

# Building SMaRTER

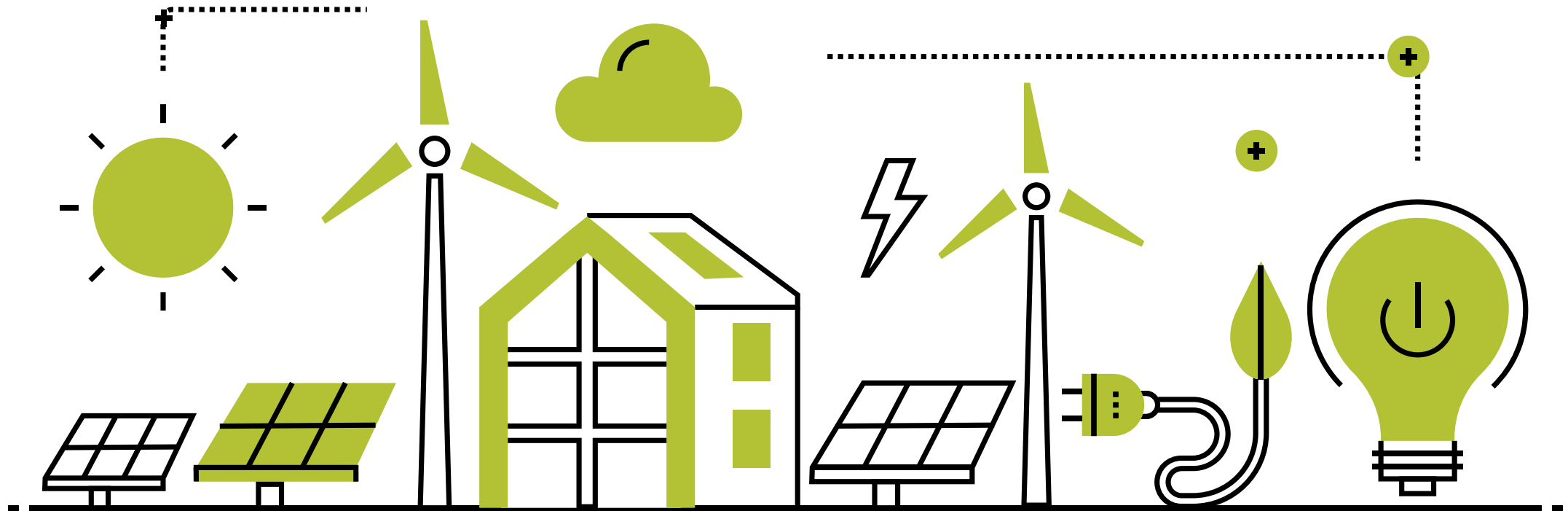
Ellen L. Belknap, AIA

President, SMRT



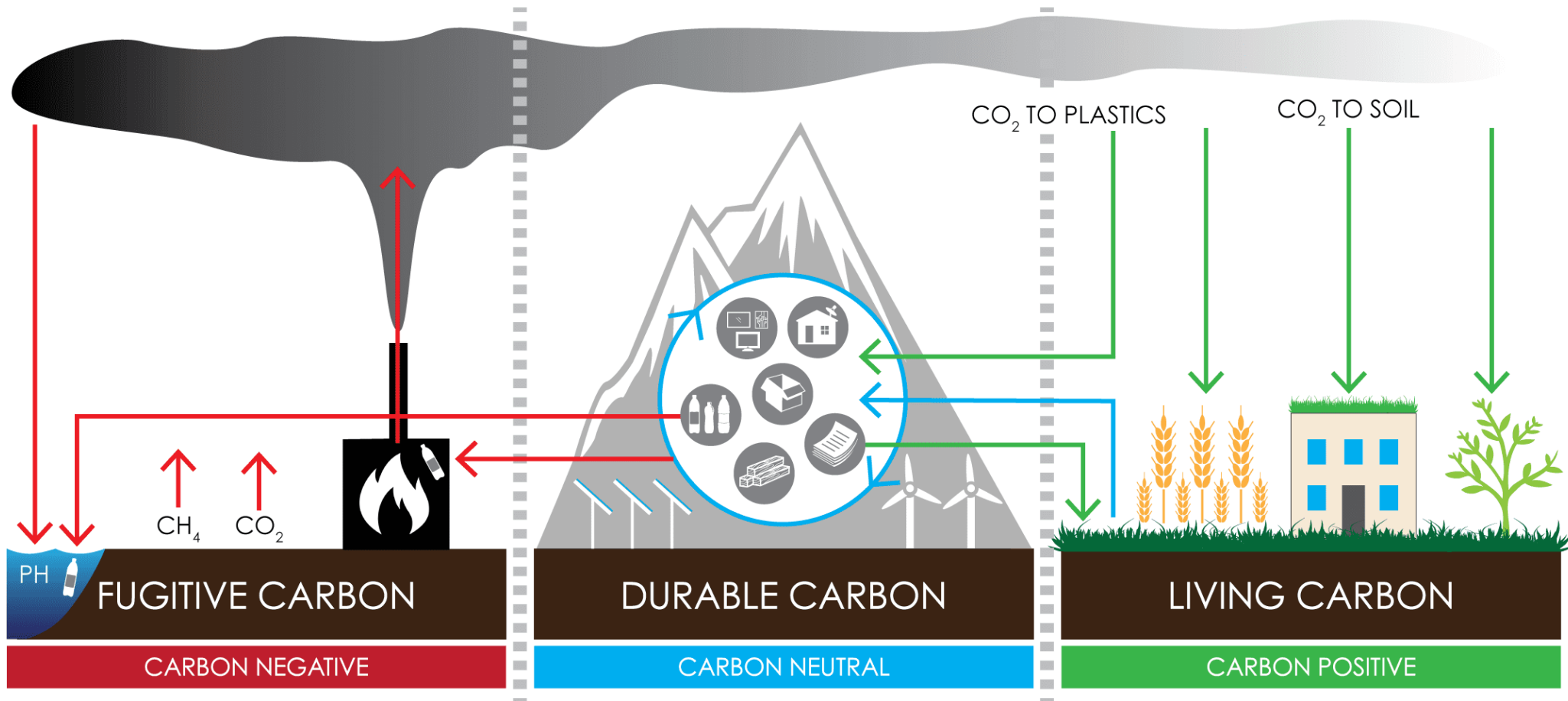
# Low hanging fruit - RIGHT NOW!

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Envelope Upgrades (Windows, Roof, Walls) ◆ Heat Pumps ◆ Appliance Upgrades ◆ Solar ◆ EV

# The new language of carbon



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# Two types of carbon in buildings

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## Embodied Carbon

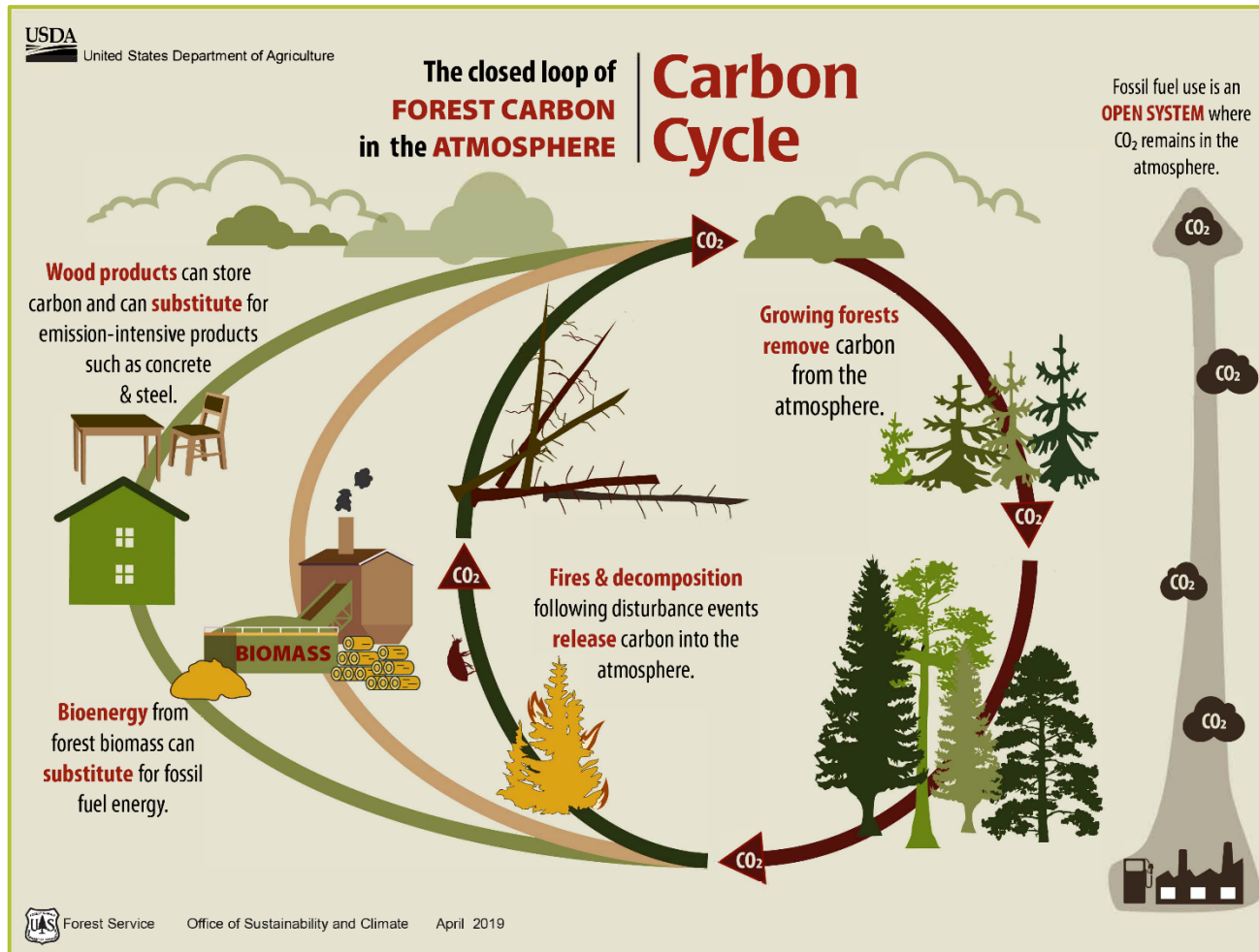
Manufacture, transport and installation of construction materials

## Operational Carbon

Building Energy Consumption

Illustration by Stacy Smedley of Skanska

# Carbon benefits of wood



- Less energy intensive to manufacture than steel or concrete
- Less fossil fuel consumed during manufacturing
- Avoid process emissions
- Carbon storage in forests and promote forest health
- Extended carbon storage in products

# Wood is good!

**89%** of Maine  
consists of forests  
(the most of any state)

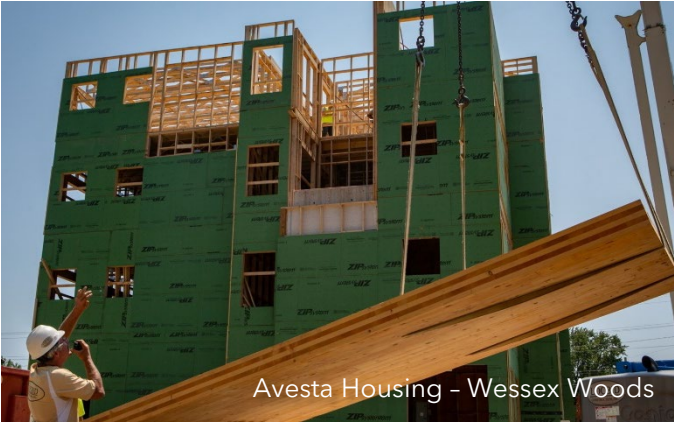


# Wood is good!

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Kennebec Valley Community College



Avesta Housing - Wessex Woods



University of New England Medical School

# Reduce demand...then renewables

## Design Strategies to Prepare for Beneficial Electrification

On the horizon – new, more efficient battery technologies,  
Renewables (Solar, Wind, Geo-thermal), Powerwalls

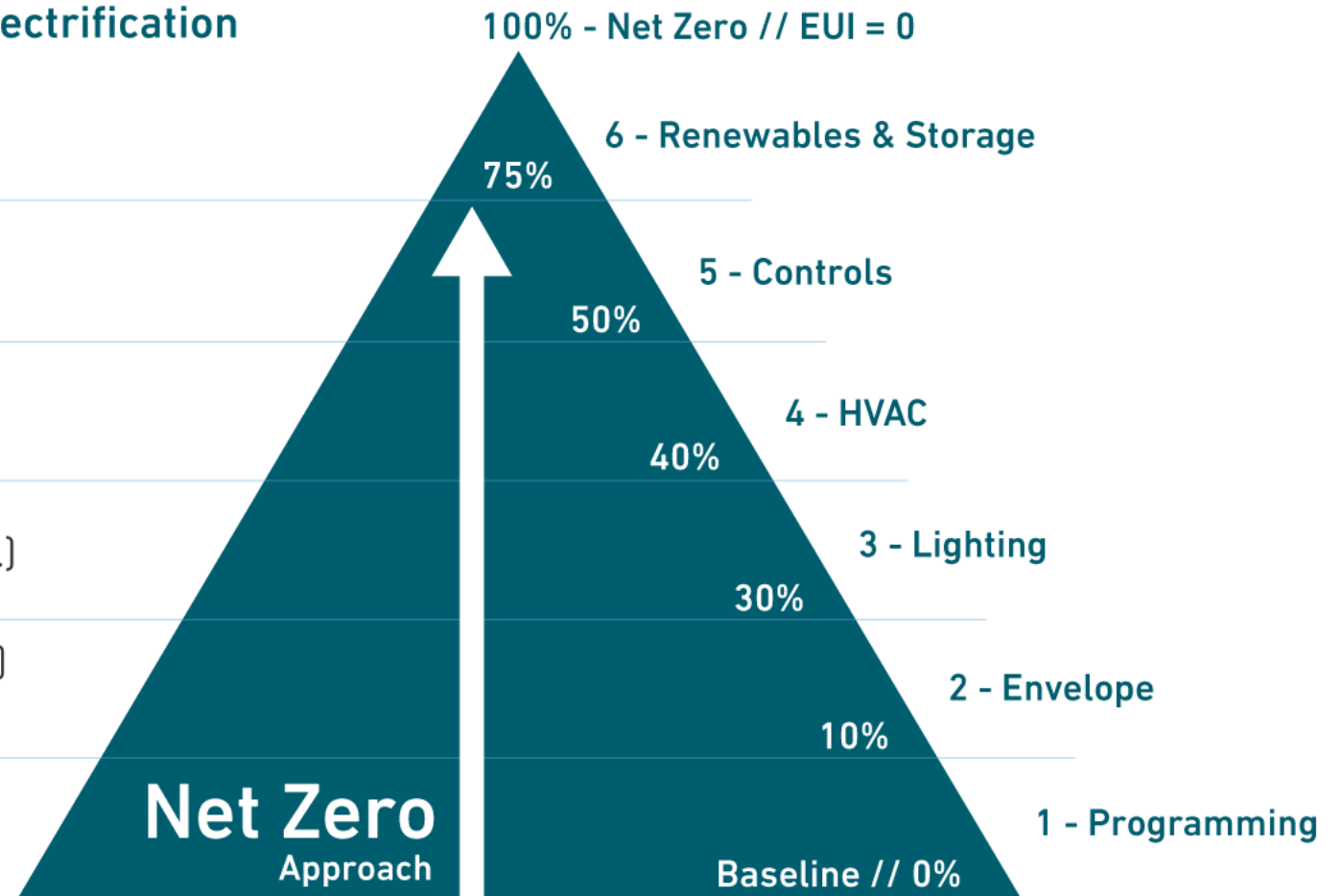
High Performance Control Systems

More Efficient Heating/Cooling Systems

Efficient Lighting & Appliances (Energy Star, induction etc.)

Passive Design Strategies (Where is the sun? orientation?)  
More Efficient Building Envelope (Windows, Walls, Roof)

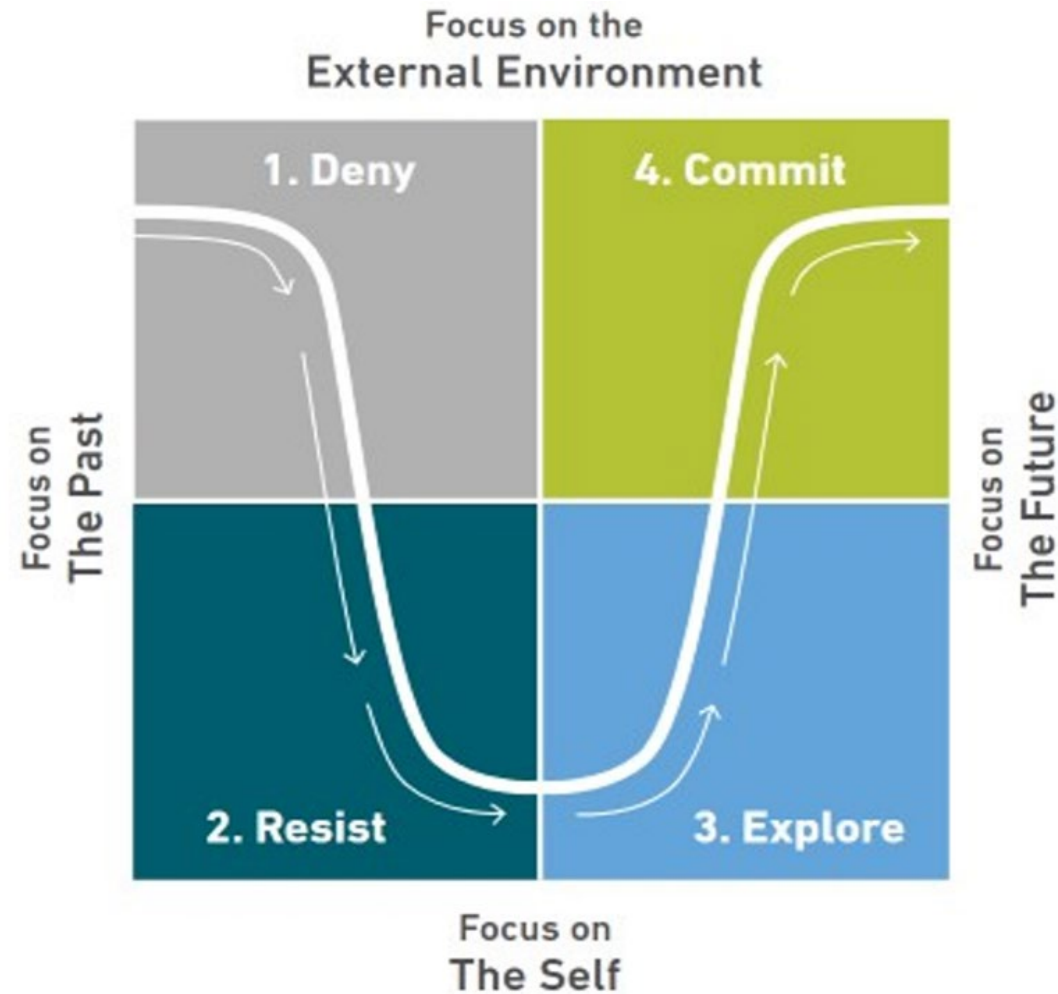
Building Re-use  
Right Sizing





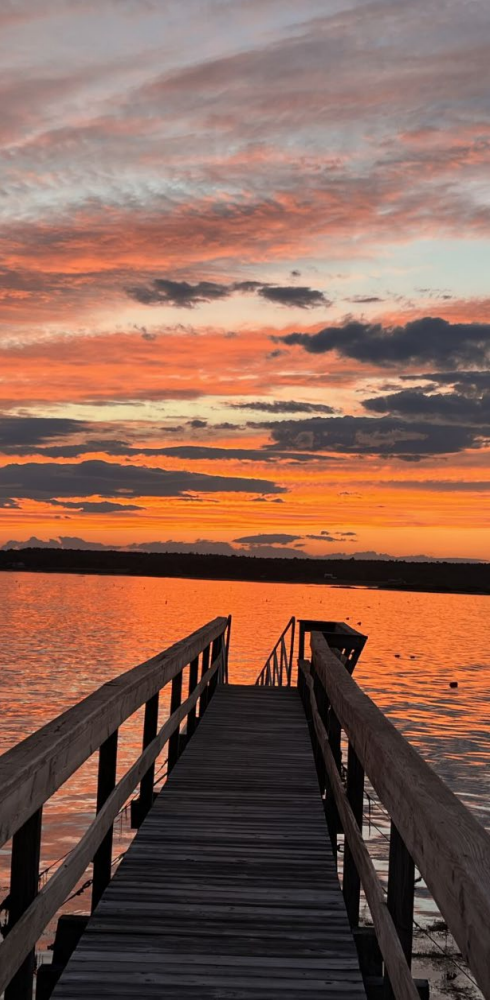
# Managing change

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Credit: Cynthia Scott & Dennis Jaffe

# 5 things you can do right now!

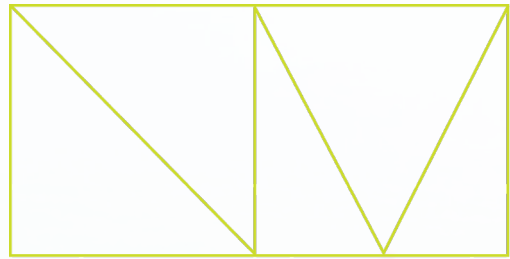


# Questions?

Ellen L. Belknap, AIA

President, SMRT





NAOMI MERMIN  
CONSULTING

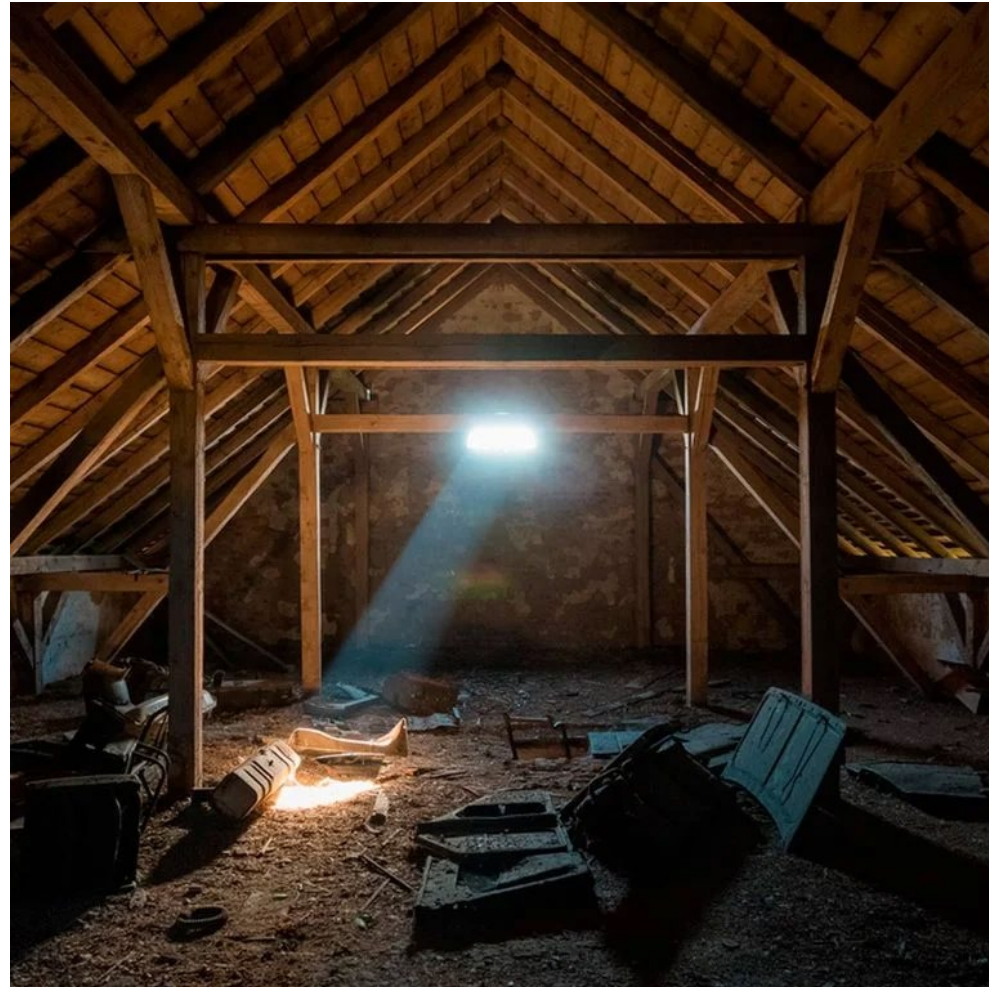
## FIVE THINGS YOU CAN DO NOW: EFFICIENCY

*May 19, 2023*

## CLEAN OUT YOUR ATTIC

The single most important thing we can do is reduce heat loss (& gain) in our existing buildings.

- PUSH THE ENVELOPE
- ELECTRIFY



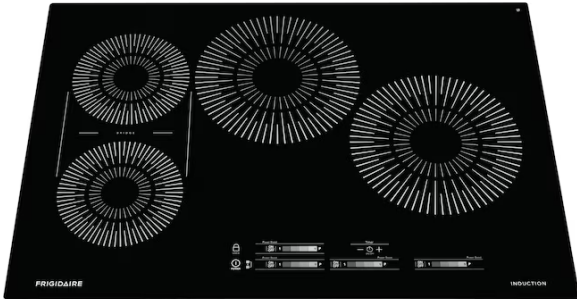
# ELECTRIFY EVERYTHING

Clean energy means more electric – heat pumps, induction stoves, efficient electric appliances.



- ELECTRIFY

DENSITY



## DENSITY

At the individual building level, site level and community. More units, sharing walls, more units sharing infrastructure - electric, water & sewer, transportation.

- DENSITY

HOUSING &  
CLIMATE



Photo Kaplan Thompson Architects

- HOUSING & CLIMATE  
NEXT STEPS



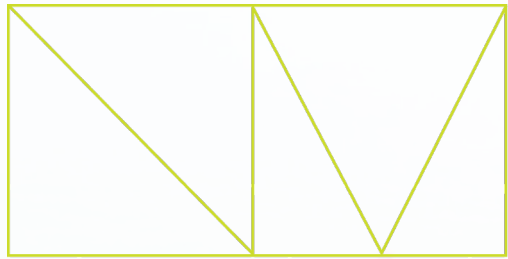


## FIVE THINGS YOU CAN DO NOW:

1. Clean Out Your Attic
2. Electrify Everything
3. Density
4. Housing & Climate
5. Say Yes: Be BRAVE

- NEXT STEPS





NAOMI MERMIN  
CONSULTING

NAOMI MERMIN

[naomi@naomimermin.com](mailto:naomi@naomimermin.com)

o: 207 775-1927

c: 207 253-9627



## Shifting To Renewables

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**Presented By:**  
Sam Zuckerman  
Owner, Maine Solar Solutions

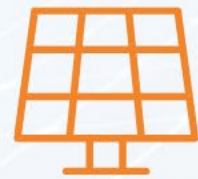
[www.mainesolarsolutions.com](http://www.mainesolarsolutions.com)



# SHIFT YOUR SOURCE OF ELECTRICITY



**Switch To A Renewable  
Supplier**



**Subscribe To Community  
Solar**



**Invest In Owning Your  
Own Solar Power Plant**

# OWN YOUR SOLAR:

## Convert An Operating Expense Into A Capital Investment



### YOUR ELECTRIC BILL

Prices Are Volatile And Continue  
To Increase



### YOUR ELECTRIC INVESTMENT

Achieve Fixed Cost With A Short  
Payback Period And A Strong  
Commitment To The Solution

# Own Your Own Solar: Strong Incentives



- 30% Federal Tax Credit
- 10% Domestic Content Credit



Depreciation:  
5-Year Cost Recovery For  
Solar

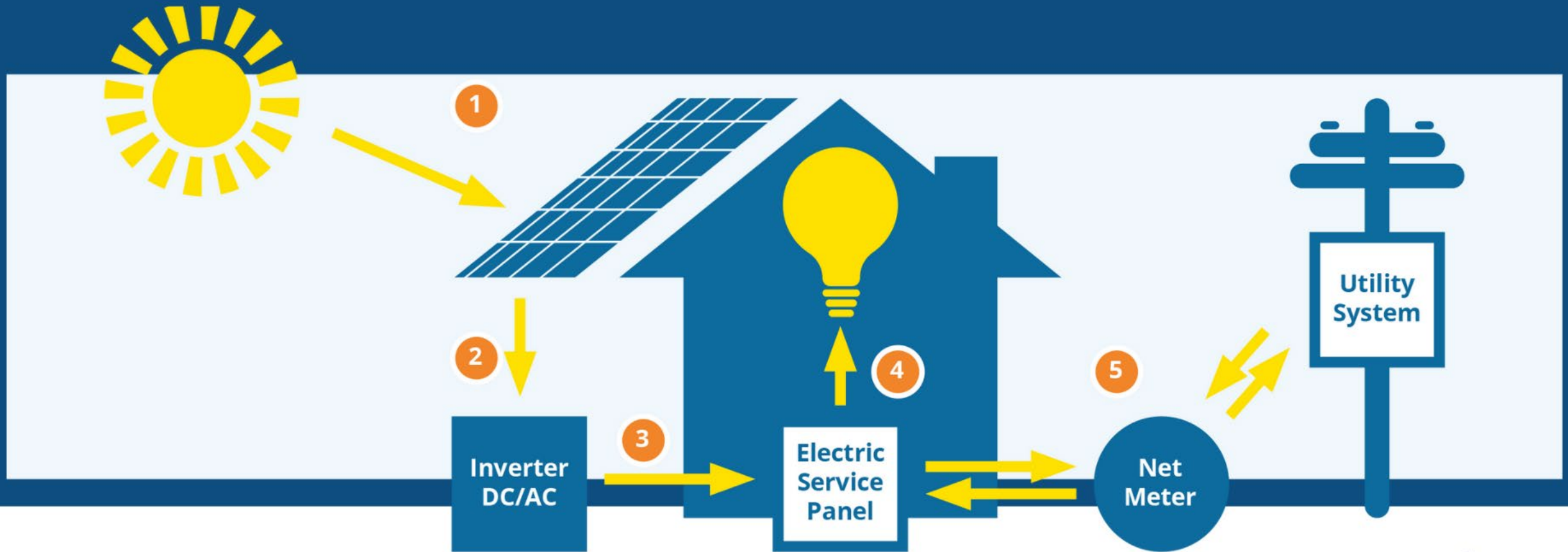


USDA Reap Grants Cover  
Up To 50% Of System Cost!



SRECs Revenue Stream

# How Net Metering Works



# Net Metering Benefits



Receive the full value of electricity production whether you use the power right away or send the excess to the grid



Receive a 1 to 1 credit for any excess power your system produces



Credits are earned and redeemed on a rolling 12-month basis



Receive either kWh or dollar credits