

# Enabling Realistic Pathways & Actions to Climate Goals

## A Virtual Snowmass Climate Change Workshop

### Zoom Meeting

December 8, 9, & 10, 2021

10 AM – 1 PM Eastern time<sup>1</sup>

*The Snowmass series of workshops spanning over 25 years has catalyzed interaction between researchers using integrated assessment and leading experts in areas such as climate science, technology, health, economics, policy, and political science to address pressing questions. With the suspension of this summer's Snowmass workshop due to the pandemic, we are organizing this virtual session to continue to foster interaction.*

**Workshop Objective:** This 3-day workshop seeks to exchange perspectives on (day 1) the definition and use of climate goals and what would make transitions implied by the goals broadly wanted, (day 2) the wide range of pathways to climate goals and what makes them more-or-less probable, and (day 3) policies and actions to reach climate goal and what areas are outpacing or lagging-behind pathways. This workshop's theme is moving from pathways thought to be infeasible to ones that could be probable.

The workshop is composed of 9 one-hour sessions framed to focus discussion, beginning with inspirational keynotes in the first one-hour session. The workshop is structured to maximize discussion. Sessions two through eight each start with a series of short initial comments to jumpstart discussion, followed with a significant amount of time for open discussion, and conclude with some reflections. The last session will focus on opportunities for future Snowmass workshops, activities, or research. In this workshop we will observe the Chatham House Rule to promote inclusive and open discussion.

Times and dates are shown in **red**.

---

<sup>1</sup> Start time on all three days is at 10 AM Eastern (NYC), 7 AM Pacific, and 4 PM Central European time. Times in this agenda are Eastern Standard Time.

## December 8, 2021 -- Workshop Scene Set and Climate Goals

### Session 1-1. Workshop Scene Set and Keynote Talks

Climate change goals have been formed that imply rapid transitions in energy, land, cities, infrastructure, and industries, yet we are, at best, in the early stages of realizing these transitions. This workshop is kicked off with keynote talks to provide perspectives and begin workshop participant discussion of the transitions.

**10 AM Workshop Introduction by session moderator (5minutes): John Weyant (Stanford University)**

**Keynote Talks (30 minutes)**

**10:05 AM Energy and economic transitions: Daniel Yergin (Vice Chairman of IHS Markit)**

**10:20 AM Climate policy and the transitions: Jonathan Pershing (Climate and Foreign Policy Advisor, The Office of the Special Presidential Envoy)**

**10:35 AM Open Discussion (20 minutes)**

**10:55 AM 5--minute break between sessions**

### Session 1-2. Exploring Climate Goals

Climate goals range from ultimate goals on limiting global temperature or net-zero emissions, to intermediate goals such as levels of emission reduction or sectoral actions. This session will focus on the definition of goals and their use, connecting near-term or sub-global actions to ultimate goals, and exploring the avoided climate impacts from achieving goals.

**11 AM Discussion framing by session moderator (5 minutes): Haroon Khesghi (University of Illinois Urbana-Champaign)**

**Discussion (50 minutes)**

**11:05 AM Initial Commenters (3 minutes each): Jim Skea (Imperial College London and add WGIII Co-Chair), Chris Field (Stanford University)**

**11:15 AM Open Comments (35 minutes)**

**11:50 AM Concluding Comment (5 minutes): Steve Rose (Electric Power Research Institute)**

**11:55 AM 5-minute break between sessions**

### Session 1-3. Making the Transition Desirable

The transition to a low carbon world implies transformation of our economy and the way we live, and meeting temperature goals implies that this transition would be very fast. This session will focus on what would be needed to make such a fast transition broadly desirable. Discussion could include, for example, issues associated with the disruptions for many implied by a fast transition, or transition in the context of current world priorities (the focus of the 2020 virtual Snowmass workshop, or as represented by the SDGs).

**12 PM Discussion framing by session moderator (5 minutes): Jae Edmonds (Pacific Northwest National Laboratory)**

**Discussion (50 minutes)**

**12:05 PM Initial Commenters (3 minutes each): Brian Fisher (BAEconomics), Surabi Menon (ClimateWorks Foundation), Keywan Riahi (International Institute for Applied Systems Analysis)**

**12:15 PM Open Comments (35 minutes)**

**12:50 PM Concluding Comment (5 minutes): Rob Lempert (RAND)**

**12:55 PM End of day's sessions**

## December 9, 2021 -- Pathways to Climate Goals

### Session 2-1. Global Pathways over this Century

A wide range of pathways to climate goals continue to emerge. This session will describe how this range is evolving as consideration of climate goals has evolved.

**10 AM Discussion framing by session moderator (5 minutes):** [John Weyant \(Stanford University\)](#)

**Discussion (50 minutes)**

**10:05 AM** Initial Commenters (3 minutes each): [Brent Wanner \(International Energy Agency\)](#), [Sergey Paltsev \(Massachusetts Institute of Technology\)](#), [Detlef van Vuuren \(PBL/Utrecht University\)](#)

**10:15 AM** Open Comments (35 minutes)

**10:50 AM** Concluding Comment (5 minutes): [Kate Calvin \(Pacific Northwest National Laboratory\)](#)

**10:55 AM** 5- minute break between sessions

### Session 2-2. Moving Global Pathways from Infeasible to Probable

Assumptions regarding markets, behavior, technologies, and policies are a part of global mitigation pathways, yet there is great uncertainty, particularly for a rapid and unprecedented transformation. This session will explore the range of assumptions used for different pathways and consider how pathway likelihood is evolving with our understanding.

**11 AM Discussion framing by session moderator (5 minutes):** [Bryan Mignone \(ExxonMobil Research and Engineering Company\)](#)

**Discussion (50 minutes)**

**11:05 AM** Initial Commenters (3 minutes each): [Jennifer Morris \(Massachusetts Institute of Technology\)](#), [Chris Greig \(Princeton University\)](#), [Mike Knotek \(Energy Futures Initiative\)](#)

**11:15 AM** Open Comments (35 minutes)

**11:50 AM** Concluding Comment (5 minutes): [Massimo Tavoni \(European Institute for Environmental Economics\)](#)

**11:55 AM** 5-minute break between sessions

### Session 2-3. Political, Social and Institutional Factors in Global Pathways

Political, social, and institutional factors can result in preferences towards and opposed to specific pathways. This session will focus on what are the crucial factors, how they influence which pathways are more likely, and what information is needed to account for these factors.

**12 PM Discussion framing by session moderator (5 minutes):** [Jae Edmonds \(Pacific Northwest National Laboratory\)](#)  
**Discussion (50 minutes)**

**12:05 PM** Initial Commenters (3 minutes each): [David Victor \(University of California, San Diego\)](#), [Elke Weber \(Princeton University\)](#), [Vaibhav Chaturvedi \(Council on Energy, Environment and Water\)](#)

**12:15 PM** Open Comments (35 minutes)

**12:50 PM** Concluding Comment (5 minutes): [Leon Clarke \(University of Maryland\)](#)

**12:55 PM** End of day's sessions

## December 10, 2020 -- Policy and Actions

### Session 3-1. Government Actions

Over the past decade there has been a gap between the aspiration described by climate goals and the climate ambitions (e.g., NDCs) of countries. Governments are currently evolving their level of ambition through the policies and actions that they are taking. This session will explore the directions those actions are going in to provide some context to the range of pathways considered in day #2.

**10 AM Discussion framing by session moderator** (5 minutes): **Bryan Mignone (ExxonMobil Research and Engineering Company)**

**Discussion (50 minutes)**

**10:05 AM Initial Commenters** (3 minutes each): **Franck Lecocq (Centre for International Research on Environment and Development), Allen Fawcett (United States Environmental Protection Agency), Toshi Masui (National Institute for Environmental Studies)**

**10:15 AM Open Comments** (35 minutes)

**10:50 AM Concluding Comment** (5 minutes): **Surabi Menon (ClimateWorks Foundation)**

**10:55 AM 5-minute break between sessions**

### Session 3-2. Sustainable Finance

Finance is increasingly being looked towards to enable a net-zero transition while minimizing negative consequences in the mitigation of and adaptation to climate change. What actions are needed and what are the information needs to be provided to take these actions?

**11 AM Discussion framing by session moderator** (5 minutes): **Steve Rose (Electric Power Research Institute)**

**Discussion (50 minutes)**

**11:05 AM Initial Commenters** (3 minutes each): **Stephane Hallegatte (World Bank), Amal-Lee Amin (CDC Group), Tom Heller (Stanford University)**

**11:15 AM Open Comments** (35 minutes)

**11:50 AM Concluding Comment** (5 minutes): **Elmar Kreigler (Potsdam Institute for Climate Impact Research)**

**11:55 AM 5-minute break between sessions**

### Session 3-3. Opportunities for Future Snowmass Activities

There continues to be a need to catalyze interaction between researchers using integrated assessment and leading experts in areas such as climate science, technology, health, economics, policy, and political science to address pressing questions as our response to global change evolves. This session provides open discussion to share ideas for the Snowmass series of activities (including perhaps the traditional Snowmass workshop the summer of 2022 in Colorado), continuing with the topics and theme of this workshop -- *Enabling Realistic Pathways & Actions to Climate Goals* – and/or other topics of interest. Please share ideas on topics to address and communities to gather.

**12 PM Discussion framing by session moderator** (5 minutes): **Haroon Kheshgi (University of Illinois Urbana-Champaign)**

**12:05 PM Open Discussion (45 minutes): All Participants**

**12:50 PM Closing Remarks** (10 minutes): **John Weyant (Stanford University)**

**1:00 PM End of Workshop**