

# GETTING TO ZERO RESIDENTIAL

BUILDING THE ESSENTIAL FOUNDATION FOR A NET ZERO HOME

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## WHY NET ZERO WITH STORAGE?

<b>PROTECTION FROM INCREASING UTILITY RATES</b>	Once only applied to commercial customers, utilities are now faced with demand charges, time of use rates and other usage fees. Storage allows you to use the energy you've generated during the most expensive hours.
<b>NET METERING</b>	Achieving net zero through solar+net metering is threatened as utilities discontinue metering programs. By storing what you generate, you benefit from 100% of the power you generate.
<b>INDEPENDENCE</b>	Rather than operating according to utility demands, you capture the energy you're generating and use it when and how you need to to suit your lifestyle.
<b>ENERGY SECURITY</b>	Unlike solar-only systems, if you have storage and the grid goes down, you don't lose access to the power you're generating.

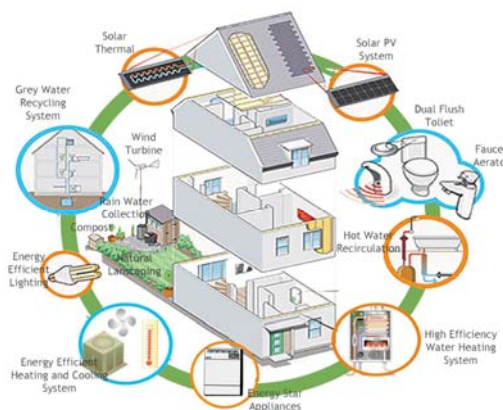
## NET ZERO CHALLENGES

1. Accurately measuring energy/power usage – especially with new builds
2. High energy/power usage requiring large renewable systems and battery banks
3. Battery reliability

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### SOLUTION PART 1: MAXIMIZE EFFICIENCIES TO REDUCE ENERGY DEMAND

- The smaller the energy footprint, the easier it is to estimate system needs
  - Less variability in kWh per day
- Reduce energy requirements for the home from the start:
  - Green construction
  - Most efficient building envelope
  - High efficiency appliances, lighting, etc.



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## SOLUTION PART 2: SIZE RENEWABLE ENERGY + STORAGE

- Accurately measure energy/power usage to size renewable solution
  - Reduce system and installation costs with the smallest possible system
  - Smaller, properly sized systems allow less complex installation and maintenance for lower lifetime costs and greater ROI



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## SOLUTION PART 3: CONSIDER ANCILLARY COSTS

What's the cost of every kWh I can get out of this system?

$$\left( \frac{\text{Price}}{\text{Capacity} \times \text{Cycles} \times \eta \times \text{DoD}} \right) + \text{Ancillary Costs}$$

AKA Hidden Costs



- Square Footage → Installation Location
- Weight → Shipping Costs
- Forklift/Install Equipment → Rental to Site
- Maintenance → Truck Rolls
- Cooling → Additional Cost + Materials
- Ventilation/Setback Requirements → Area
- Construction Support → Weight Related
- Replacement Costs → Performance Related


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**SOLUTION PART 4: ENSURE BATTERY RELIABILITY**




Lead Acid





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Lithium

Other






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**SOLUTION PART 4: ENSURE BATTERY RELIABILITY**

- Lead acid → low efficiency rates, room for error, D-rating
- Lithium ion with cobalt → time to charge/discharge, limited longevity
- Lithium Iron Phosphate → high efficiency 98%, longer cycle life
- Higher power output C/2 charge and discharge

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### SOLUTION PART 5: ENSURE HOME AND FAMILY SAFETY

*Energy security and resiliency shouldn't mean putting homes and families at risk.*



Thermal Runaway



Toxicity



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### THE SAFEST ENERGY STORAGE SOLUTION

No Cobalt

Non-Toxic

No  
Maintenance



No Thermal  
Runaway

No Cooling  
Necessary

## SIMPLIPHI RESIDENTIAL NET ZERO

A WIDE-RANGE OF NET ZERO DEPLOYMENTS AROUND THE WORLD



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### NET ZERO TRADITIONAL HOMES



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### NET ZERO PREFAB HOMES



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### NET ZERO OFF-GRID, MICROGRID HOMES

## The governor who's castigating the president on climate change

**58** BILL WHITAKER CBS NEWS  
Dec 10, 2017 7:08 PM EST



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### A FULL RANGE OF STORAGE SOLUTIONS

- Industry-leading cycle life even when fully discharged
- Industry-leading efficiency eliminates the need for ventilation or cooling
- Safest, non-toxic cell chemistry reduces installation cost and risk
- Widest operating temperature reduces integration costs
- Balance of energy and power density is ideal for renewable energy systems
- A full range of stationary and mobile energy storage solutions



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**THANK YOU!**





the **safest**  
the most **efficient**  
and the **simplest**



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**THANK YOU!**

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