

Climate Researchers Community Dialogue

October 13, 2016

On October 13, 2016, a 90-minute community dialogue session was held with climate researchers at the University of Colorado's Sustainability Energy, and Environment Complex. Co-hosted by the University of Colorado's Bartlett Science Communication Center, the dialogue included 9 participants.

Causes and Solutions

When asked to identify the primary causes of climate change, most climate researchers focused on energy, with nearly all attributions of climate change to fossil fuel emissions. In addition, several participants identified causes in ecosystems, including land use change, deforestation, changing ocean chemistry, and methane. Finally, climate researchers mentioned population, consumerism, and water availability as additional resource-based causes of climate change. Climate researchers' priority solutions primarily targeted energy. These solutions included¹:

- **Energy:** Cheap clean energy[^], clean energy for all, advancing sustainable renewables*, eliminating the fossil-fuel industry, carbon capture and sequestration, and conservation
- **Ecosystems:** sustainable agriculture
- **Resources:** education funding and dissemination[^], population control, women's empowerment

Personal and Group Actions

When asked about personal actions climate researchers are taking to reduce their contributions to climate change, they mentioned personal behaviors (e.g., reducing personal consumption, traveling less, and taking public transportation) and raising awareness (e.g., volunteer education and outreach on energy efficiency). They pointed to the following potential actions to take as a group:

- Coordinate outreach and education
- Manage the transition to renewable energy (i.e., "least regret solution")
- Network and coordinate across disciplines
- Educate younger people
- Engage CU administration regarding CU infrastructure
- Amend research financing agenda (particularly for environmental science)
- Build business case for CU climate action

Measures of Success

The climate researchers ranked the following as the top five most useful measures of success to gauge Boulder's progress towards its climate goals:

- 1) Increased amount of energy coming from clean energy sources
- 2) Reduce VMT throughout the community

¹ Participants were asked to vote for the "overall highest-leverage solution" and one high-leverage solution that also directly benefits the local community.

[^]Denotes solutions that received at least one vote for "overall highest-leverage solution"

*Denotes solutions that received at least one vote for "high-leverage solution that also directly benefits the local community"

- 3) Reduce yearly mileage in my personal vehicle
- 4) Overall community emission reduction goals
- 5) Increased affordable housing to reduce in-commuting



University of Colorado Faculty Community Dialogue October 12, 2016

On October 12, 2016, a 60-minute community dialogue session was held with the University of Colorado faculty at CU's Center for Science and Technology Policy Research (CSTPR). Co-hosted by CSTPR, the dialogue included 14 faculty members and 3 (non-participating) graduate students across disciplines.

Causes and Solutions

When asked about the primary cause of climate change, the faculty focused on energy, particularly fossil-fuel combustion. They also pointed to causes in ecosystems—land use change and over-development—as well as in resources—consumption. The faculty also identified another area as a fundamental cause of climate action: human systems. More so than other groups, they emphasized the human socioeconomic, political, policy, and cultural factors contributing to climate change. The causes mentioned included: greed, apathy, short-time horizons in policy and business models, “me v. we” mentalities, capitalism, partisan thinking (particularly in the U.S.), and ineffective government regulations. Faculty members' priority solutions primarily focused on activities addressing energy sector and human systems, particularly government policies. These solutions include²:

- **Energy:** carbon tax^{*}, affordable renewable energy^{*}, energy efficiency, better public transportation^{*}, and smart infrastructure
- **Human Systems:** public education,^{*} connecting climate policy with other policy arenas^{*}, radical climate policy and actions^{*}, government support for climate policy^{*}, education, and price signals.

Group Actions

Given the constrained time-frame, the faculty community dialogue did not cover personal actions, but focused only on potential actions the faculty can take as a group. These actions centered on:

- Create more integrated faculty efforts across disciplines
- Advance a faculty statement on climate change and needed actions
- Connect CU faculty expertise with city and Boulder community challenges
- Push the CU administration to advance solar
- Encourage affordable housing to reduce in-commuting
- Pursue research & development grants with the community

Measures of Success

The faculty identified the following as the top five most useful measures of success to gauge Boulder's progress towards its climate goals:

- 1) Overall community emission reduction goals
- 2) Increased number of buses and better access to public transportation
- 3) Reduced VMT throughout the community

- 4) Increased affordable housing to reduce in-commuting
- 5) Increased amount of energy coming from clean energy sources



University of Colorado Graduate Student Community Dialogue October 14, 2016

On October 14, 2016, a 90-minute community dialogue session was held with the University of Colorado graduate students. Co-hosted by CU's Bartlett Science Communication Center, the dialogue included 11 graduate students across disciplines.

Causes and Solutions

When asked about the primary cause of climate change, the graduate students identified factors in energy: GHG emissions and fossil-fuel demands, emission, and extraction. In ecosystems, they pointed to agriculture (through deforestation), land use conversion, and feedback loops as the primary causes; in resources they mentioned reproduction. As with CU faculty, the graduate students regarded human systems as key causes of climate change: selfish behavior, unwillingness to change, distance and detachment from human damage, failures of justice, capitalism, and lack of government regulation. To address these causes, the graduate students identified high-leverage solutions, including³:

- **Energy:** carbon tax, renewable energy^{*^}, federal regulation, human-powered transportation*, smart grid*, and end fossil-fuel energy systems
- **Ecosystems:** farming best practices, corporate responsibility, regulation[^], less animal consumption, reforestation
- **Resources:** conservation, producer responsibility, women's empowerment
- **Human systems:** media, systems thinking^{*^}, empowering citizens, education*, changing perceptions about climate

Group Actions

The graduate students identified a number of personal actions they are taking to address climate change, particularly in terms of personal behaviors (e.g., vegetarianism, composting, using all groceries, and not using a car). They outlined the following possible actions to take as a group:

- Talk to (and protest against) the CU administration about infrastructure and divestments
- Galvanize the undergraduate community
- Advance co-op housing
- Connect with climate experts and faculty
- Work on Boulder land use

Measures of Success

Individually, the graduate students listed five top most useful measures of success to gauge Boulder's progress towards its climate goals. Their collective surveys showed the following preferred measures:

- 1) Overall community emission reduction goals

³ Participants were asked to vote for the "overall highest-leverage solution" and one high-leverage solution that also directly benefits the local community.

[^]Denotes solutions that received at least one vote for "overall highest-leverage solution"

^{*}Denotes solutions that received at least one vote for "high-leverage solution that also directly benefits the local community"

- 2) Emission reductions per person (per capita)
- 3) Increased amount of energy coming from clean energy sources
- 4) Reduced water use
- 5) Reduced VMT throughout the community

Planning Groups Community Dialogue October 26, 2016

On October 26, 2016, a 90-minute community dialogue session was held with members of three Boulder planning groups: Better Boulder, PLAN-Boulder, and Open Boulder at the Boulder Public Main Library. The dialogue included 9 participants.

Causes and Solutions

When asked to identify the primary causes of climate change, participants identified the following related to energy: transportation, electricity, and heating/cooling. More so than other groups, they outlined causes in ecosystems (e.g., sprawl, micro-climates, feedback loops and carbon releasing land conversion) and in resources (e.g., materials, coolants, livestock, and chemicals). They also mentioned consumption, capitalism and other growth-based economies, cultural norms, consumption, and population as human-systems related causes. Participants' priority solutions primarily focused on energy, with nearly all "votes" for high-leverage actions going to reducing fossil-fuel use and nearly all "votes" for actions with local benefits going to a smaller, denser urban footprint. The identified solutions included:

- **Energy:** Reducing fossil-fuel use[^] and developing a new energy source^{*^}
- **Ecosystems:** Smaller, denser urban footprint^{*}
- **Human systems:** promoting healthy government and civic^{*^}

When asked about personal actions participants are taking pertaining to climate, they mainly described personal behaviors: living car free, buying solar-powered or EV cars, conducting energy retrofits, living with roommates, and minimalism. The participants also believed the three groups could take action collectively to:

- Engage in aligned communication and policy advocacy on shared climate goals
- Educate the community on the co-benefits of climate policy and municipalization
- Help the city to develop measurements for success
- Advance housing that is not car-dependent

Measures of Success

The participants individually selected the five most useful measures of success to gauge Boulder's progress towards its climate goals. The combined surveys show the five top ranking are:

- 1) Overall community emission reduction goals
- 2) Increased number of buses and better access to public transportation
- 3) Reduced VMT throughout the community
- 4) Increased amount of energy coming from clean energy sources
- 5) Emission reduction per person (per capita)



First United Methodist Church Group Community Dialogue

November 2, 2016

On November 2, 2016, a 90-minute community dialogue session was held with four members of the Resonance Women's Chorus at the First United Methodist Church. The discussion had been circulated throughout the church.

Causes and Solutions

When asked to identify the primary causes of climate change, the group focused on burning fossil fuels but also noted the importance of diet choices, land use changes, and political will. The group discussed a suite of priority solutions including:

- **Energy:** Reducing fossil-fuel use^{^^*}, application of new renewable energy solutions, increasing solar, and utilizing public transport options
- **Ecosystems:** land conservation, reducing water use[^]
- **Human systems:** collective social and political action, the Paris Accord, shifting business models, municipalization in Boulder^{**}

Personal and Group Actions

During the discussion of personal actions, the group identified a variety of actions. Learning, communicating, and organizing was emphasized, along with making changes in the home to increase energy efficiency. Church members also discussed buying local foods, alternatives to driving, and recycling.

As far as collective action, the group emphasized:

- Educating each other and others
- Being more vocal about values
- Letter writing events before choir rehearsals
- Being more aggressive about organizing ride shares

Measures of Success

First United Methodist Church members ranked the following as the top five most useful measures of success to gauge Boulder's progress towards its climate goals:

- 1) Increased amount of Energy Coming from Clean Energy Sources
- 2) Emission reductions per person
- 3) Overall community emission reduction goals
- 4) Reduce VMT throughout community
- 5) Increased number of green jobs



Boulder Mountainbike Alliance Community Dialogue November 7, 2016

On November 7, 2016, six members of the Boulder Mountainbike Alliance met at the Boulder Depot Roadhouse. The event was also promoted to other sports groups on social media.

Causes and Solutions

When asked to identify the primary causes of climate change, mountain bikers emphasized: population growth, unsustainable consumption, land use changes, lack of sustainable energy infrastructure, fossil fuel use for transportation, manufacturing, and home use.

When the conversation shifted to solutions, the group focused on:

- **Energy:** sustainable energy^{^^^**}, solar and wind distribution and storage, vehicle CO₂ emissions control technology, electric automobiles
- **Ecosystems:** reducing animal production for food, more local agriculture
- **Resources:** less consumption by people[^]
- **Human systems:** improving technology in developing countries[^], economic disparity, human dependence on our energy system, better accounting for externalities

Personal and Group Actions

When asked about personal actions, mountain bikers discussed buying local, organic, and recycled products; living a minimalist lifestyle, walking/biking instead of driving, vegan/vegetarian diet choices as well as voting for sustainable energy.

In terms of group action, the group discussed:

- Encouraging awareness through connection with nature
- Reducing driving by increasing access to trails
- Sustainable trail construction to mitigate impacts
- Encouraging density with a big back yard

Measures of Success

Members of the Boulder Mountainbike Alliance ranked the following as the top five most useful measures of success to gauge Boulder's progress towards its climate goals:

- 1) Increased amount of Energy Coming from Clean Energy Sources
- 2) More local food
- 3) Emissions reduction per person
- 4) Increased number of buses
- 5) Increased percentage of energy generated in our community & Increased affordable housing



Jewish Community Dialogue November 17, 2016

On November 17, 2016, a 90-minute community dialogue session was held with nine individuals involved in Boulder's Jewish faith community organizations at the City of Boulder offices. The discussion was coordinated by Boulder Hazon.

Causes and Solutions

When asked about the key reasons for climate change, the group in particular emphasized patterns related to “human systems” and beliefs including global economic systems, a disconnection with government, momentum for the status quo, denial, and individuals feeling powerless. Fossil fuel use and the infrastructure that supports such use was also listed as a top cause of climate change.

When asked to identify the most powerful solutions, attendees continued to emphasize “human systems” and energy.

- **Energy:** Localize and build resilient communities^{^*}, move to 100% renewable energy^{^**}, affordable renewable energy^{^*}, reducing methane and carbon emissions^{^^}
- **Ecosystems:** Small scale ecological farming[^]
- **Human systems:** Change at the individual and small community level^{*}, empathy and willingness to learn and change^{^*}, early education^{*}, education for youth and adults^{^*}, proposing small, manageable changes and incentives^{*}

Personal and Group Actions

When asked about personal actions the group was willing to take to reduce their contributions to climate change, individuals touched on a variety of activities including community supported agriculture, installing solar panels, driving a hybrid car, driving less and walking more, choosing to live in an area that reduces the need to drive, being aware of resource consumption, researching and teaching religious ethics and ecology, educating oneself, and leadership.

When asked to brainstorm on collective actions, the group listed a suite of ideas:

- Continuing the interfaith CSA
- Finding ways to green synagogues and community buildings
- Awareness on banking and investment decisions
- Influencing organizations that represent Jewish faith communities on political issues
- Promoting zero waste policies
- Connecting Jewish moral values with advocating for climate policy
- Modelling behavior
- Holding spiritual values and not giving in to the secular value system
- Raising awareness of interfaith activities
- Using moral teachings to promote action
- Education in synagogues and schools
- Embracing post modern values

Measures of Success

The individuals who participated in the Jewish Faith community dialogue ranked the following as the top five most useful measures of success to gauge Boulder’s progress towards its climate goals:

- 1) Increased amount of Energy Coming from Clean Energy Sources
- 2) Emission reductions per person
- 3) Increased affordable housing

- 4) Reduced water use, Increased number of green jobs, More local food (all three ranked equally)

Rotary Club of Boulder Community Dialogue November 11, 2016

On November 11, 2016, a compressed 30-minute community dialogue session was held with Rotary Club of Boulder's Environmental subgroup, ten individuals attended. The truncated discussion emphasized solutions, individual/collective action, and metrics for measuring success.

Solutions

Boulder Rotary members in particular prioritized solutions related to energy and human systems:

- **Energy:** Burning less carbon, a revenue neutral carbon tax, replacing coal with wind and solar, autonomous vehicles, carbon tax
- **Ecosystems:** Reduce and eliminate ecosystem destruction
- **Human systems:** acting local- “being the change I want to see,” education, better traffic engineering

Personal and Group Actions

When asked to list their most powerful personal actions, the group listed a range of activities: solar PV panels, using less electricity and natural gas, using public transport, owning an electric vehicle, increasing awareness and connecting to action, educating peers, and recycling.

The discussion on group actions focused on:

- Connecting with other Front Range Rotary groups
- And on a program that Rotary was supporting for autistic adults to refurbish used computers

Measures of Success

The Rotary Club of Boulder members ranked the following as the top five most useful measures of success to gauge Boulder’s progress towards its climate goals:

- 1) Increased amount of Energy Coming from Clean Energy Sources
- 2) Emission reductions per person
- 3) Overall community emission reduction goals (tied with #2)
- 4) Increased number of buses
- 5) Increased affordable housing



Boulder High School Environmental Club Community Dialogue

November 7, 2016

On November 7, 2016, a 90-minute community dialogue session was held with five members of Boulder High School's Environmental Club.

Causes and Solutions

When asked to identify the primary causes of climate change, the students discussed how carbon emissions in the atmosphere are connected with global warming, and how fossil fuels come from activities such as factories, transportation, cows, and logging. Boulder students' priority solutions included:

- **Energy:** Renewable energy**, more research to advance use of solar panels^*, electric and hydrogen powered cars*^, and reducing fossil fuels*
- **Resources:** Composting
- **Human systems:** Educators, strict regulations

Personal and Group Actions

When asked about personal actions students are taking to reduce their contributions to climate change, students mentioned carpooling, biking, walking, composting, recycling, taking shorter showers, and turning off lights as well as restoring natural ecosystems.

They brainstormed on actions they could take as a group. Ideas included:

- Working to improve the school's composting and recycling systems
- Building student awareness
- Getting solar panels for the school
- Fundraising for the club by selling recycled wrapping paper or sewing reusable cloth gift bags
- Planting trees and a native seed garden
- Using existing funds to put energy saving power strips in all classrooms

Measures of Success

Boulder High School's Environmental Club members ranked the following as the top five most useful measures of success to gauge Boulder's progress towards its climate goals:

- 1) Increased amount of Energy Coming from Clean Energy Sources
- 2) Greater number of solar panels (tied with #1)
- 3) Reduced water use
- 4) Overall community emission reduction goals, Reduce VMT throughout community, Reduce yearly mileage on personal vehicle, More dedicated biking and walking (Multiple options scored equally for this spot)



University of Colorado- Baker Hall Undergraduate Student Residents Community Dialogue September 29, 2016

On September 29, 2016, a 90-minute community dialogue session was held with ten University of Colorado students who are currently residing in the Baker Hall dormitory and living/learning community. As the first dialogue, this conversation followed a slightly different format than ensuing conversations.

Causes and Solutions

The dialogue began with an introductory conversation in which students relayed their initial perceptions and background knowledge about the issue of climate change. The group was a mix of students with some having limited knowledge of the issue and others who are highly activated.

Students were asked to discuss the connections between energy, resource use, and ecosystems to climate change. Students discussed energy inefficiencies and environmental justice issues.

- “People don’t care as much as they should, they kind of have the mentality of ‘this one plastic cup that I don’t recycle won’t make a noticeable impact on the world’”
- “We have a growing population which is a problem, and all we can do, individually is minimize our own carbon footprint”

On resource use, the discussion focused on the ways human systems encourage resource waste, as well as the power of awareness.

As far as ecosystems, the group discussed the carbon cycle, trade offs, and habitats.

- “Trees take in CO₂, which helps mitigate the impact of climate change, but if climate change causes the climate to shift, the trees could die, and take in less CO₂, which is a positive feedback loop”
- “I think we need to find a balance between society and nature. We will never not have logging, because there will always be a demand for it, but we should find a way to do it so that the impact isn’t huge on the ecosystems”

When asked what the community was doing to reduce GHG, students listed a range of activities including: walking, biking, public transport, reducing energy consumption in dorms, composting, recycling, habitat restoration, Baker Hall’s use of recycled materials, use of solar power in hometown communities as well as buying locally.

Students were also asked “What additional activities are most compelling to you for reducing GHG?” They were particularly enthused about their individual impact as well as working with CU to change its infrastructure to reduce energy consumption.

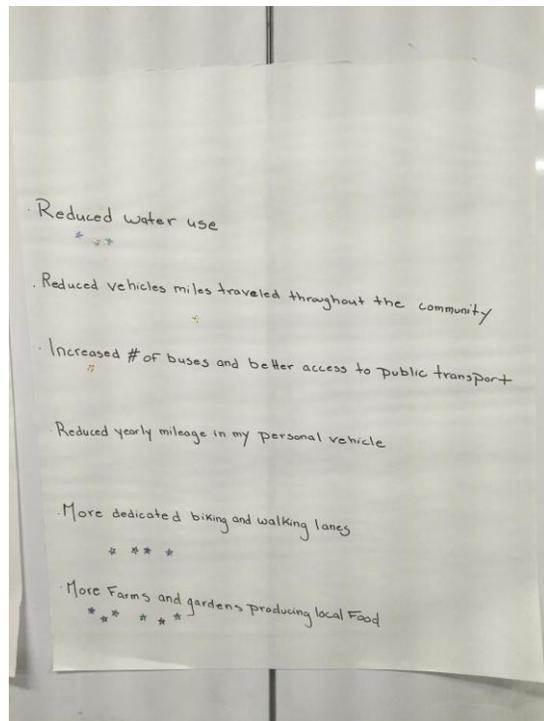
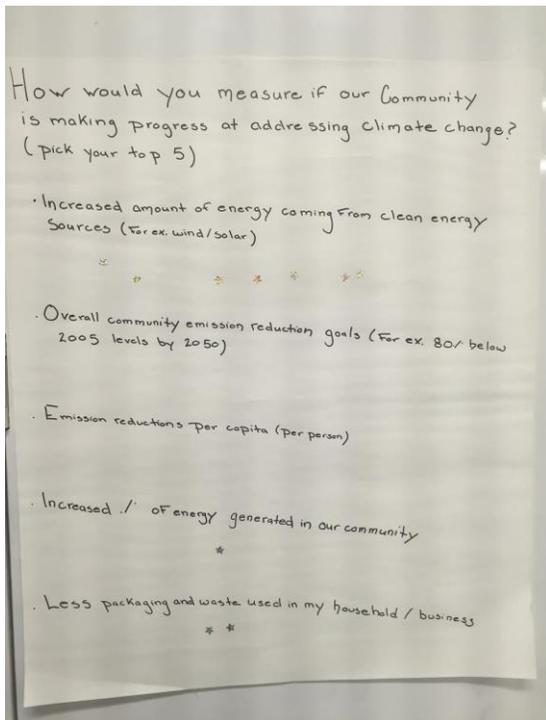
- **Energy:** Reduced car use, alternative energy in home, increasing solar power and other renewable resources in communities
- **Resources:** Reducing water bottle use, composting, recycling, eating locally
- **Ecosystems:** Increasing green spaces

Measures of Success

To rank priorities for measures of success to gauge Boulder's progress towards its climate goals, students were given three stars they could use to vote for the most important priorities:

- 1) Increased amount of energy coming from clean energy sources
- 2) More farms and gardens producing local food
- 3) More dedicated biking and walking lanes
- 4) Reduced water use
- 5) Increased number of green jobs
- 6) less packaging and waste in my home and business (tied with green jobs)

Students discussed the power of tangible changes such as bike paths and community gardens. Several students also had huge shifts in awareness after coming to CU.



Reduced water use
← →

Reduced vehicles miles traveled throughout the community

Increased # of buses and better access to public transport

Reduced yearly mileage in my personal vehicle

More dedicated biking and walking lanes
* * * *

More Farms and gardens producing local Food
* * * * *

Mapleton Hill/Newlands Community Dialogue

October 24, 2016

On October 24, 2016, a 90-minute community dialogue session was held with eight residents of the Mapleton Hill/Newlands neighborhoods. The dialogue was advertised on three different community listservs.

Causes and Solutions

When asked to identify the primary causes of climate change, the group emphasized fossil fuel use, over consumption, lack of visions, market failure, lack of information, and human tendencies like greed and denial.

Neighborhood members emphasized a variety of solutions:

- **Energy:** Clean energy sources^{^^^*}, increasing energy efficiency, and phasing out fossil fuels
- **Resources:** Reducing consumption^{^^*}
- **Ecosystems:** Ecosystem destruction (reduced or eliminated)
- **Human systems:** Sustainability^{^*}, managing greed^{*}, accurate, trusted information^{*}, properly incentivize water resource use^{*^}

Personal and Group Actions

As far as personal actions, several members of the group mentioned that they choose careers working on environmental issues, other key activities including choosing transportation alternatives to driving, increasing energy efficiency in homes, and increasing awareness.

As far as collective actions, the group discussed:

- Collective education and communication
- Choosing to live in a walkable community
- The Mapleton Hill Yard Sale
- Choosing to simplify and reduce consumption

Measures of Success

The Mapleton Hill/Newlands residents ranked the following as the top five most useful measures of success to gauge Boulder's progress towards its climate goals:

- 1) Increased amount of Energy Coming from Clean Energy Sources
- 2) Increased percentage of energy generated in our community
- 3) Overall community emission reduction goals
- 4) Increased number of Green Jobs
- 5) More local food

Ecosystems

Availability

Lack of
- Vision
- Understanding
- What the future
- Could look like and
- How to get there.

A unified
and
hopeful
Vision for
where solutions are
born together
as one!

The average
and will
to redefine
ourselves, &
our systems,
and what it is to
be happy.

Human Systems

Common
Opportunity

Human
nature
is not
inherently
good or evil
it is
neither
nor.

Market
Failure
Retraining
Ourselves

CO2
Methane

Ecosystems

Greed

Human
Nature

Population

Population

LEARN TO
LIVE
SIMPLY

Lack of vision
politics

CONTINUED +
EMPOWERED
PROCESSES
FOR DEEPENING
PARTICIPATION
INCENTIVES
FOR HUMAN
ACTION

NEEDS FOR
ACCURATE
TIMELY
INFORMATION

→

