

EAST PENN manufacturing co., inc.

UPDATE CONFERENCE – 2010

Large-Scale Energy Storage Technology Overviews

UltraBattery – Grid Storage

John Wood (Ecoult)

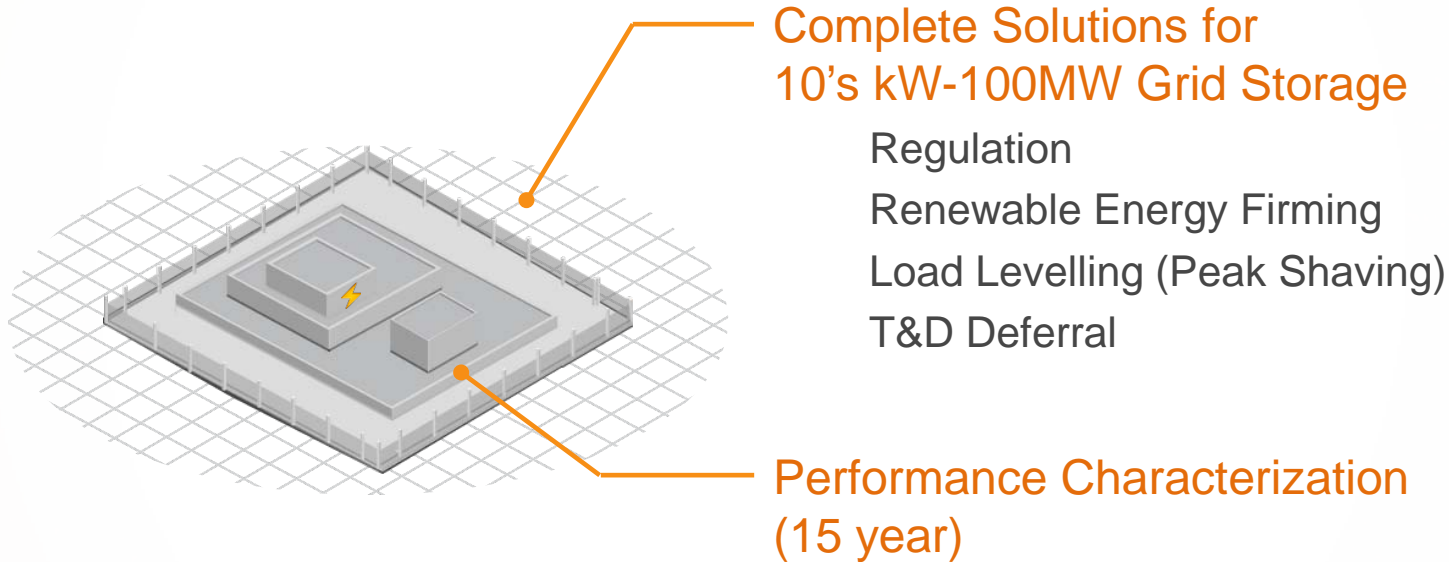
East Penn Manufacturing

Funded in part by the Energy Storage Systems Program of the U.S. Department Of Energy through *National Energy Technology Laboratory*

Project Partners:



Investment and Development Program for UltraBattery and Advanced Lead Acid Technology





UB Product Breakthrough and Development

Application specific Longevity

Sandia Testing	Ecoulr Testing
EPM Testing	CSIRO Testing

Characterization and Optimisation

MW Scale solution Implementation and demonstration with partners

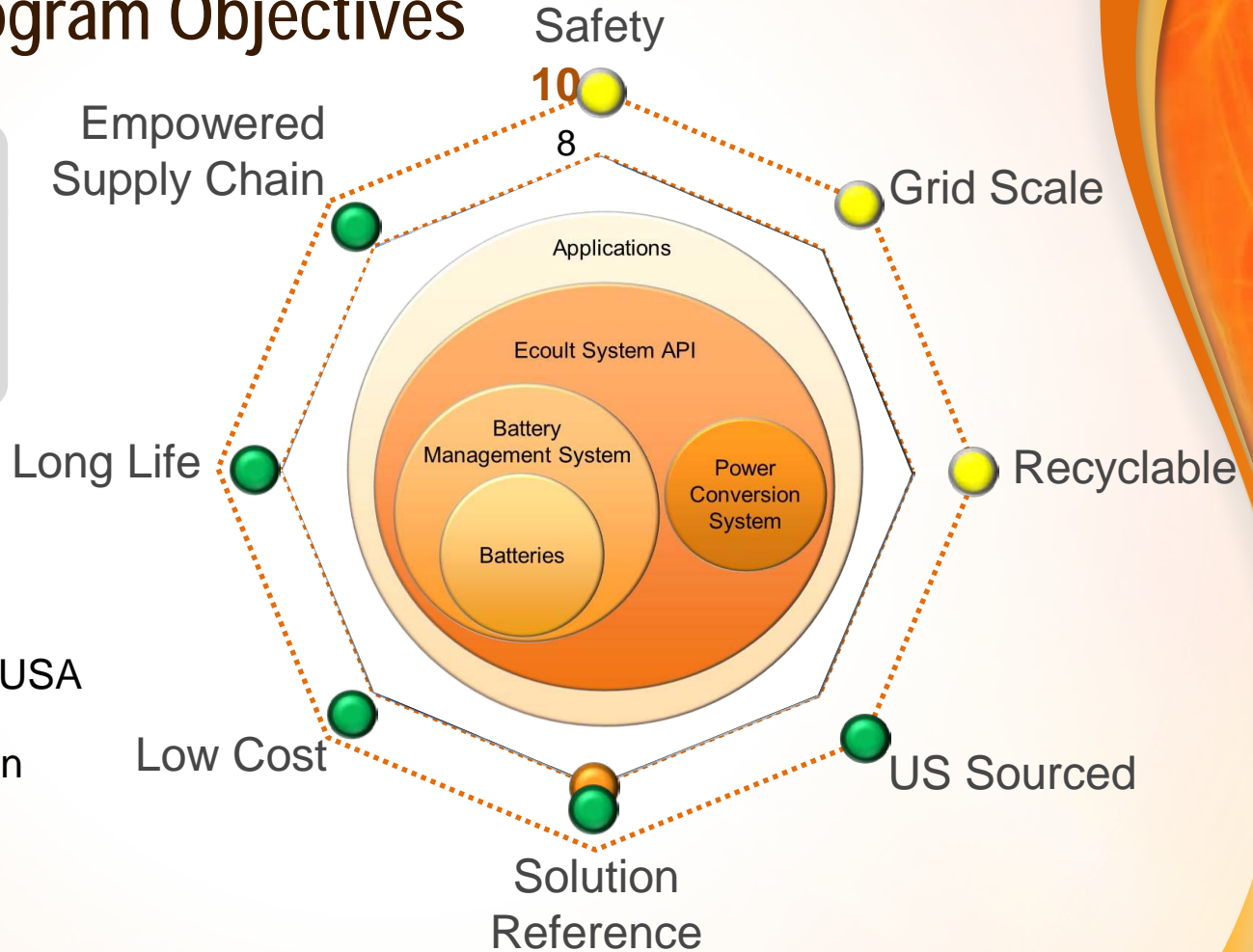
EPM Smart Grid Demonstration

Industry Rollout

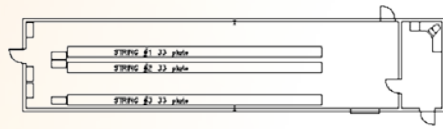
Investment Program Objectives

- East Penn Manufacturing
- DOE Project Impact
- Ecoult Activities

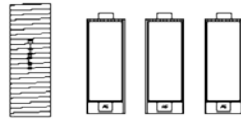
- - 15 Year + history
- - MW Scale Demonstration in USA
- - MW Scale Solution
- - Performance Characterization



Project will Demonstrate:



UltraBattery
Building



CUBS &
E-House

Reliable Grid Support using UltraBattery

3MW Regulation

Demand Management
(1MW, 1Hr)

Scalable Solution Architecture

Building

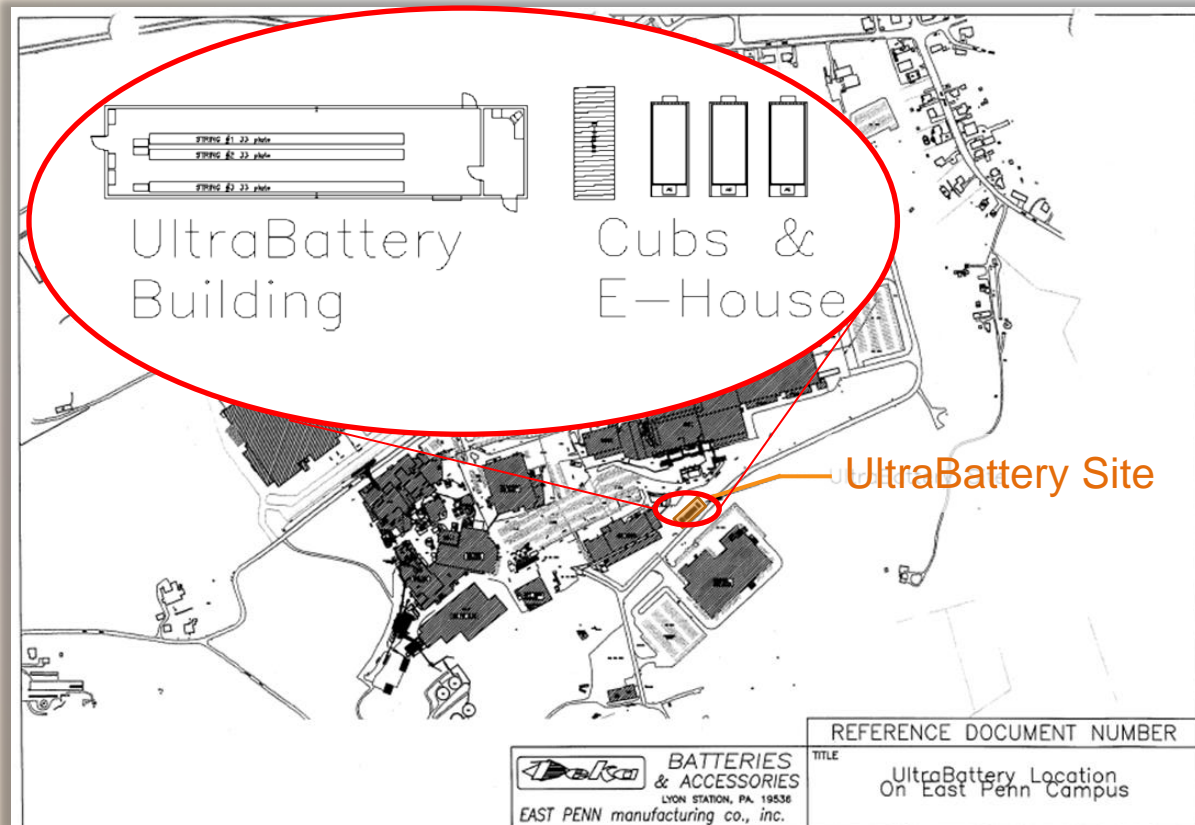
Relocatable Format

Grid Interface

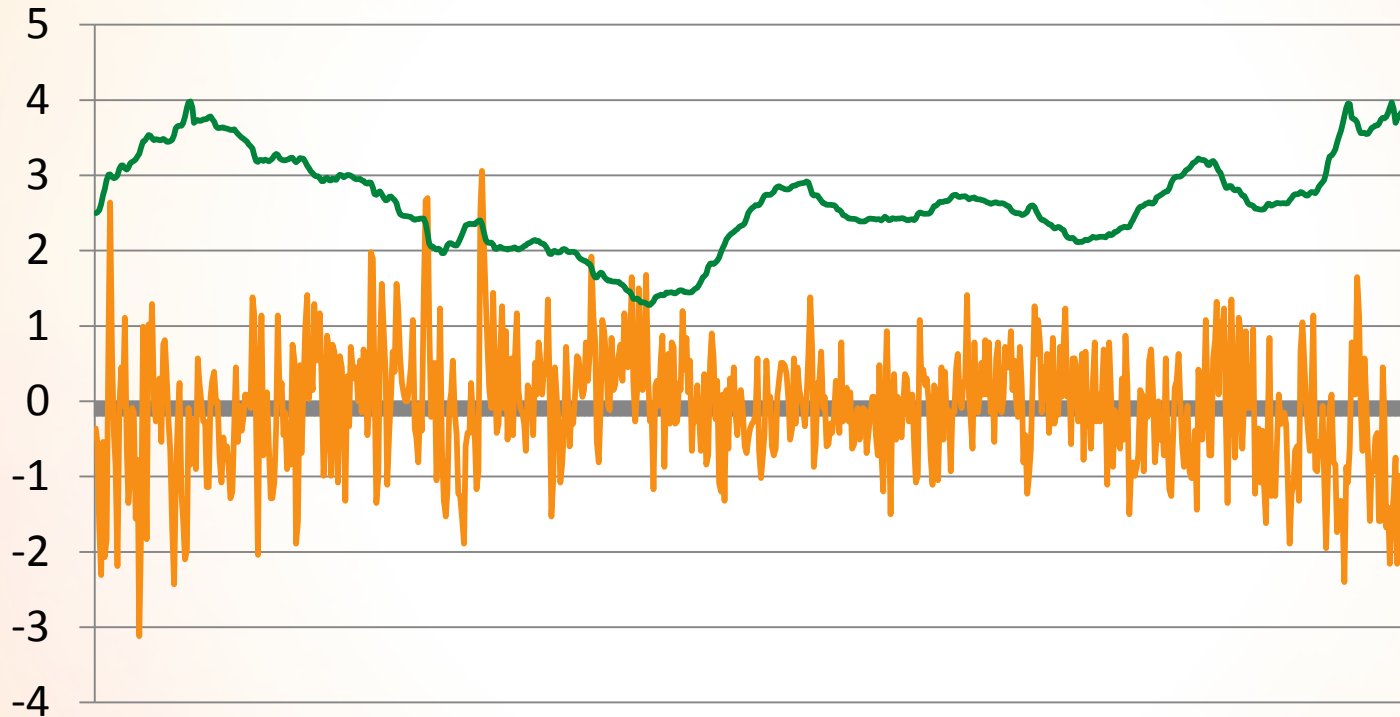
CyberSecurity

Full set of data reporting nominated
by DOE

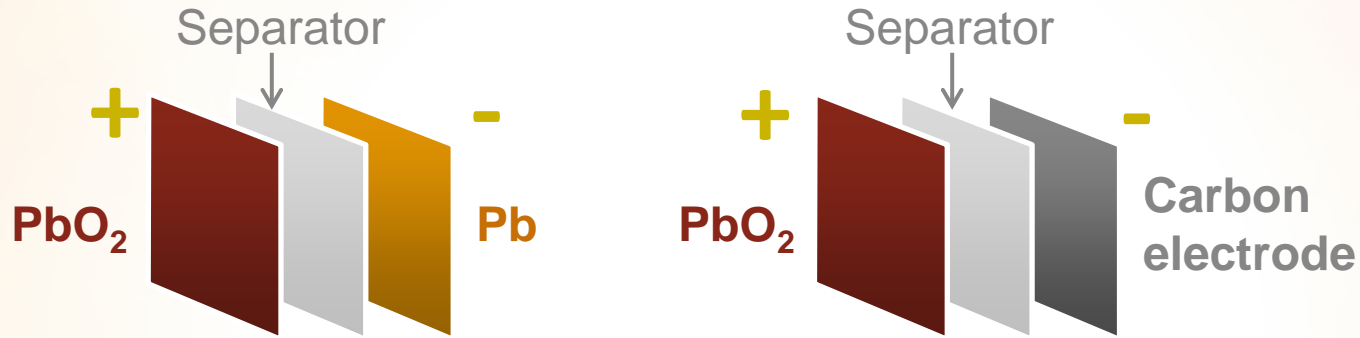
Project Site



Regulation Signal and Storage SoC

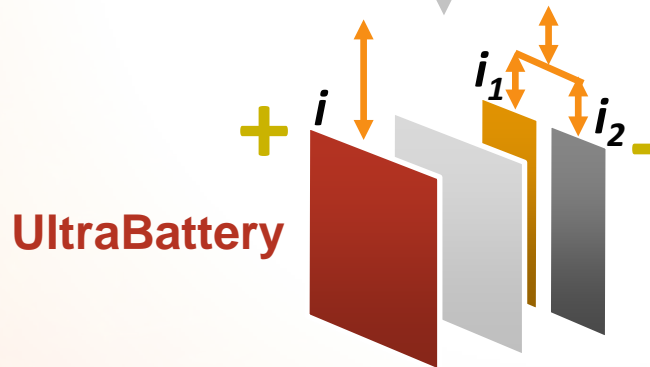


UltraBattery



Lead-Acid Cell

Asymmetric Supercapacitor



UltraBattery

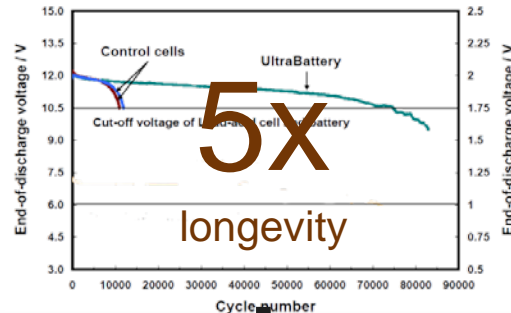
Hybrid Energy-storage Device
No extra electronic control needed

Reliable Storage for Grid Stability

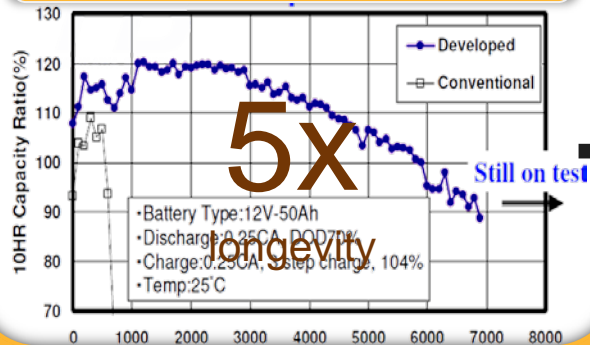
Reliable Low Cost Storage



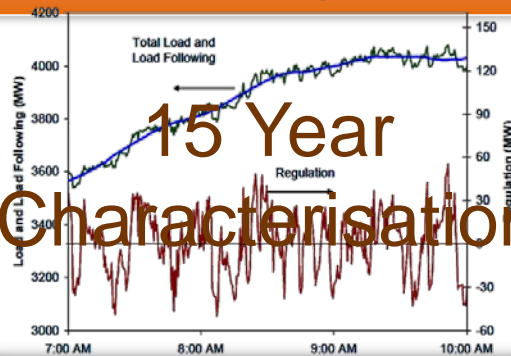
Power Objective



Energy Objective



Economic Regulation



Summary

**Building on
existing Attributes**

EAST PENN manufacturing co., inc.

Adding

Summary

Resulting in capability to deliver solutions scalable
from 10's kW to 100's MW and delivering

Building on existing Attributes

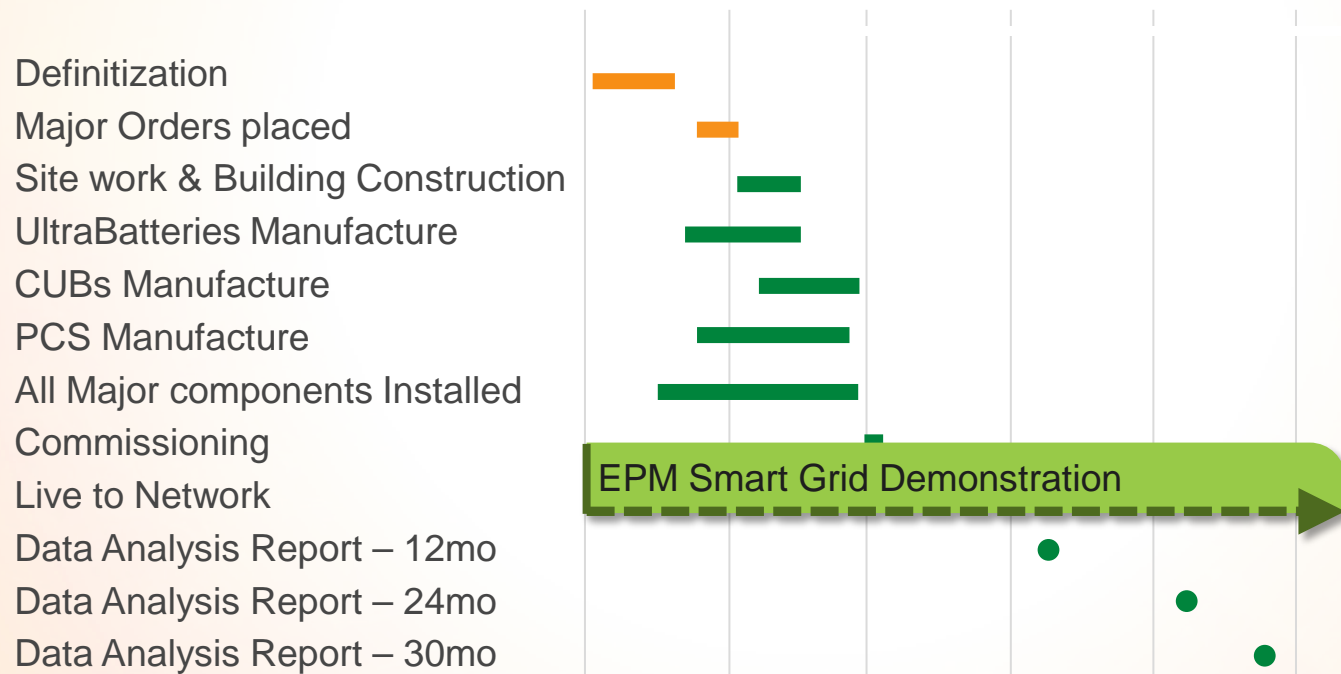
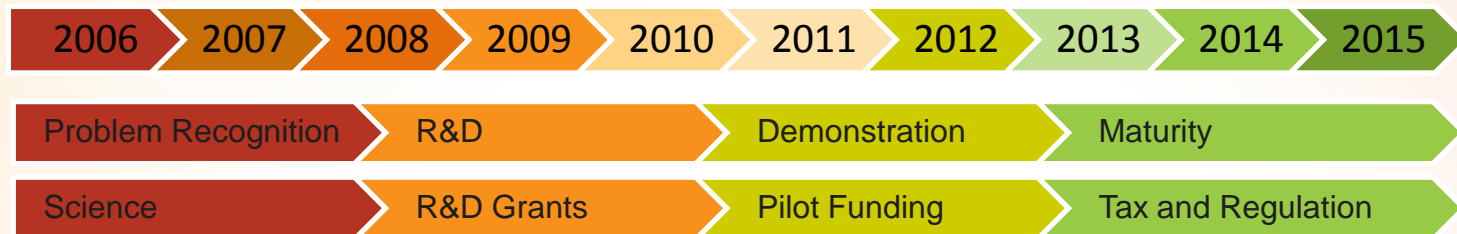
Benchmark
for Industry

EAST PENN manufacturing co., inc.

Leadership for
Advanced Lead Acid

Exports

Employment Growth
inside the USA



Thank You

John Wood

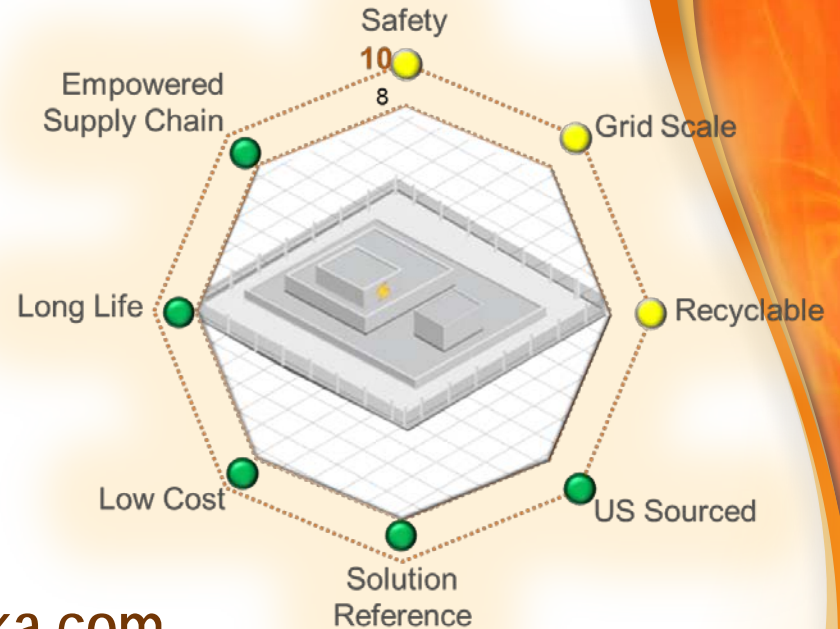
CEO Ecoult

john.wood@ecoult.com

Jeff Seasholtz

Project Leader

jseasholtz@eastpenn-deka.com



Thank You

John Wood

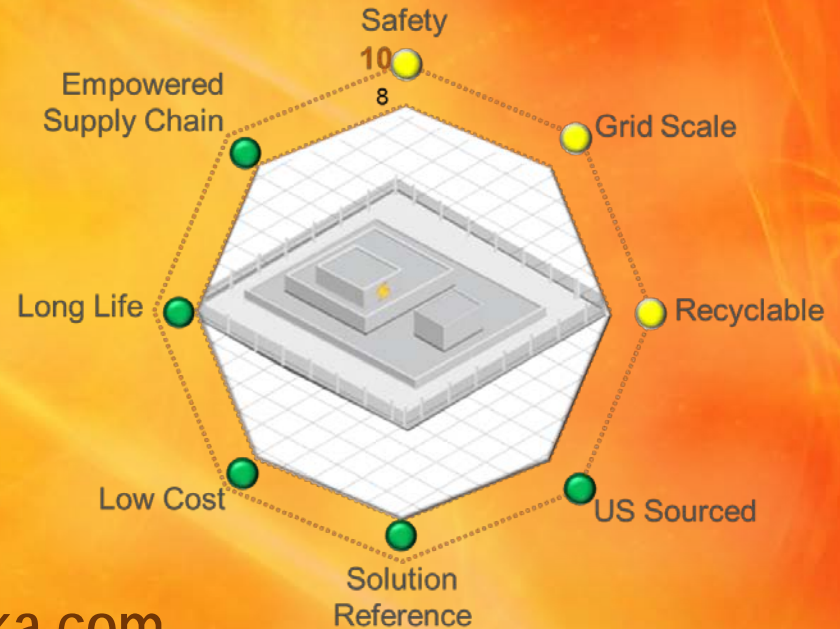
CEO Ecoult

john.wood@ecoult.com

Jeff Seasholtz

Project Leader

jseasholtz@eastpenn-deka.com



Thank You

John Wood

CEO Ecoult

john.wood@ecoult.com

Jeff Seasholtz

Project Leader

jseasholtz@eastpenn-deka.com

