



Thoughts About Supporting Diversity and Access and Energy and Sustainability

Seth Marder
Director RASEI



rasei.colorado.edu



*Creating Solutions for a Just
and Sustainable Future*

RASEI Vision

RASEI will be a **globally recognized** center of excellence for addressing the **critical social, policy, and technology** challenges needed to create an **equitable, just, renewable, and sustainable** future.

RASEI Mission

The mission of RASEI is to enable future generations of **researchers, educators, and policy makers**, to create solutions that meeting increasingly demanding **global climate, energy, and sustainability** challenges.

RASEI will do so by cultivating a **supportive and inclusive culture** that connects members to the **diverse activities and staff** across **CU Boulder** and **NREL**

RASEI Research

Technical Areas of Focus and Approaches



Holistic Research Approach:
Seamless integration of
Theory, AI and Experiment

**Social, Institutional, and
Community Engagement, Policy**
Build strong relationships with
underserved communities and
programs that benefit them

Energy Conversion and Storage:
Solar, Wind, Hydrogen, Batteries

Sustainable Transportation Fuels:
Electrification and Hydrogen
technologies to impact all vehicles

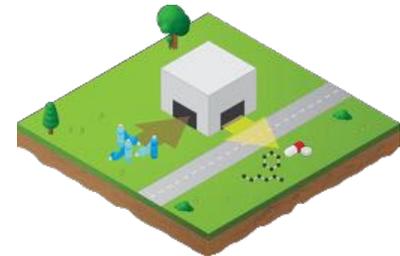


Innovation in Powering Buildings:
Reduce energy waste in the
construction and energy regulation
of buildings



Grid Innovation:
Robustness and Resistance
to attack

**Polymer Recycling and
Upcycling:**
Scalable Strategies to recover
valuable chemical
commodities



CO₂ Reduction and Capture:
Using biological and chemical
approaches for sequestering and
utilizing CO₂



RASEI Research Areas



RASEI Integral to the United Nations Summit

Together we will explore solutions that every sector of society—government, business, education and individuals—can adopt and act upon.

- Advance education about climate change as a human rights crisis and its impacts
- Discuss the responsibilities and obligations of various entities to address crises
- Identify actionable solutions that are grounded in respect for human rights

December 1-4, 2022

RIGHT
HERE
RIGHT
NOW.
GLOBAL CLIMATE SUMMIT

RASEI Fellows on the Summit
Steering Committee:



Jeff Logan



Charles Kutscher



Seth Marder
(Co-Chair)



Jeff York



Kathryn Wendell



Sustainability and Energy Institute

Using allyships to bring together innovative technology, research, policy and partnerships enabling real-world, global impact

- **Discover** – Leverage climate science, technology, community and market experts from across CU and partners.
- **Catalyze** – Concepts, prototypes, convenings. Integrate the climate, engineering, social and market dimensions of environmental resilience.
- **Incubate** – Move climate technologies from research discoveries to products and markets.
- **Impact** – Go to market, scale production and transform communities.

Frugal Innovation

- “Frugal innovation or frugal engineering is the process of *reducing the complexity and cost of a good and its production*.
- Usually this refers to *removing nonessential features* from a durable good, such as a car or telephone, in order to sell it in developing countries.
- Designing products for such countries may also call for an *increase in durability* and, when selling the products, reliance on unconventional distribution channels.
- When trying to sell to so-called "overlooked consumers", firms hope *volume will offset razor-thin profit margins*.
- Globalization and rising incomes in developing countries may also drive frugal innovation.
- Such services and products *need not be of inferior quality but must be provided cheaply*.
- While frugal innovation has been associated with *good-enough performance*, in some sectors such as in healthcare, frugal innovation must offer maximum performance without compromising on quality.”
- Taken verbatim from: https://en.wikipedia.org/wiki/Frugal_innovation

Opportunities to Support Diversity

How can we affect changes by our daily actions?

- take small steps *every day to affirm our colleagues' value* and to change policy and, critically, also culture.
- True transformation happens when each of us takes *personal responsibility* to be an agent of change, not simply when there is an outcry, but day in and day out, in a manner that is fundamentally incorporated into the fabric of who we are.
- Those of us who are more senior and may have greater influence need to use our standing within the community to *advocate* for what is right, support those who need it, and *call out those who are unsupportive*, or worse, outright hostile.

Opportunities to Support Diversity

Things I do *only* related to science communication:

Conferences:

- Invite plenary and invited speakers that better represent the diversity of the scientific community and the broader community in general.
- Change advisory boards to ensure more equitable representation and nominate women and underrepresented minorities to lead conferences.
- When organizing sessions for meetings, the pros and cons of utilizing “female/underrepresented minority” sessions to promote diversity were carefully considered, recognizing that in some cases these sessions may contribute to marginalizing, rather than empowering, these communities. We have elected to devote significant effort to having greater representation women/underrepresented minorities in all sessions, both as speakers and session chairs.
- Call out inequities to organizers when one sees them, and boycott conferences that are clearly heavily biased.

Opportunities to Support Diversity

Things I do *only* related to science communication:

With journals:

- Ensure that editors and editorial boards have diversity reflective of that of the scientific community and the broader community in general, both for the journals for which we have somewhat direct editorial responsibility, but also those where we are on the advisory board.
- Ensure that all members of the editorial teams understand and commit to equity.
- Support those journals that embody a commitment to equity and inclusion and not submit papers to those that do not.
- Nominate women/underrepresented minorities for journal awards (and others).

Opportunities to support diversity: GEM Fellows

Companies sponsor a Fellow and Fellow does summer internship at the company.

<https://www.gemfellowship.org/employers/>



Impacts:

- Supports a diverse set of students
- New opportunities for recruiting, most GEM Fellows are in engineering, some in science– sustainability could be a new horizon for GEM and Deloitte could lead
- Excellent recruiting opportunity for future Deloitte personnel
- Branding and exposure for Deloitte