U.S.-China Low-Carbon City Action Planning and Technology Solutions Workshop

January 22, 2018
2018年1月22日

Company: LumenCache
公司名称：万用微网智能科技有限公司
Presenter: Derek Cowburn, Founder/CEO
演讲嘉宾：

LumenCache Company 公司

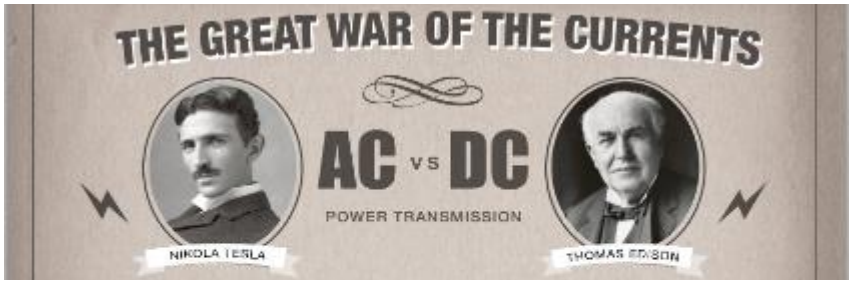
美国公司成立于2011年
通用微电网智能科技 + 通讯/控制
5个全球领土的专利
直流项目管道帮助资助CERC-BEE2

创始人/ CEO : 一个价值之上的企业家，他是智能直流微网的专家并拥有超过25年楼宇自动化的卓越经验，为很多工业集团来推进节能建筑科技做出了巨大贡献。

USA Company founded 2011
DC Nanogrid + Communication/Control
Patent in 5 Global Territories
DC project pipeline helped fund CERC-BEE2

Founder/CEO: A value-based entrepreneur who is an expert in smart DC micro-grids and has over 25 years of building automation excellence, has contributed to many industrial groups in promoting energy-efficient building technologies.

What we solve 我们解决



"The future is not about one standard but the ability to adapt to any standard"

"未来不是一个标准，而是适应任何标准的能力"

-- Derek Cowburn, LumenCache Founder

Smart building adoption is slow. Builders avoid installing technology because security risks and complexity

智能建筑采用速度缓慢。 建设者避免安装技术，因为安全风险和复杂性

Building infrastructure is difficult to change but technology in buildings changes rapidly

建筑基础设施难以改变，但建筑技术发展迅速

Open hardware platform 打开硬件平台

Technology Benefits 技术优势

Allows a different power/ communication standard over each wire over the life of a building (incremental upgrades)

在建筑物的整个使用寿命期间，允许每根电线的功率/通信标准不同（增量升级）

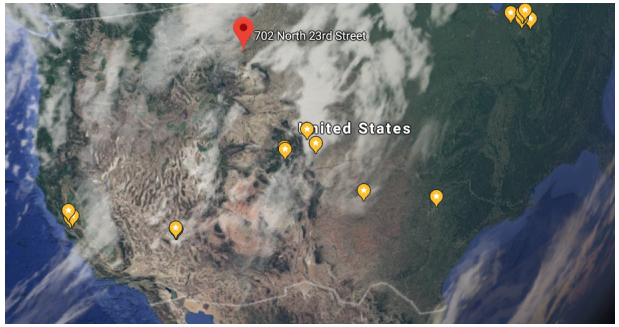
Makes all wired devices in buildings plug-n-play, compatible, controllable by any system, and virtually unhackable (Smart Cities)

使建筑物中的所有有线设备即插即用，兼容，可由任何系统控制，并且几乎无黑客攻击的可能性, 高度安全（智能城市）

More efficient energy delivery allows less complex devices, lowering costs and lengthening device lifespan

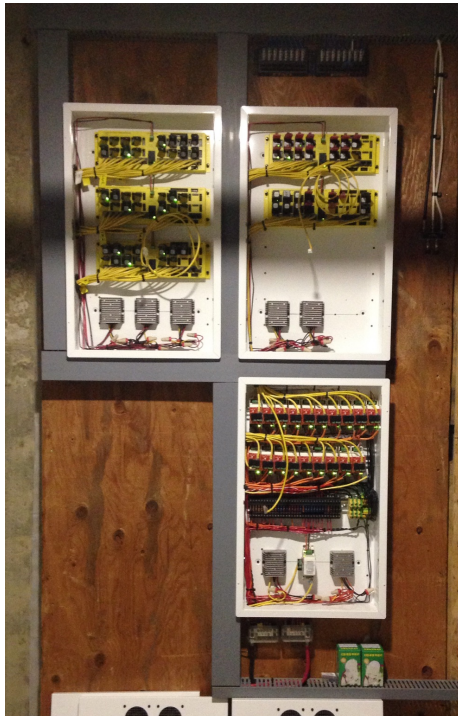
更有效的能量传输允许更简单的设备，降低成本和延长设备的使用寿命

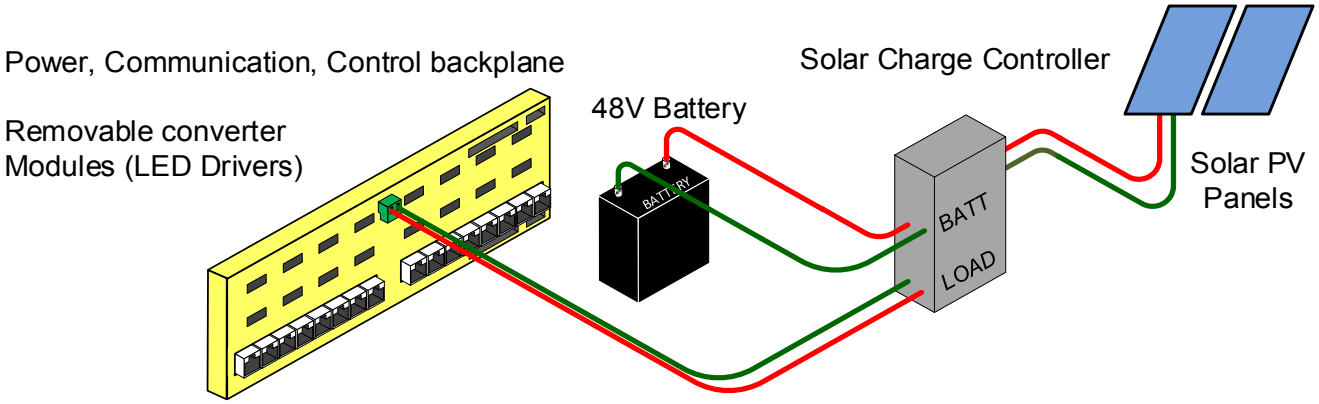
All DC home, Montana 所有直流



- ALL DC
- LEED Platinum
- 94 Lighting Circuits
- USB Phone Charging
- DC Ceiling Fans
- DC Exhaust Fans

- 所有直流
- LEED白金
- 94照明电路
- USB电话充电
- 直流吊扇
- 直流排风扇





Urban Frontier House achieves LEED Platinum (USGBC Montana)

Published on 30 Aug 2017 Written by Kris Wilson Posted in Community

The new house is one of seven certified at LEED Platinum level in Billings, Montana.

This article was originally published on Last Best News on August 28, 2017, and is reposted with permission. Read the original article. Feature image photo credit: John Warren.

High Plains Architects has been awarded LEED Platinum certification for the Urban Frontier House, the personal residence of firm founders Randy and Jenne Hofer.

The house, designed to be totally off the grid, is located at 702 N. 23rd St. It includes self-contained, self-sustaining systems for energy, water, and wastewater, including photovoltaic panels, rainwater collection, DC lighting, composting toilets, a wind turbine and an indoor garden room. Renewable and reclaimed materials are featured prominently throughout the house.

Platinum is the highest level of certification in the LEED rating system.

In a press release, High Plains Architects said the Urban Frontier House achieved LEED homes certification for implementing practical, measurable strategies and solutions aimed at achieving high performance in sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

2 Wellness Centers & 1400 Hallway Lights
2个健康中心和1400个走廊灯

6 Apartment buildings:
- 1400 Hallway Lights
- 5-6 Floors

Wellness Center:
- 300 Lighting Circuits
- Exhaust Fan Control

6公寓楼:
- 1400走廊灯
- 5-6层

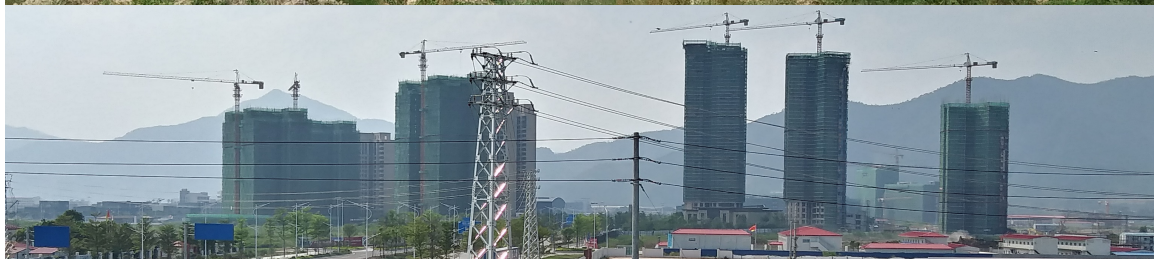
健身中心:
- 300照明电路
- 排气扇控制

Demonstrating Full Range 演示全范围

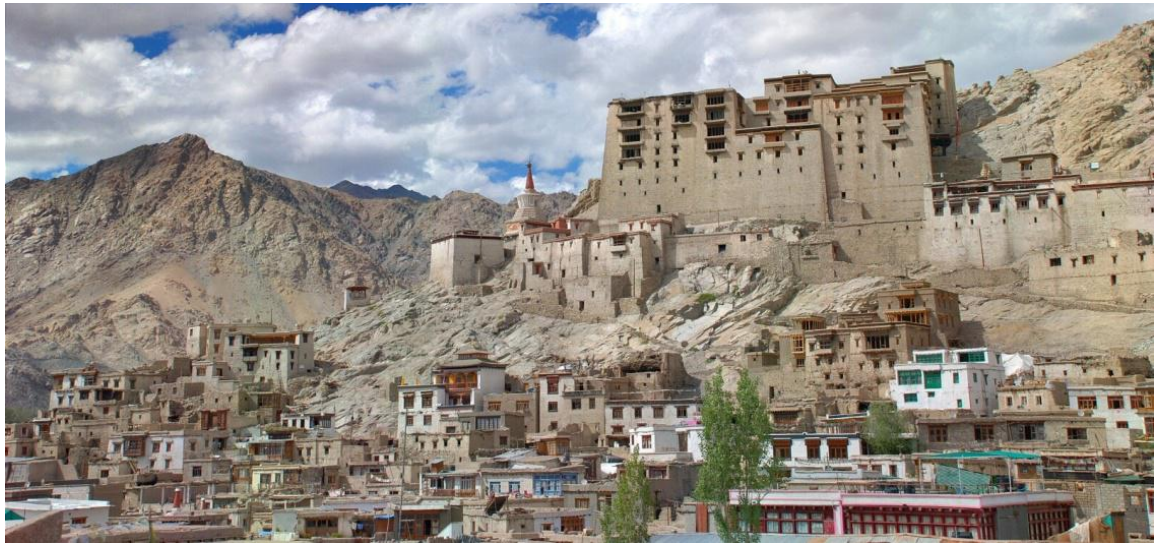
ZhaoQing Smart City
肇庆智慧城市

PingDi Low Carbon City 坪地低碳城市

CFLD Techcode 太库



Global Himalayan Expedition: Leh
全球喜马拉雅远征：列城



Leading Partners 领先的合作伙伴

Johnson Controls
DELTA
VOLTSTORAGE
U.S. DEPARTMENT OF ENERGY
Schneider Electric
legrand
Pika ENERGY
興業太陽能 SINGYES SOLAR
Merge™ ALLIANCE
IBM
HYPERLEDGER
intel
CFLD
ALLIANCE TO SAVE ENERGY
T-Mobile
FOXCONN
Techcode 太库
HAX
DC-NEXUS THE CENTER FOR DIRECT CURRENT
FLAIR
AERATRON
IEEE
CABA Continental Automated Buildings Association
BERKELEY LAB Lawrence Berkeley National Laboratory
M5STACK
digi .bio
STATE GRID CORPORATION OF CHINA
ALLIANCE for SUSTAINABLE COLORADO
CEDIA CUSTOM ELECTRONIC DESIGN & INSTALLATION ASSOCIATION
puck
flex LIVE SMARTER
Breezi
IBCON The Smart, Connected, High Performance Intelligent Buildings Conference
GUARDTEK™

Universal Platform 通用平台

Demonstrates the global market is ready for new power distribution standards

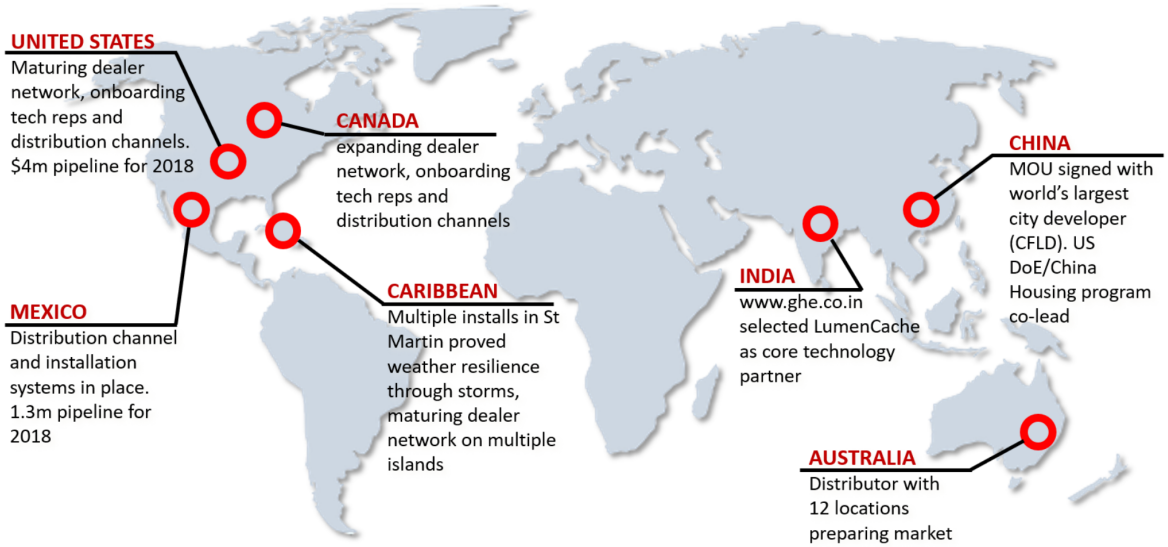
Allows new power conversion and control hardware, software, and protocol standards to be rapidly tested and compared

Generation 2 is a complete hardware and software platform meeting power and communication requirements across multiple verticals and global markets

展示全球市场已经准备好了新的配电标准

允许对新的电源转换和控制硬件，软件和协议标准进行快速测试和比较

第二代是一个完整的硬件和软件平台，可满足多个垂直行业和全球市场的电力和通信需求



PoE Comparison PoE比较

- Gen1 does not support high-speed data
  第1代不支持高速数据
- New LED Drivers more efficient than PoE
  新的LED驱动器比PoE更高效

Working prototype of Gen2 expected 3Q18
第二代的工作原型预计将于3Q18

Global release 1Q19
全球发布1Q19

Gen2 will leapfrog all PoE-based lighting systems and can power all of them
第二代将跨越所有基于PoE的照明系统，并可以为所有这些系统供电

PNNL.gov identified LumenCache as unique solution
PNNL.gov将LumenCache认定为独特的解决方案

Manufacturer		Cree	Igor	Innovative Lighting	LumenCache	MHT Lighting	Molex	NuLEDS	Philips	Platformatics	Redwood/CommScope	LumenCache Generation 2
Energy management access	Direct via VLAN	✓						✓			✓	✓
	Indirect via router	✓	✓	✓		✓	✓			✓	✓	✓
PoE controller	Required		✓		✓	✓	✓		✓	✓	✓	
	Optional	✓										✓
PoE switch	802.3af						✓					✓
	802.3at	✓	✓	✓		✓	✓	✓	✓			✓
	UPOE	✓	✓	✓		✓	✓	✓		✓		✓
	Other				✓						✓	✓
	Selectable standard											✓
Ethernet Switch	Hardware upgradeable											✓
Direct PoE loads	LED drivers		✓	✓			✓	✓				✓
	Luminaires	✓	✓		✓	✓	✓	✓	✓	✓		✓
	Sensors	✓	✓		✓				✓		✓	✓
	Luminaires w/ sensors	✓				✓	✓	✓	✓		✓	✓
	USB/-PD & comm											✓
Non-PoE loads	Fans				✓							✓
	USB Charge only				✓							✓
	MELs < 100W											✓
Cabling to indirect PoE loads	Ethernet cabling		✓	✓	✓	✓		✓			✓	✓
	Non-Ethernet cabling					✓	✓	✓		✓	✓	✓
Power Supply	Per port upgradeable											✓
	AC or DC Supply											✓
	Bi-directional Power											✓
	Redundant Power											✓
	Standby power mgmt											✓

Compare Generation 1 & 2 比较一代和二代

Features 特征	LibRE (Generation 1 第一代)	Epoch (High End 高性能), Ascend (Budget 基本)
Installation 安装	Factory Wired Panels 工厂有线面板	Field assemble plug together panels 现场组装插头
Module card interface 模块卡接口	Fixed pin mapping (14c) 固定引脚映射	Allows complete mapping of field pins 允许完整的现场引脚映射
Field device wiring 现场设备接线	Cat5/6 (RJ45)	Cat5/6, 2c, 4c, Coax
Per port power 每个端口的功率	16W @ 12Vin 60W @ 48Vin	100W (Epoch) 60W (Ascend)
Ethernet interface 以太网接口	External gateway 外部网关	100mb/s built-in 内置100mb/s
Control busses per port 每个端口的控制总线	1x 2c, 16 channel matrix	16x PtP, 1x 4c, 2x 2c
Backplane BIOS 背板输入输出系统	None. Completely passive 没有。 完全被动	Basic PnP card management, Energy Management, Prioritization, Safety, Logic, Clock 基本的PnP卡管理，能源管理，优先级，安全，逻辑，时钟
Communications speed 通信速度	512kb/s (DMX speed) shared bus 2,000kb/s Port to device 到设备	1Gb/s per port 每个端口 (Epoch) 100Mb/s per port 每个端口 (Ascend)
Supply power control 供电控制	External 外部	Integrated 集成
Plug-n-Play commissioning 即插即用调试	Possible 可能	Required 需要

LumenCache

Thank you
谢谢大家

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WeChat “LumenCache”