house will remain subject to:

- **SAFETY concerns**
AC power distribution is still present throughout the entire structure, while initial installation, and any followed up modernizations or maintenance performed, could not be verified by adequate quality control procedures. Aged AC electrical panel and AC electrical components, such wall outlets, switches, will deteriorate in-time (if not already), further impacting safety of the installation.
- **RELIABILITY concerns**
Utilization of AC-DC converters for each LED light fixture unnecessarily complicates the installation in terms of adding parts, and as result, lowering reliability simply due to the fact that more parts are now installed in-sequence to sustain required energy flow.

- **ENERGY concerns**

Utilization of AC-DC converters for each LED light fixture also impacts energy saving potentials from using LED lights, as added components have energy conversion factor below 100%. In addition, aged AC electrical panel, as well as aged AC electrical connections to such components as wall outlets, switches, will increase power wasted in those connections.

The above conclusion is summarized on FIG. 4 below.



Ratings on scale 0-10:

SAFETY	6
ENERGY conservation	7
ENVIRONMENT protection	7
Overall:	6.7

FIG. 4

3.2 Proposed COMPREHENSIVE Solution

- *Plug-n-Power*[™] AC/DC Power Distribution and Control System, with
- *ParallelView*[™] LED Lighting System

Both systems, the *Plug-n-Power*[™] AC/DC Power Distribution and Control, and the *ParallelView*[™] LED Lighting – are in full compliance with NEC, and are configurable to meet additional requirements of local ordinances and to satisfy quality of living environment desired by the occupants.

3.2.1 Modern electrical power distribution method

The *Plug-n-Power*[™] AC/DC Power Distribution and Control System can be configured to support:

- Modern, energy efficient AC powered appliances and devices
- Provide most reliable and energy efficient power distribution solutions for powering modern DC powered appliances and devices, including: ceiling fans, laptops, central electric gas heating systems
- Provide most reliable and energy efficient power distribution in support of general, task and spot lighting using *ParallelView*[™] LED Lighting modules

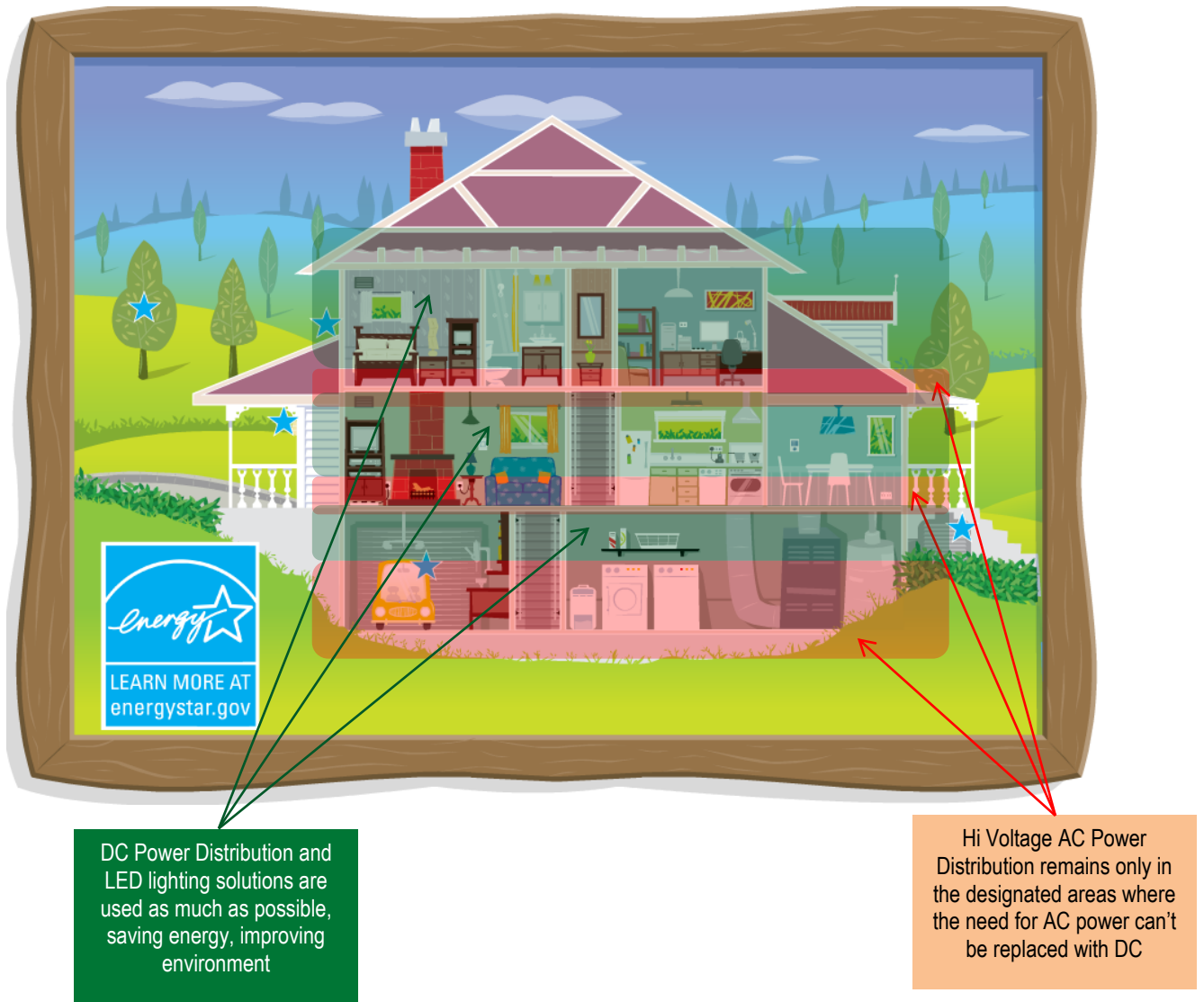
3.2.2 Modern lighting method

The *ParallelView*[™] LED Lighting System will provide the most pleasant and energy efficient lighting methods, including:

- Recessed lighting in the ceilings, walls, furniture
- Task lighting via DC powered stand-alone LED lamps
- Emergency lighting, as selected LED lights will be connected via Patent pending DC Power Splitter to a battery backup source, including Solar Battery, and as result, remain fully operational for specified amount of time, when there is no electricity
- Environment monitoring intelligent LED lights, complementing to safety and security of the residency

Additional features will include Intelligent LED Illuminated Street Address Sign, such as Patented *MagicSign*[™], which will make the street address visible from 100's of feet away consuming below 0.5W of electricity.

3.2.3 CONCLUSION



Ratings on scale 0-10:

SAFETY	9
ENERGY conservation	9
ENVIRONMENT protection	9
Overall:	9

FIG. 5

Table 1 includes quantitative [0-10 scale] comparison of Existing Power Distribution Systems vs. *Plug-n-Power*™ Distribution Systems.

Considered Criteria	Existing Systems	Plug-n-Power™
Installation Time	Lengthy [3]	Short [9]
Installation material costs	Low [4]	Moderate [6]
Installation labor costs	Very High [3]	Very Low [9]
Safety hazard to installers, services, users	Moderate [6]	Very Low [9]
Quality of installed components	Good [7]	Very Good [9]
Quality of installed connections	Moderate [6]	Very Good [9]
Quality Control of installation, city inspection	Inadequate [4]	Very Good [9]
Environmental impact due to wasted materials	Moderate [7]	Very Good [9]
Environmental impact due to EMI	Low [8]	Very Low [9]
Optional water-proof ratings IP63-66 for moderate increase in installation costs (30% max)	None [0]	Available [10]
On-site real-time monitoring of power consumption with operator guidance to improve efficiency	Expensive [4]	Moderate [6]
Support for DC power distribution	Low [3]	Optional [9]
OVERALL RATING	55	103

Table 1