

# Building Tech, Climate Action, and more...

Opening a Conversation on How to Best Respond to The State of California and The City of San Diego Climate Goals & Legal Mandates

UCPG Tuesday, January 10, 2023



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# Why This Conversation?

1. For the Board to be better able to make informed decisions on how infrastructure impacts climate goals, can help us reconcile with nature, and integrate what we build with our local environment.
2. For the University City Community to increase its participation in creating a sustainable and healthy future .
3. To consider the role played by building technology and building design in lowering energy use and carbon emissions, and reconnecting with nature.

The City of San Diego in May 2022 updated its Climate Action Plan [CAP] with the very challenging goal of Net Carbon Zero by 2035. The State's climate goal is Net Carbon Zero by 2045.

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# How far to Net Carbon Zero?

California's Climate Goals: In December, 2022 the State's Air Resources Board adopted a plan to cut greenhouse gas emissions by 85% below 1990 levels, reduce fossil fuel demand by 94% over 2022 , and eliminate 71% of smog producing pollution [vs 2020 base] by 2045.

For comparison: China has set 2060 for NCZ; The EU's Green New Deal, NCZ by 2050 – plant 30 billion trees and reduce emissions by 55% in 2030 over 1990 levels.

Carbon capture and carbon removal are two key strategies of the ARB, both of which have received strong criticism from environmentalist because they continue fossil fuel use calling it “a setback for the state and the world.” ARC Regulations are yet to be written and will be the subject of a June hearing.

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# What are Some of the City's Other Key Strategies to Reach NCZ by 2035?

<https://www.sandiego.gov/sustainability/climate-action-plan>

1. All trips to include 25% walking [now about 3% to 4% for commutes] and 10% cycling[10 times the current 1%].
  2. All trips include 15% transit modes vs MTS 2.8% in 2019 which is about the same as ridership as 2011.
  3. Reduction by 6% in Vehicle Miles Travel [VMT] through telecommuting.
  4. Reduction by 15% of VMT per capita for all trips.
  5. 100% of all energy is Green House Gas free.
  6. Increase the tree canopy from 13% to 35%.
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# LEED Certificates [4.1 from 2020]

## ZERO Certificates for Energy, Carbon, Water and Waste

From <https://www.usgbc.org/articles/role-leed-climate-change-mitigation>

“Buildings are responsible for [almost 40%](#) of global CO2 emissions. Greenhouse gases (GHG) generated by buildings come from carbon from energy used to pump and treat water, on-site consumption of fossil fuel for heating and cooling, employee or resident transportation, hauling and disposal of waste, and more.”

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# ~~The International Living Future~~

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## Institute

The ILFI Has Three Certifications: Core, Zero Carbon and Zero Energy. The “Core” Certification seeks to redefine green buildings as “ a sea change in building, infrastructure and community ...**Indeed, this focus needs to be the great work of our generation. We must remake our cities, towns, neighborhoods, homes and offices, and all the spaces and infrastructure in between. This is part of the necessary process of reinventing our relationship with the natural world and each other—reestablishing ourselves as not separate from, but part of nature, “because the living environment is what really sustains us.”. See Thomas Berry’s book, “The Great Work”**

<https://thomasberry.org/quote/the-great-work-our-way-into-the-future/>

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# **Biophilic Design**[Erich Fromm & Edward Wilson]

What promotes human-nature connection?

Facing outwards not inwards: A return to an evolution embedded in and coexisting with Nature vs Human Evolution that has moved away from Nature as we have urbanized.

Building Design: Direct and indirect access to Nature – integration into the local environment.

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# ILFI ZERO CARBON CERTIFICATION

What is embodied carbon; operational carbon?

EMBODIED CARBON: Local, recycled, Earth friendly materials?

OPERATIONAL CARBON: Renewables, Combustion Free, Efficient?

# ILFI ZERO ENERGY CERTIFICATION

Energy Efficiency: Uses clean energy [no onsite combustion]

Includes Energy Efficiency Education

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# AN INTEGRAL APPROACH: ECODISTRICTS?

From the ILFI: **PETALS**

**Place:** Restoring a healthy interrelationship with nature.

**Water:** Creating developments that operate within the water balance of a given place/ climate.

**Materials:** Endorsing products that are safe for all species through time.

**Equity:** Supporting a just and equitable world.

**Health & Happiness:** Creating environments that optimize physical and psychological health and well-being.

**Beauty:** Celebrating design the uplifts the human spirit.

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# MEASURING SUSTAINABILITY

## STAR COMMUNITIES RATING SYSTEM:

[https://www.usgbc.org/sites/default/files/2021-02/STARV2\\_Technical-Guide.pdf](https://www.usgbc.org/sites/default/files/2021-02/STARV2_Technical-Guide.pdf)

”STAR Communities is a Washington, DC based nonprofit organization that works to evaluate, improve and certify sustainable communities..[administering] the STAR Community Rating System (STAR), the nation’s leading framework and certification program for local sustainability”. ... including Built Environment, Climate and Energy, Economy & Jobs, Education, Arts and Community, Health & Safety, Equity and Empowerment, Natural Systems, and Innovation and Process.

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# MEASURING BUILDING HEALTH

THE BUILDING BIOLOGY INSTITUTE, a nonprofit, has certifications for consultants and specialists for healthy buildings along with safety standards and educational resources. Safety standards range across building physics and biology include toxic substances & pollutants, pesticides, lighting, AC, magnetic & static electric fields, radio frequency radiation, sound, radioactivity, heavy metals, particulate matter, indoor climate including air composition and ionization, and bacteria & allergens.

<https://buildingbiologyinstitute.org/>. For free videos, including a 3 part series that provides an introduction to “The Science of Building Biology”, see:

<https://buildingbiologyinstitute.org/free-videos/>

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# PARADIGM CHANGE?

Revolutionary Technologies on the horizon.....

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