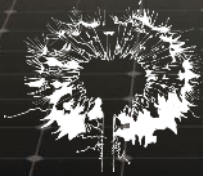


# SCALING UP: WHAT IT WILL TAKE TO GET TO 100%

## SOLAR WASHINGTON 2019 SUMMIT



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HALEY GARDNER

ZERO ENERGY SPECIALIST



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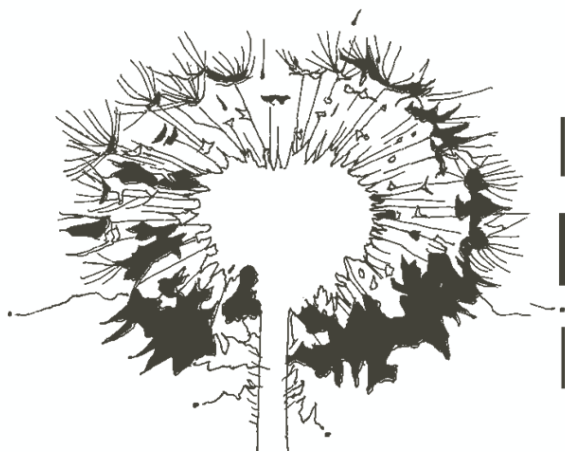
**LIVING  
BUILDING  
CHALLENGE**



**LIVING  
COMMUNITY  
CHALLENGE**



**LIVING  
PRODUCT  
CHALLENGE**



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**Declare.**



**REVEAL.**



**CASCADIA**  
GREEN BUILDING COUNCIL

**Just.**

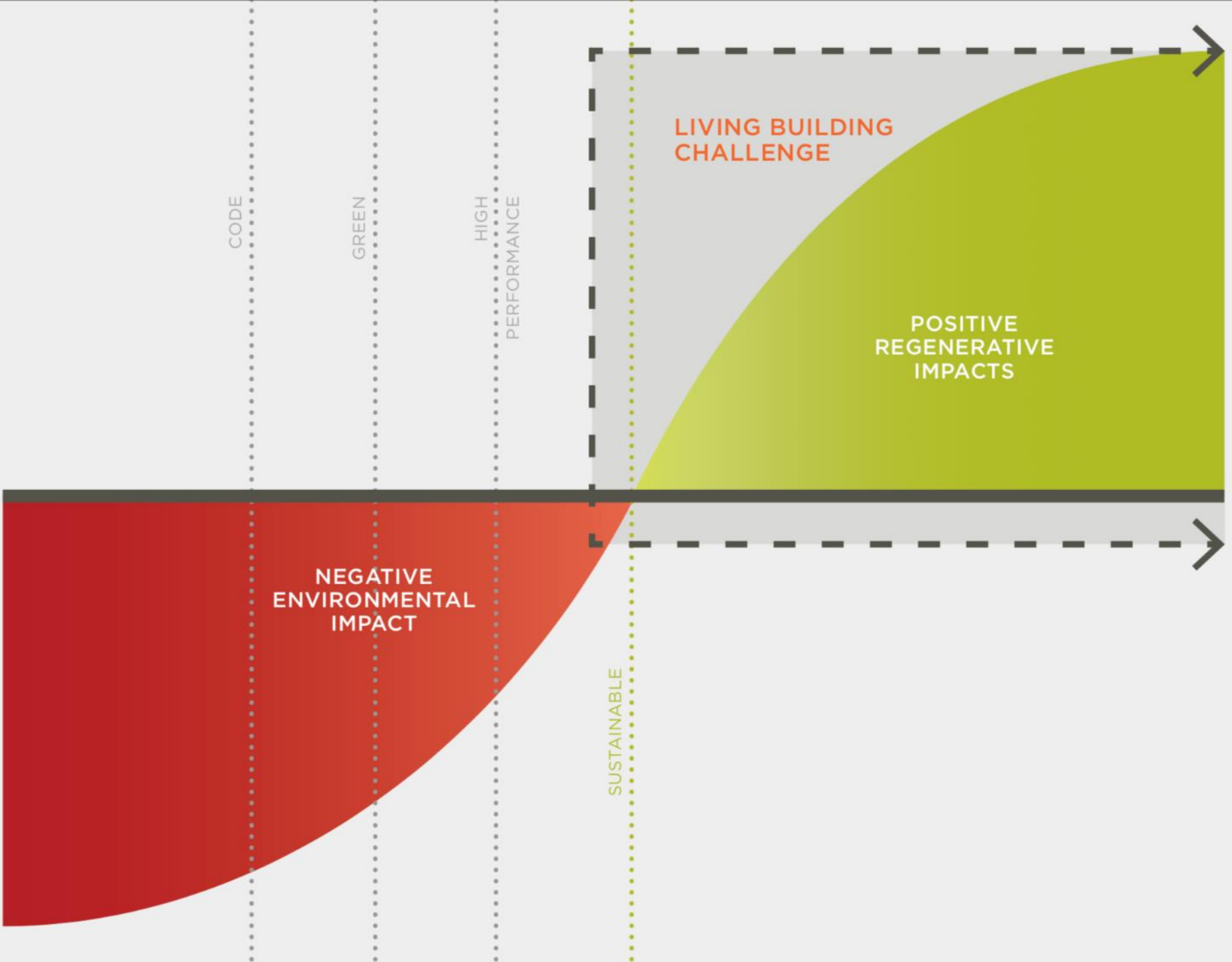




CERTIFICATION  
PROGRAM

ADVOCACY  
TOOL

PHILOSOPHY







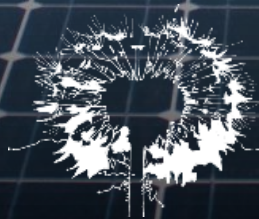
What does good look like?





*One hundred percent of the building's energy needs on a net annual basis must be supplied by on-site renewable energy.*

*No combustion is allowed.*



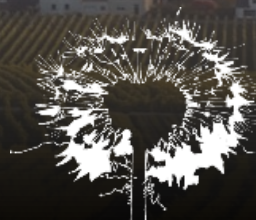
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*100% of the project's **operational energy** must be offset by new on- or off-site renewable energy.*

*No combustion is allowed.*

*100% of the **embodied carbon** emissions impacts associated with the constructed and materials of the project must be disclosed and offset*



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## ENERGY

---



# 07

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ENERGY +  
CARBON  
REDUCTION



SCALE JUMPING PERMITTED

Intent of Imperative 7: *Treat energy as a precious resource + minimize energy-related carbon emissions that contribute to climate change.*



LIVING  
BUILDING  
CHALLENGE

## ENERGY

---

IMPERATIVE

# 08

---

NET POSITIVE  
CARBON



SCALE JUMPING PERMITTED

Intent of Imperative 8: *Foster development and use of carbon-free renewable energy resources while avoiding the negative impacts of fossil fuel use*

# SCALING UP: WHAT IT TAKES TO GET TO 100%

ON-SITE

+

OFF-SITE



# ON-SITE

## BENEFITS:

- Economic benefits
- Low cost energy
- Technical feasibility
- Resiliency

## BARRIERS:

- Available roof area
- Physical constraints + limited direct sunlight
- Policy  
(Net-metering, height)



The image shows the Bullitt Center, a modern commercial building. It features a prominent, large, cantilevered roof structure made of a grid of white metal beams and panels, which extends over the sidewalk and street. The building's facade is composed of large glass windows and white vertical panels. The building is situated on a city street with trees and a sidewalk in the foreground. A person is walking on the sidewalk. The sky is blue with some clouds.

Bullitt Center



An aerial photograph showing several large, rectangular solar panels installed on a green, grassy field. The panels are arranged in rows, with some showing a grid pattern of cells. The perspective is from above, looking down at the panels and the surrounding vegetation.

# KEY CHARACTERISTICS OF OFFSITE RENEWABLE ENERGY

ADDITIONAL

ATTRIBUTED TO THE PROJECT

PHYSICALLY IDENTIFYABLE



# OFFSITE RENEWABLES

## BENEFITS:

- Broader project types achieving “zero energy”
- Site flexibility
- Economy of scale

## BARRIERS:

- Site Availability (direct ownership)
- Off-taker availability
- Regulated power markets
- Contract complexity
- Policy (Net-metering)





CATALYST

S P O K A N E

MGA | MICHAEL GREEN ARCHITECTURE









MARTIN SELIG REAL ESTATE  
**400 WESTLAKE**





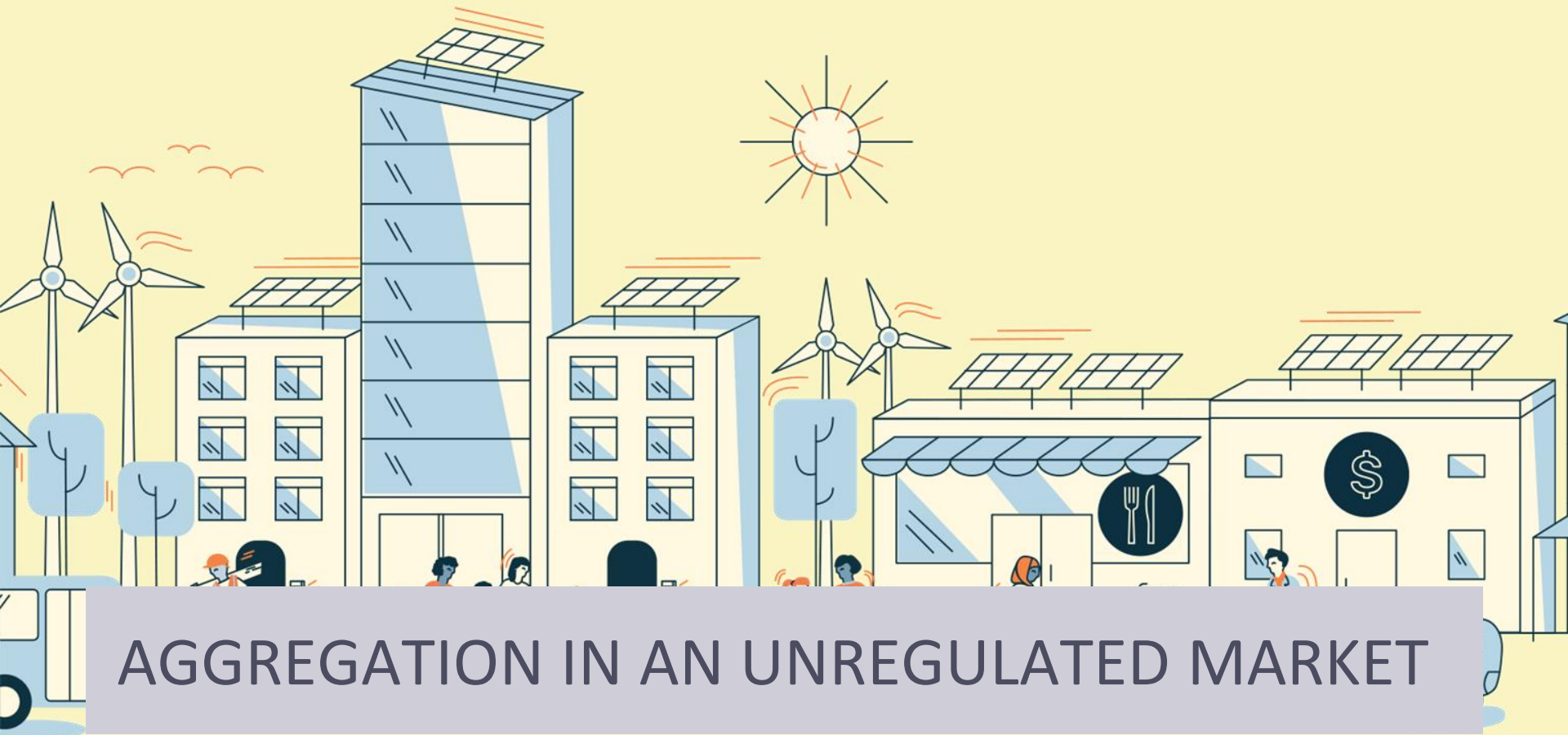






Offsite Renewables:  
*In order to scale up,  
we have to scale down*







# PATHWAYS TO ACTION



Utilities permit  
unlimited net-metering

Mechanisms for off-taker  
identification + aggregation

Markets that adapt to this  
new renewable landscape





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# ENERGY PETAL HANDBOOK



LIVING BUILDING CHALLENGE

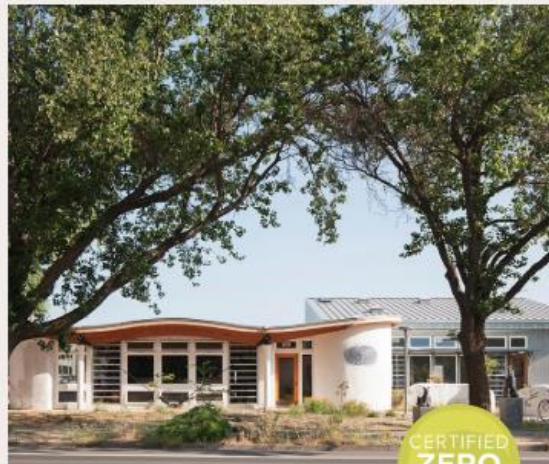
# CERTIFIED CASE STUDIES



CERTIFIED  
ZERO  
ENERGY

DISCOVERY ELEMENTARY  
SCHOOL

ARLINGTON, VA



CERTIFIED  
ZERO  
ENERGY

INDIGO | HAMMOND + PLAYLE  
ARCHITECTS...

DAVIS, CA



CERTIFIED  
ZERO  
ENERGY

THE CORK HAUS

SEATTLE, WA, USA





# THE POWER OF ZERO:

LEARNING FROM THE WORLD'S LEADING NET ZERO ENERGY BUILDINGS

BRAD LILJEQUIST

WITH JASON F. MCLENNAN BRENDAN COOK JESS CHAMBERLAIN ADAM PAUL AMRHEIN



# CONTINUING EDUCATION

Equip yourself with the knowledge needed to address complex problems with solutions for a living future

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Courses & Live Webinars  
[living-future.org/online-learning](http://living-future.org/online-learning)

In-Person Education Events  
[living-future.org/events](http://living-future.org/events)

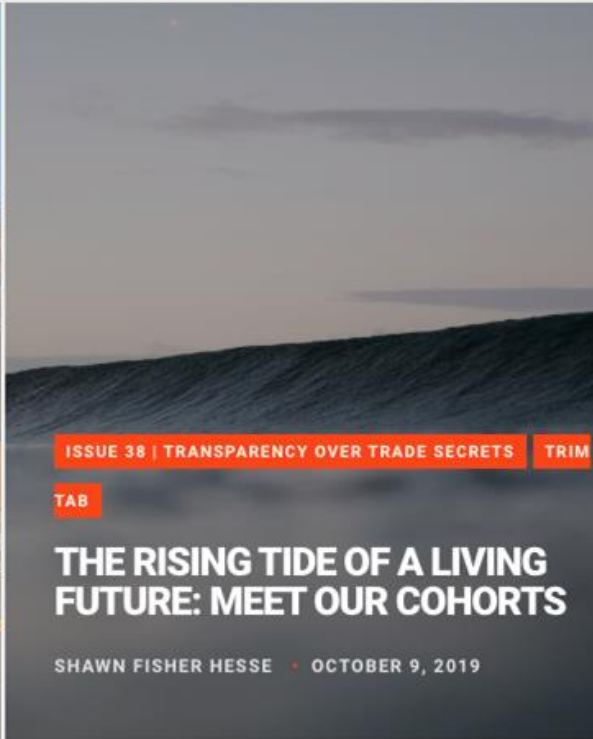
[education@living-future.org](mailto:education@living-future.org)



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**LIVING FUTURE  
NETWORK**



# THANK YOU!



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