

www.colorado-hydrogen.org

Monthly Meeting
18 February 2025

Agenda

- Coming conferences
 - Drive Clean Colorado Feb 26-27
 - Colorado Climate Week Mar 24-26
 - Geologic Helium & Hydrogen Conference, April 9 -10 Denver
- Tutorial: Psychology of Existential Threats
- Clean Energy Hub
- CHN membership reminder
- Direct solar-to-hydrogen panels

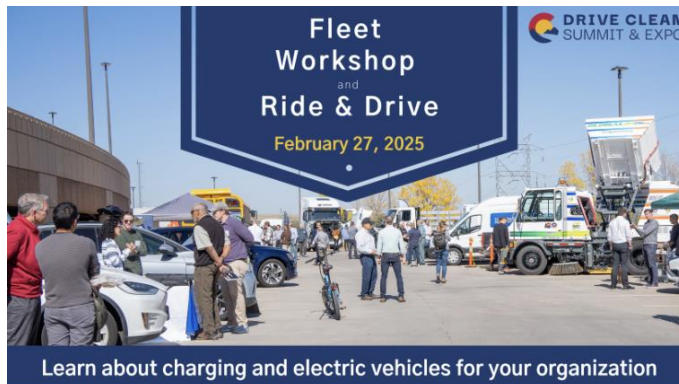
Coming Events



Drive Clean Expo Feb 26

A day of engaging, expert-led sessions, an alternative fuel vehicle showcase, networking opportunities, and more

Register at: drivecleancolorado.org



Drive Clean Expo Feb 27

Come learn about electric vehicles and charging for your organization from others who are already using electric trucks, vans, buses and other equipment.



Colorado Climate Week (Mar 24-26) is a premier gathering of cleantech innovators, policymakers, corporate leaders, and investors committed to driving actionable change for a sustainable future. Sponsored by Colorado Cleantech

Register at: www.coloradocleantech.com



Geologic Helium & Hydrogen Conference

- April 9-10 in Denver
- Lectures and Exhibit Hall
- CHN participation
 - Booth
 - Poster session
- Presented by the Rocky Mountain Association of Geologists
- Info at www.rmag.org



Hydrogen From Geology is Likely the Lowest-Cost Source

Coming Events



**Hydrogen Technology Expo North America –
The Future of Hydrogen Innovation**
**10,000 attendees, 500 exhibitors, 200 speakers,
and 100+ hours of content.**

June 25-26 Houston, TX

Register at: www.hydrogen-expo.com



Hydrogen Technology Expo Europe

October 21-23 Hamburg Messe, Germany

Register at: www.hydrogen-worldexpo.com

The “Energy Gang” Podcast is Back



Stephen Lacey
Jigar Shah
Katherine Hamilton

The former “Energy Gang” podcast is back as the “Open Circuit” podcast

- Stephen Lacey, Jigar Shah, Katherine Hamilton

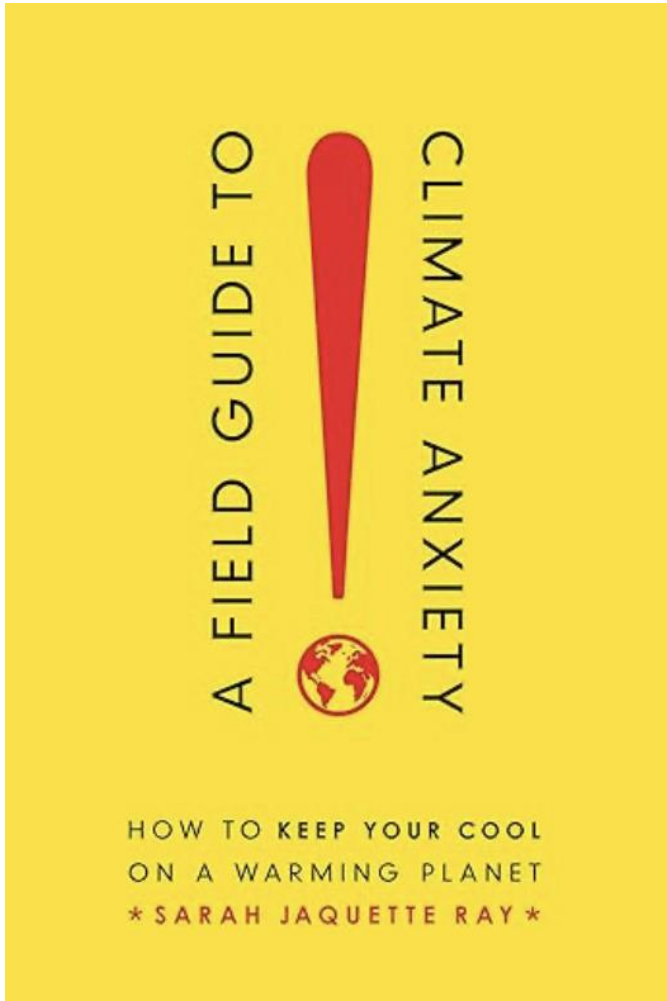
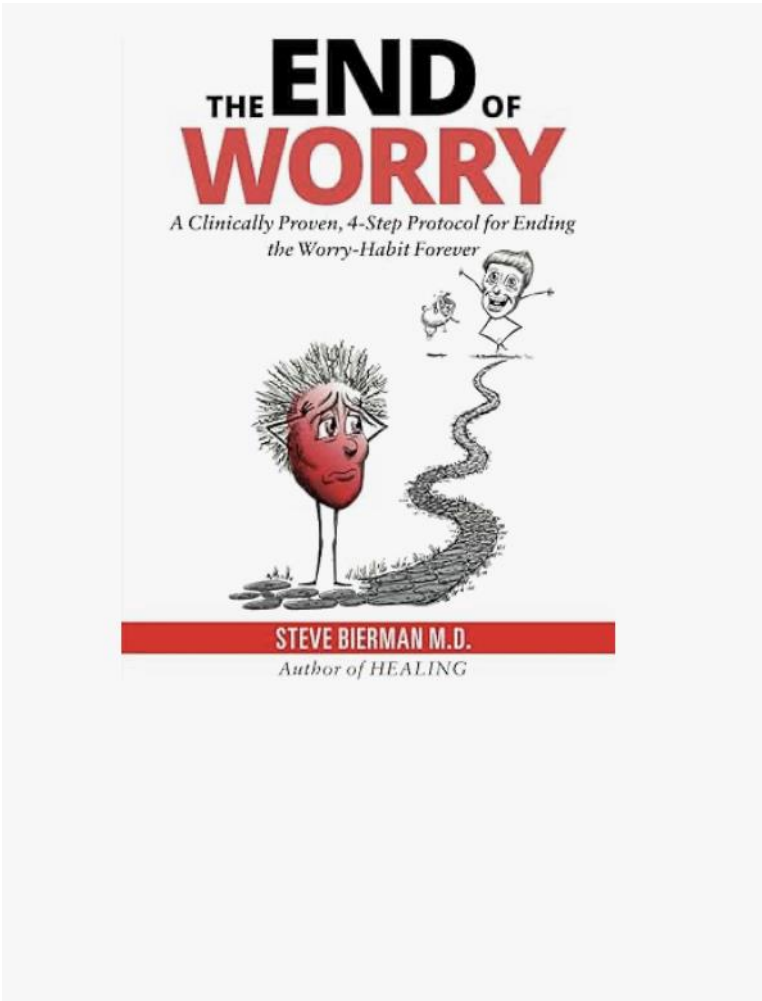
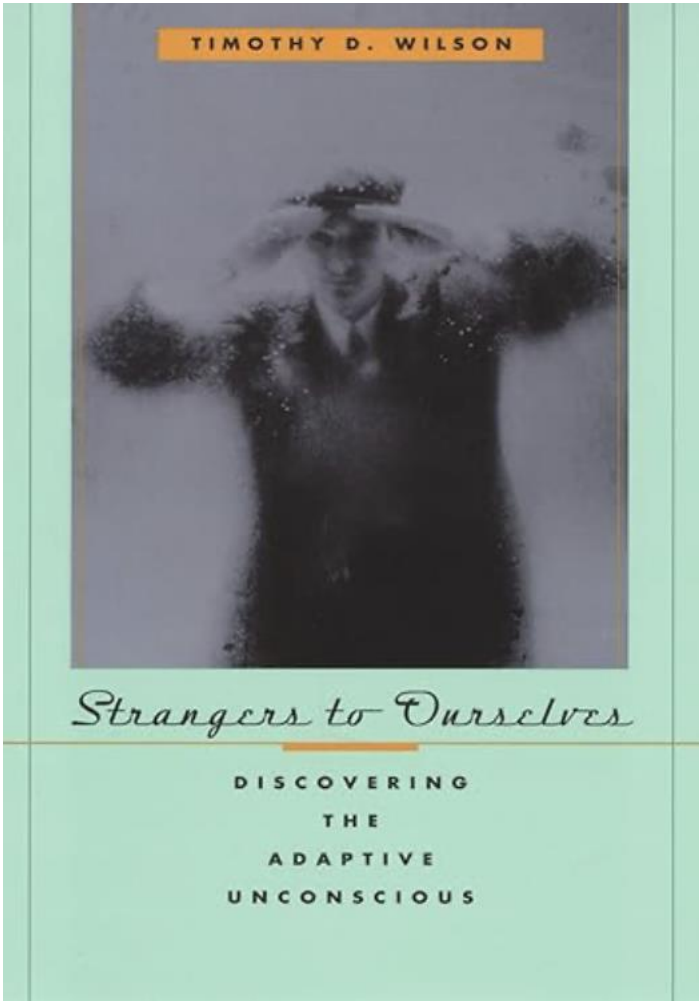
Open Circuit isn’t your standard industry podcast. The hosts bring decades of experience in policy, business, finance, and media – and they’re not afraid to challenge each other, question conventional wisdom, and call out what’s not working. Through sharp analysis and lively debate, they make sense of a transformation that’s reshaping every sector of the economy.

Psychology of Existential Threats

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Books



Contributing Factors

- The news media emphasizes only the negative which gives us a skewed sense of risks and progress
 - If it bleeds, it leads
 - Good news doesn't make the news
- The nature of the human brain
 - The divide between our nonconscious and conscious minds
 - Worry as a “misuse of imagination”
- Feeling that our individual efforts are so insignificant, they're not worth doing.

“Eco-nihilism”

**Nihilism: The rejection of all religious and moral principles,
in the belief that life is meaningless**

Maslow's Hierarchy of Needs



People are motivated to fulfill basic needs before moving on to other, more advanced needs

For example: If we don't feel safe, it's hard to be concerned with social issues

Cognitive Dissonance

Cognitive dissonance is a psychological state of discomfort that occurs when a person's beliefs, values, or actions are in conflict.

People may deal with Cognitive Dissonance by

- Using defense mechanisms, such as avoidance**
- Justify or rationalize their actions**
- Ignore the conflicting information**
- Changing their attitudes or behaviors to reduce the discomfort**

To more realistically examine the stories we encounter, we need to:

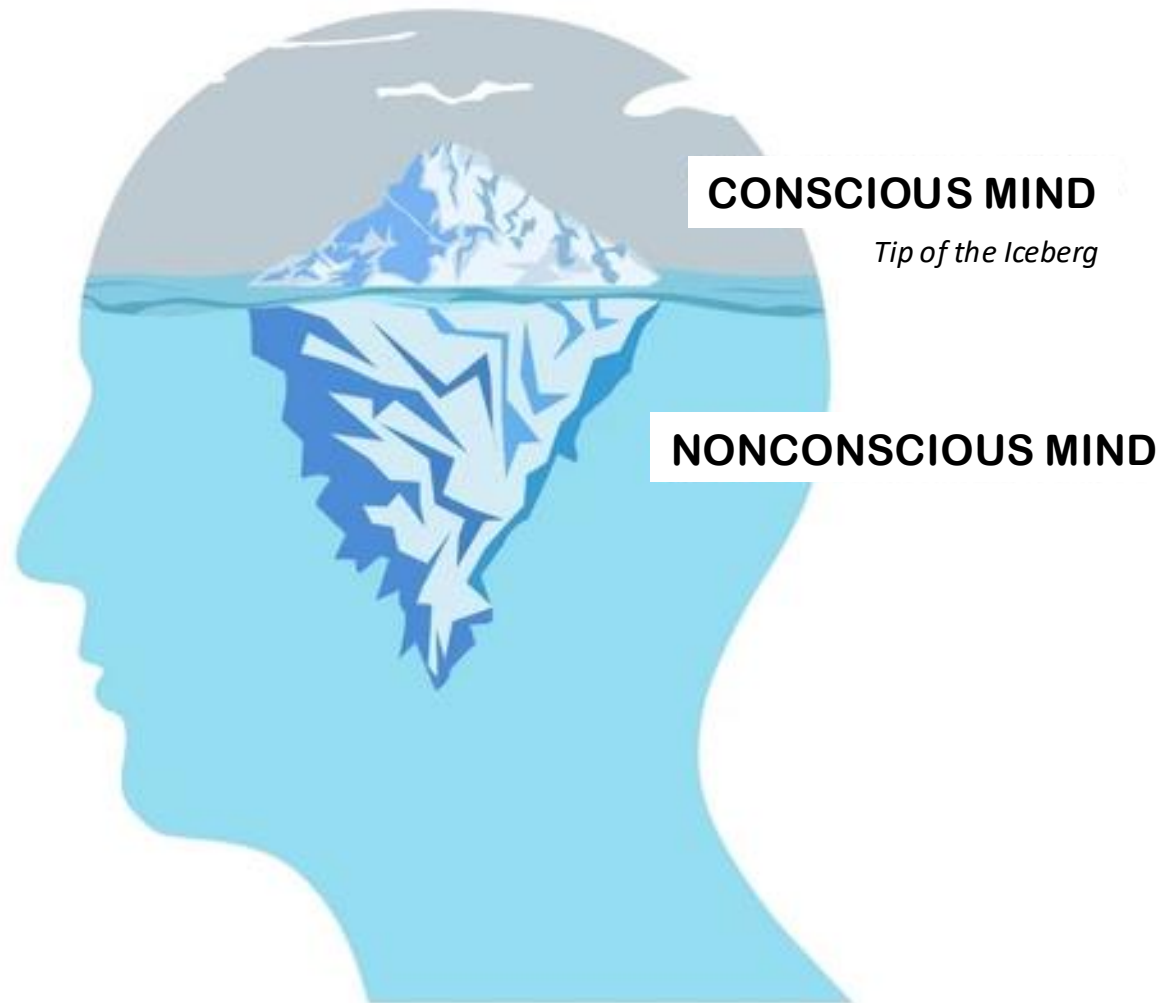
- Look for the majority and not just the extreme poles represented in the media
- Expect the media to deliver bad news and forge your defenses accordingly
- Learn to read graphs and data critically
- Calculate risks according to data, not just fears
- Put things in proportion
- Question your categories and avoid generalizing or stereotyping
- Acknowledge that slow change is still change (and collect examples)
- Resist pointing fingers and playing the blame game
- Resist urgency by taking things slowly.

Climate Anxiety Review

- We need to consider the role of emotions in thinking about the environment
- Stop using the “scare to care” strategy and instead, emphasize successes
- Media can be addictive, and its negativity-bias has been shown to be destructive to mental health
 - Balance how much and which media you consume
 - Filter your media consumption. Focus on the stories of success and progress
- Consider yourself part of a collective which gives you space to take a break and “catch your breath”

It is the greatest of all mistakes to do nothing because you can only do a little

The Conscious and Nonconscious Mind



- Slow
- Single train of thought

- Speedy
- Multitasker
- Auto-pilot
- Intuition

Lower-order mental processes occur largely outside of conscious awareness

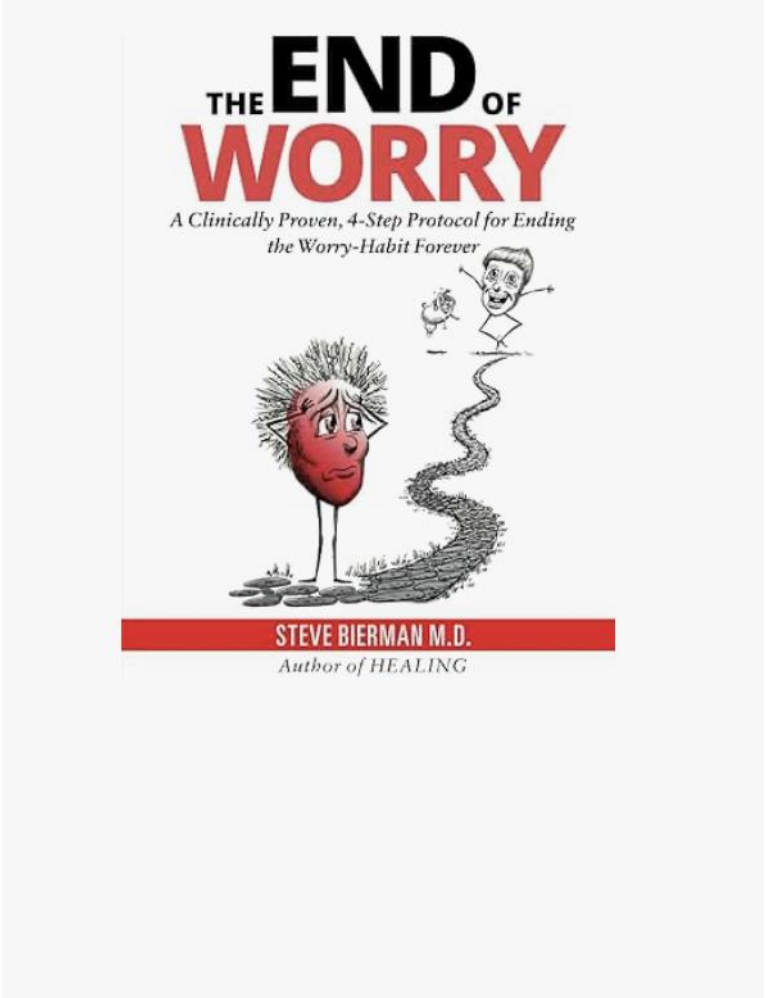
Slide 9

- Divided attention – People can consciously attend to one thing while non-consciously processing another. Selective attention
- Automaticity of thought – Thinking can become so habitual as to occur outside of awareness with no conscious attention
- Implications of nonconscious processing for prejudice – One of the most interesting properties of the nonconscious is that it uses stereotypes to categorize and evaluate other people. Of course, this can have negative consequences
- Lack of awareness of one's own feelings – A controversial claim about the nonconscious is that it can produce feelings and preferences of which people are unaware.

Nonconscious and Conscious Mind

Nonconscious	Conscious
Multiple systems	Single system
On-line pattern detector	After-the-fact check and balancer
Concerned with the here-and-now	Taking the long view
Automatic (fast, unintentional, uncontrollable, effortless)	Controlled (slow, intentional, controllable, effortful)
Rigid	Flexible
Precocious	Slower to develop
Multi-tasking	Single tasking
Sensitive to negative information	Sensitive to positive information

The End of Worry



Five Core Human Fears

1. Extinction – the fear of annihilation, of ceasing to exist
2. Mutilation – the fear of losing part of our body
3. Loss of Autonomy – the fear of being immobilized, paralyzed, restricted, imprisoned, smothered
4. Separation – the fear of abandonment, rejection, being not wanted, respected, or valued by anyone else
5. Ego-death – the fear of humiliation, shame, or any other mechanism of profound self-disapproval.

Summary – Climate Fatigue

- Consider the role of emotions in thinking about the environment and respond to people accordingly
- Stop using the “scare to care” strategy and instead, emphasize successes. Seek and savor climate success stories and progress
- Media can be addictive, and its negativity-bias has been shown to be destructive to mental health
 - Balance how much and which media you consume
 - Filter your media consumption. Focus on the stories of success and progress
- Consider yourself part of a collective which gives you space to take a break and “catch your breath”

Summary – Political Angst

- The media has a negativity bias. Filter what you listen to or read. Avoid overconsumption of media
- Understanding that people do hold opinions that seem contrary to reason and facts
 - They may be functioning mainly with their nonconscious mind which can be easily fooled or has motivations other than facts or reason. Things such as saving-face, bigotry or confirmation bias may be at work.

Summary – Overcoming Worry

- Understand that the nonconscious is tuned-in to negative information as a survival tool
- Worrying is a habit of thought – a misuse of the imagination. And like most habits, it is triggered unconsciously and often operates beyond the reach of reason. Break the cycle by engaging the conscious mind
- There are exercises in the Worry book to better help you train yourself out of the Worry habit.

Clean Energy Hub

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Clean Energy Hub

Collaborators



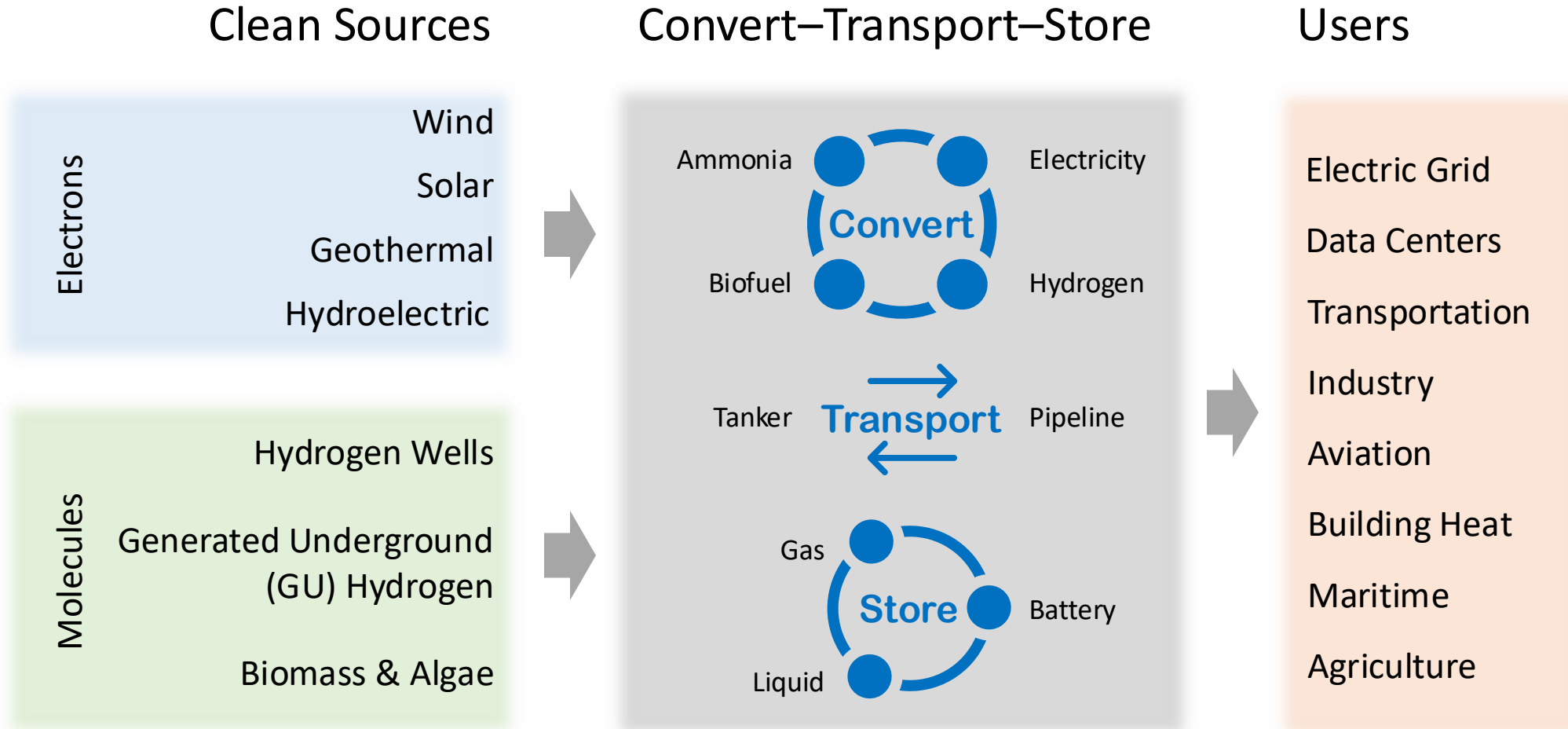
Colorado Energy & Sustainability Collaboratory
Partners for Innovation

→ Colo. OEDIT grant for a *Colorado Cleantech Coalition*

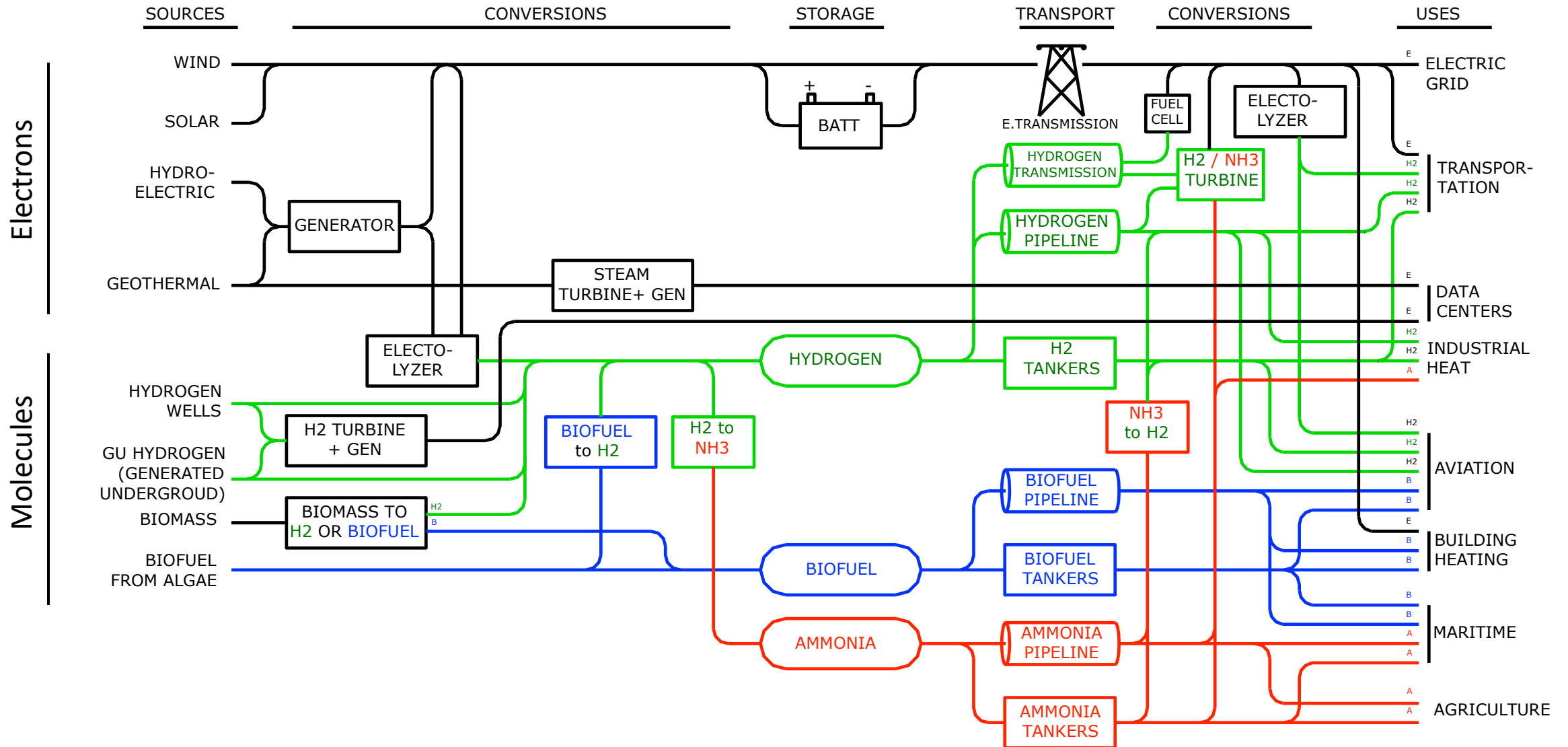
- Create a plan for a Colorado Clean Energy Market/Ecosystem
 - Supply, transport, dispense, users, infrastructure, funding
 - Solve the “what” (system design) and the “how” (cooperation, timing, funding)
 - To focus efforts & guide decisions and investment
- Enlist a Consortium of stakeholder participants
 - To help vet a plan
 - To be participants in this market-ecosystem
 - A way for stakeholders to cooperate and collaborate
 - Issue RFP’s
- Solicit funding sources, grants and other support.



Complete Clean Energy Market-Ecosystem



Clean Energy Ecosystem Plan



CHN Membership Drive

- Please consider a paid CHN membership
 - \$50/year individual (tax deductible)
 - \$200/year start-up (tax deductible)
 - \$1,000 and up for corporations based on size (includes CCIA membership)
- Membership dues help us sponsor events like *Colorado Hydrogen Day*
- A way for everyone to help contribute to our efforts
 - Giving you a sense of ownership.

Membership in the Colorado Hydrogen Network has been provided as a joint membership in both CHN and our parent organization, the Colorado Cleantech Industries Association (CCIA). CCIA's dues are tailored for established companies, but CHN stakeholders include many individuals and start-up companies, many of whom would like to have a stake in supporting CHN.

So new in 2024, we're adding CHN-only dues so that individuals and start-up companies can help support the organization. These dues are voluntary and tax deductible. The rate for start-up companies is limited to the first 2 years of membership. The complete set of annual dues is shown in the table.

	CHN Only		Corporate Membership			
	Individual	Start-up (2 years)	1-20 Employees	21-50 Employees	51-150 Employees	151+ Employees
Annual Dues	\$50	\$200	\$1,000	\$2,500	\$5,000	\$10,000
Tax Deductible Donation	✓	✓				
CCIA Membership included			✓	✓	✓	✓

Why Join?

CHN is a non-profit organization devoted to advocating for hydrogen infrastructure and educating, so everyone is welcome to participate in the organization whether they pay dues or not. But here are the benefits of donating:

- Help to support and grow CHN
- Allows CHN to sponsor events
- To be invested and engaged in CHN
- Enable CHN to eventually have paid staff
- Your name and logo on the CHN members page on the website

Join Individual / Start-up

Join Corporate

Donations

Since CHN can now accept tax-deductible donations, we invite everyone to consider donating to the organization. (UNDER CONSTRUCTION, COMING SOON)

Donate

Help Support CHN With a Paid Membership

Individual and Start-Up Companies

- Tax Deductible
- CHN membership only (no CCIA)
- Individual Membership \$50 per year
- Start-up Companies \$200 per year (first 2 years only)

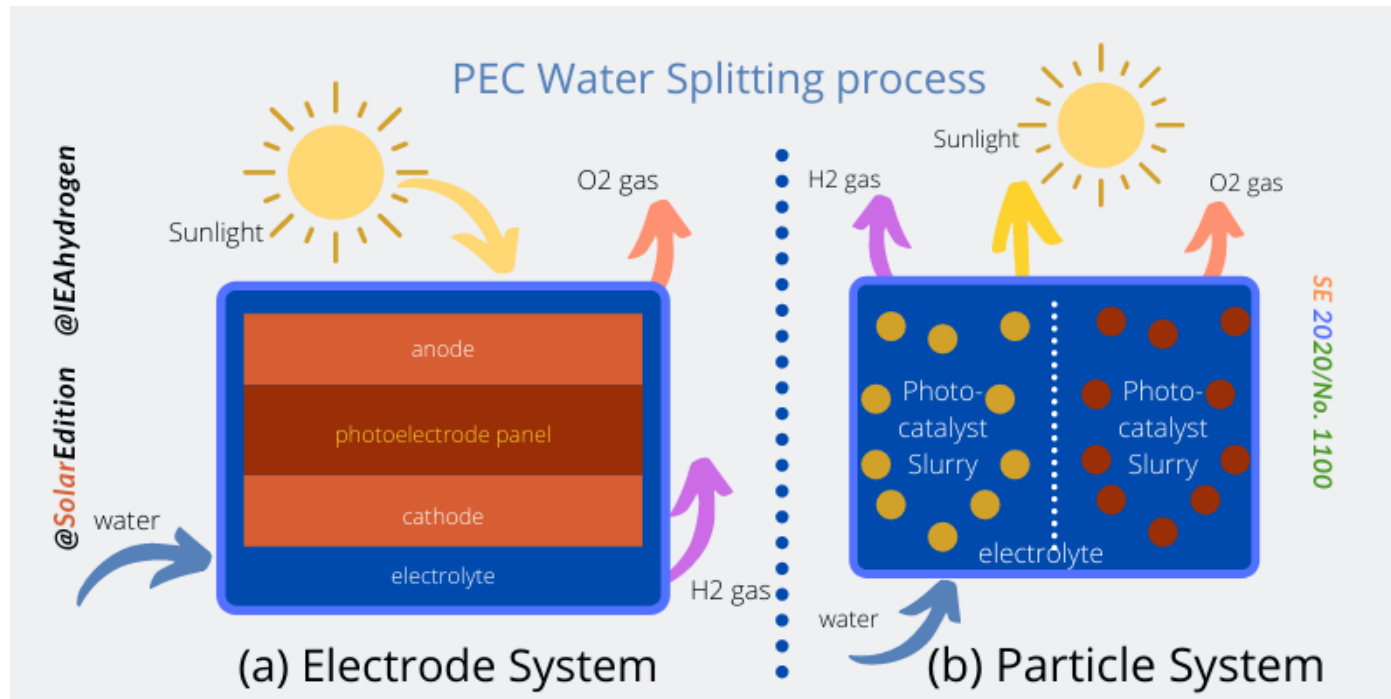
Corporate Membership (Annual)

- Joint CCIA + CHN membership
- Based on number of employees

Participation Will Continue to be Open to All At No Charge

Photoelectrochemical Water Splitting

- Also known as an “Artificial Leaf”
- Uses specialized semiconductors which use light energy to directly dissociate water molecules into hydrogen and oxygen



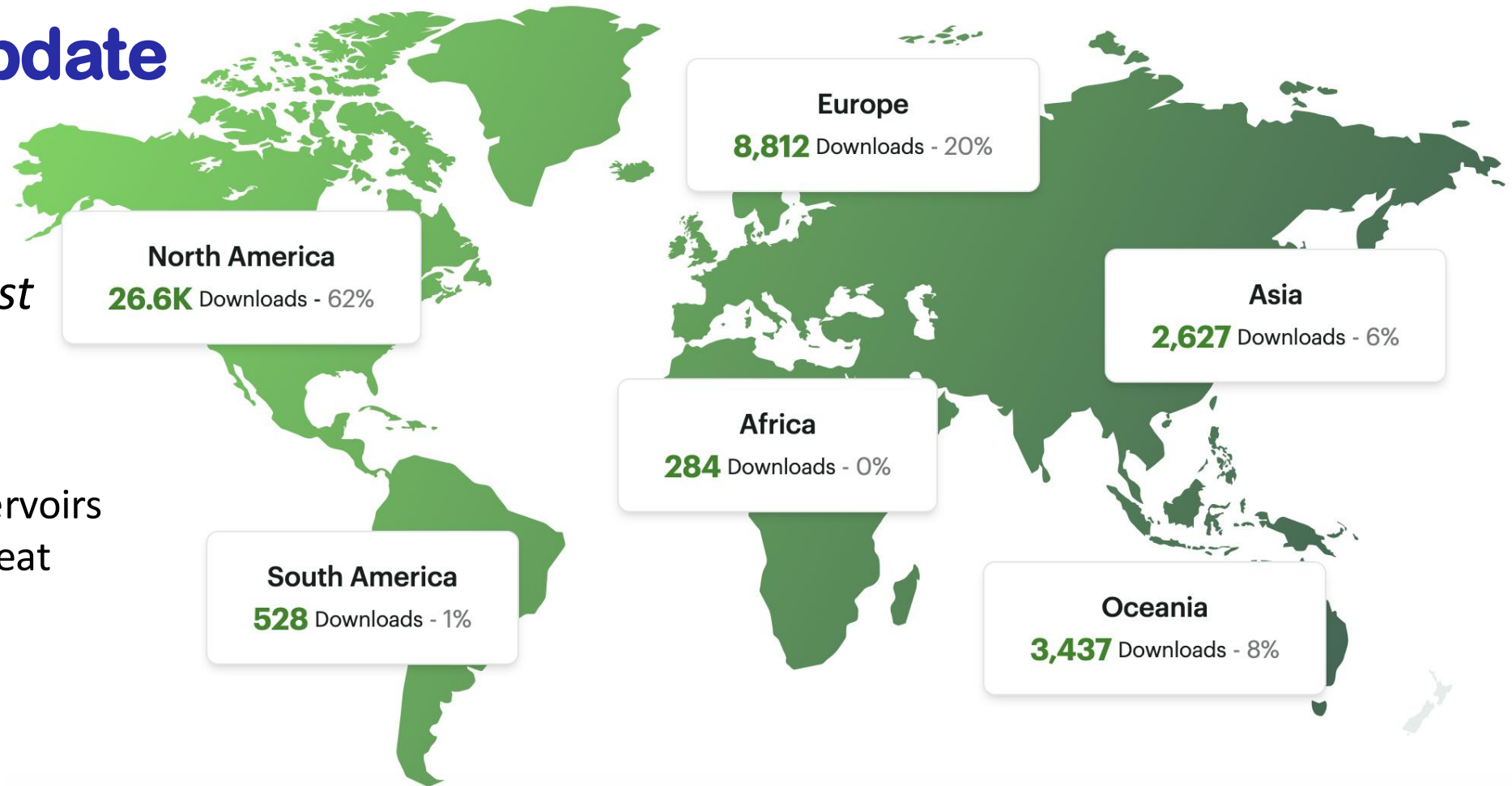
- Efficiencies of 25% to 30%
- 210 kg per day fuel station would need around an acre of panels
- A single car would need 0.5 kg/day or 12 x 12 feet of panels
- Avoids the need for an electrolyzer reducing capital costs

SunHydrogen

Podcast Update

The *HydrogenNowCast*

- 89 episodes
42,300 downloads
- Recent episodes
 - Bio H2 from oil reservoirs
 - Hydrogen Mtn Retreat
 - TFL Podcast
 - Hydrogen transport



HydrogenNowCast

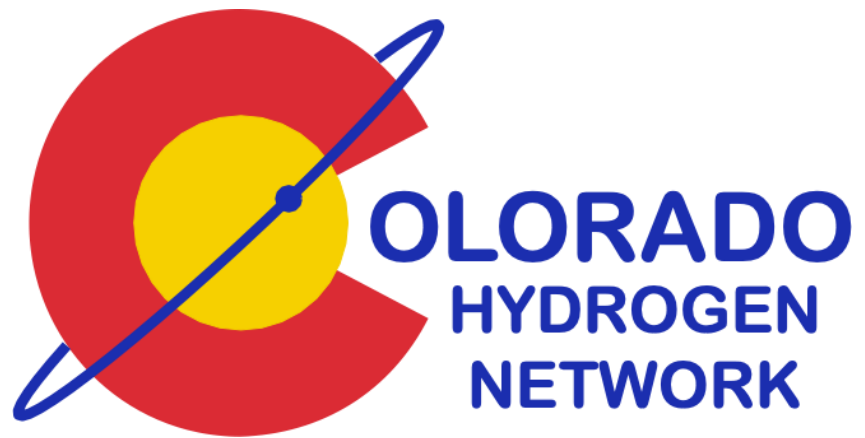


Podcast



Everyone – Please subscribe and give us a rating!





HydrogenNowCast



Podcast