



 OCTOBER 8 & 9  DOWNEY, CA

# ET Summit Fall 2018

COMMERCIAL + RESIDENTIAL BUILDINGS

# Emerging Technology: Battery Energy Storage Systems

Integration of Energy Storage & Distributed Energy  
Resources (DERs) For Multifamily Housing

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# The Energy Landscape Is Evolving

Energy Resources are becoming more distributed.  
This presents new benefits and challenges.

## Challenge

- Renewables are intermittent and unpredictable

## Solutions

- Energy storage brings predictability
- Energy management bring flexibility and optimization

# DER Management Requires a Coordinated Response

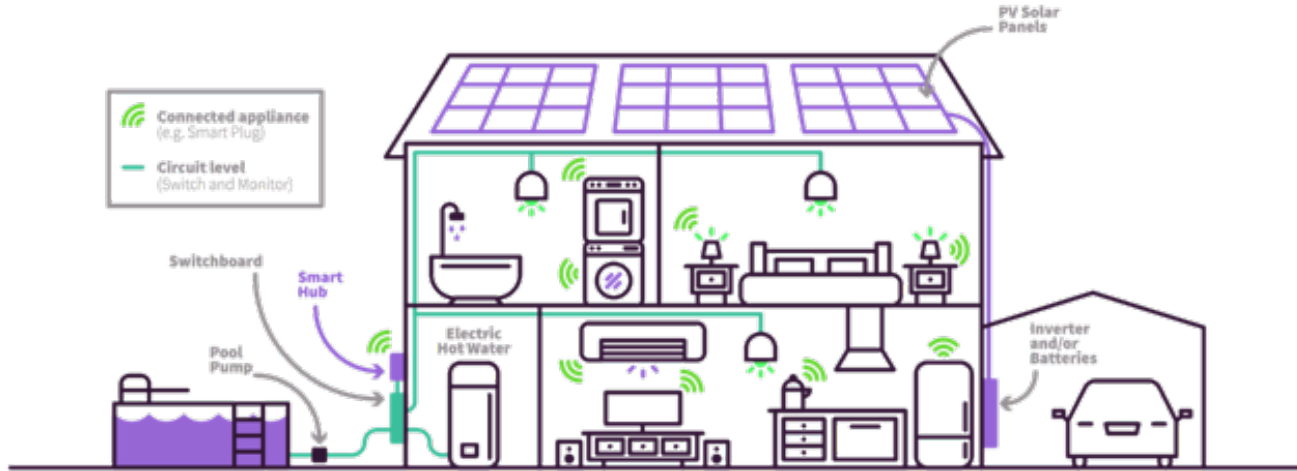
Reliable, Intelligent, (behind the meter) Control

## ENERGY MANAGEMENT

- Circuit, Plug, & Inverter Control
- Hierarchical Switching
- Digital Essential Loads Panel

## OPTIMIZATION

- Maximize the Solar Umbrella
- Peak Load Management
- Limit Export & Curtailment
- Extend Battery Life

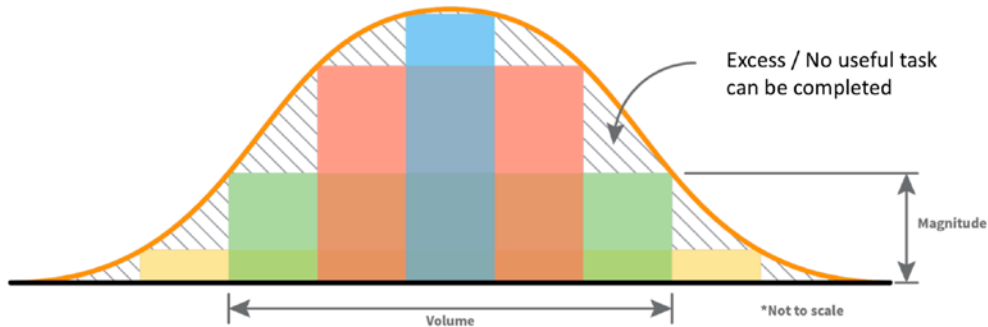


## Micro Grid Network

This is a grid of connected devices that can communicate with each other and negotiate the use of available resources.

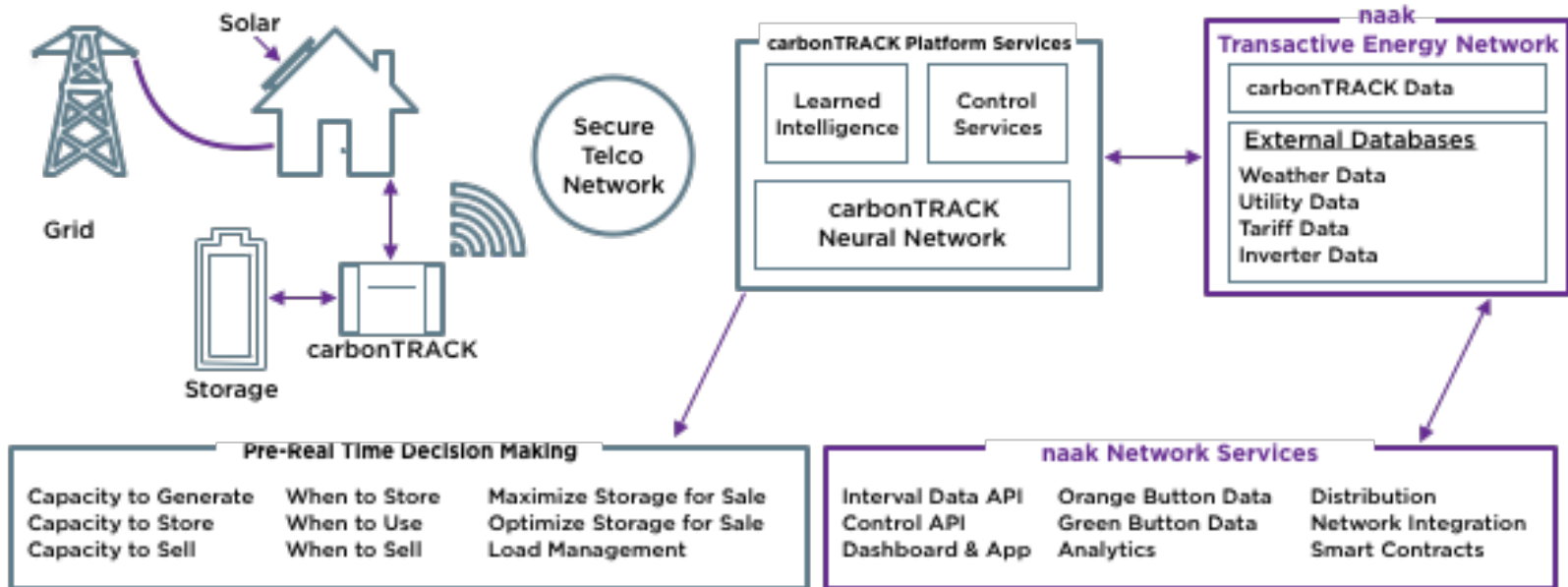
# Load Management Based On Hierarchical Model & User Set Priorities

Solar umbrella



- The System Predicts Generation Priorities
- It also predicts Load Requirement (Magnitude)
- And expected run time (Volume)
- Based on this information, the system automatically brings equipment that can fit within the boxed structure online. It will also respect the priorities set by the user

# Predictive Analytics & Network Services



# There Is A Technology Gap EMERGING TECHNOLOGIES COORDINATING COUNCIL

## For Multifamily Housing Energy Storage Systems



Residential – Single Phase 240V  
Lots of Options for BESS



Commercial – Three Phase 208V  
One Option for BESS



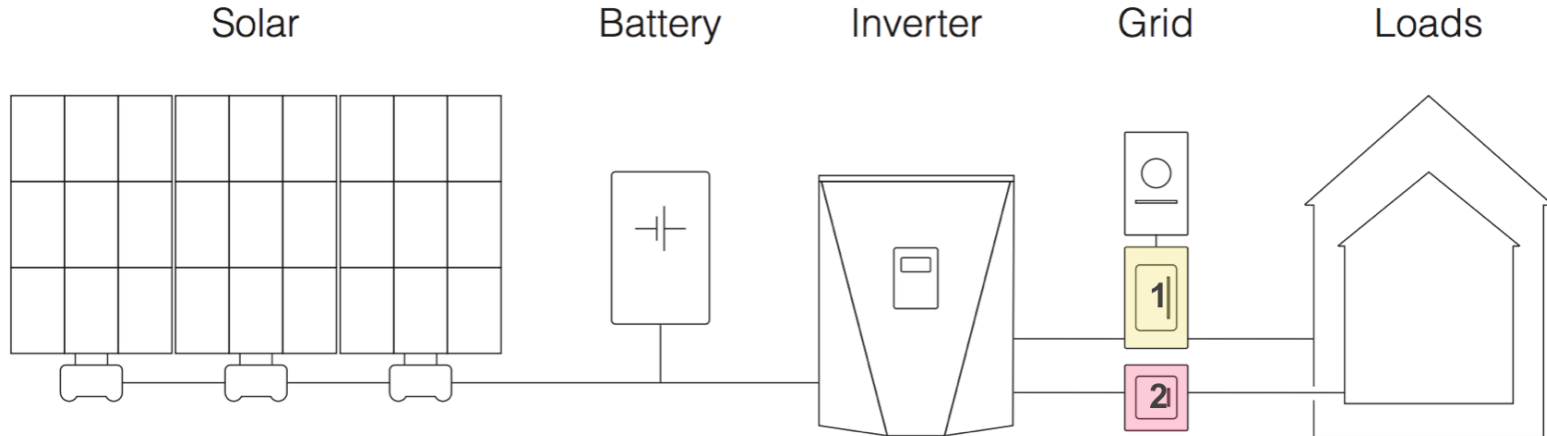
Commercial – Three Phase 480V  
Lots of Options for BESS



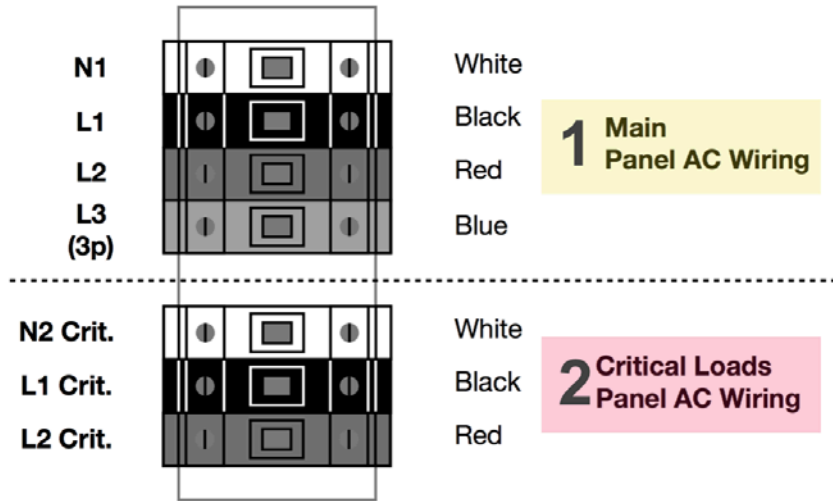
# DC Coupled Battery For Mosaic Gardens at Pomona

Featuring Two Separate AC Outputs.

1. 40 Amp Grid Output
2. 50 Amp Essential Loads Panel Output



# Advantages & Disadvantages of Technology



## Advantages

1. Allows for Demand Management
2. Also allows for Resiliency

## Disadvantages

1. Critical backup limited to Single Phase
2. Only one Critical Loads panel per inverter
3. Difficult to retrofit because of required Optimizers

# Individual Battery Specs

## Pika Harbor Plus Battery

Depth of Discharge

Battery  
Modules



# Project Level Specs

## Solar + Storage System

charge

84%



The plan is to Optimize MG Pomona's battery storage system for Demand Response and Self Consumption

We are working closely with SoCal Edison and EPRI to formulate a series of use case scenarios for testing and controlling the batteries.

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