Princeton E-ffiliates Partnership

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Retreat Agenda

June 16, 2026

Princeton Marriott at Forrestal

Innovation for a More Resilient U.S. Rare Earths Supply Chain

Rare earth elements (REEs) are critical for the energy transition, communications, high-tech electronics and defense systems, yet the U.S. imports more than 75% of its needs. This reliance on other nations exposes U.S. industries to price fluctuations and supply restrictions based on international trade and geopolitical tensions. At this Retreat, we will discuss the vulnerabilities and opportunities for U.S. REE supplies, with a special focus on research and innovation with the potential to enhance the security and quantity of supplies. Advances in characterization, extraction, processing, refining, and recycling will be considered across conventional mineral resources and unconventional sources such as electronic waste, legacy aviation, coal waste, wastewater, and even the ocean floor. Experts from academia and industry will also share views on policy and investments necessary to catalyze, commercialize, and scale opportunities to build a resilient and sustainable REE supply for the future.

8:30 a.m. **Registration and Breakfast** | Princeton Ballroom

9:00 a.m. **Welcome and Overview** | Princeton Ballroom

Iain McCulloch, *Director, Andlinger Center for Energy and the Environment, Gerhard R. Andlinger '52 Professor in Energy and the Environment, Professor of Electrical and Computer Engineering and the Andlinger Center for Energy and the Environment, Princeton University*

9:10 a.m. **Framing the Day**

Chris Greig, *Associate Director for External Partnerships, Theodora D. '78 and William H. Walton III '74 Senior Research Scientist at the Andlinger Center for Energy and the Environment, Princeton University*

9:15 a.m. **Keynote: The Future of Rare Earth Elements Sourcing**

Global demand for REEs is projected to triple by 2035. This keynote will explore the landscape of current and future demand in the U.S. and the resource, investment, and process challenges of scaling up our supplies.

Chris Greig Moderator, *Associate Director for External Partnerships, Theodora D. '78 and William H. Walton III '74 Senior Research Scientist at the Andlinger Center for Energy and the Environment, Princeton University*

Vasileios Tsianos, *Senior Vice President, Neo Performance Materials*; *Chairman, Rare Earth Industry Association (REIA)*

10:15 a.m. **Break** (20 minutes)

10:35 a.m. **Opportunities to Enhance Traditional Supplies**

The U.S. currently extracts less than 2% of the REEs mined worldwide, and much of the subsequent processing of those elements happens abroad. This panel will consider scale-up and innovation in traditional practices, including domestic mining and processing opportunities, moving supply chains to trusted international partners, and reprocessing of mining waste.

Anthony Ku, Moderator, *Co-founder and Chief Executive Officer, Clear Skies Hydrogen (CSH2); Co-chair, Industrial Advisory Board, International Roundtable on Critical Materials; Industrial Council Member, Critical Materials Innovation Hub; Non-resident Fellow, Andlinger Center for Energy and the Environment, Princeton University*

Elisa Alonso, *Acting Deputy Director and Assistant Chief for the Minerals Intelligence Research Section, National Minerals Information Center, U.S. Geological Survey*

Pengbo Chu, *Assistant Professor of Earth and Environmental Engineering, Columbia University*

Mary Lou Lauria, *Senior Vice President Environment and Sustainability Global, Worley*

Jud Marte, *Senior Vice President of Engineering, MP Materials*

12:00 p.m. **Lunch** | Gratella

1:30 p.m. **Harnessing Unconventional Resources**

Secondary and recycled sources could be a significant resource for REEs without the need for mining, but their scale and economic viability are uncertain. The opportunities and approaches for extracting and processing REEs from waste streams such as coal waste, wastewater, discarded electronics, and even the ocean floor will be explored in this panel.

Z. Jason Ren, Moderator, *Professor of Civil and Environmental Engineering and the Andlinger Center for Energy and the Environment, Princeton University; Co-founder, Chief Scientist, and Director, Princeton Critical Minerals (PureLi Inc.)*

Sarah Jordaan, *Associate Professor of Civil Engineering and the Trottier Institute for Sustainability in Engineering and Design, McGill University*

Ryan Kingsbury, *Assistant Professor of Civil and Environmental Engineering and the Andlinger Center for Energy and the Environment, Princeton University*

Erica Ocampo, *Chief Sustainability Officer, The Metals Company*

Jason Trembly, *Russ Professor of Mechanical Engineering; Director, Institute for Sustainable Energy and the Environment, Ohio University*

2:45 p.m. **Break** (20 minutes)

3:05 p.m. **The Next Frontier: Electro-Processing**

Electro-processing techniques for REE extraction, recovery, and processing from ores and waste streams could offer substantial environmental benefits over traditional approaches, most notably lower energy use and reduced hazardous waste. This panel will discuss the challenges and opportunities in these novel approaches to REE production.

Emily Carter, Moderator, *Gerhard R. Andlinger '52 Professor in Energy and the Environment, Professor of Mechanical and Aerospace Engineering, the Andlinger Center for Energy and the Environment, and Applied and Computational Mathematics, Founding Director, Andlinger Center for Energy and the Environment, Princeton University; Senior Strategic Advisor and Associate Laboratory Director of Applied Materials and Sustainability Sciences, Princeton Plasma Physics Laboratory*

Yiguang Ju, *Robert Porter Patterson Professor of Mechanical and Aerospace Engineering, Princeton University; Head, Electromanufacturing Science, Princeton Plasma Physics Laboratory*

Michele Sarazen, *Assistant Professor of Chemical and Biological Engineering, Princeton University*

Daniel Steingart, *Co-director Columbia Electrochemical Energy Cente;, Stanley-Thompson Professor of Chemical Metallurgy; Professor of Chemical Engineering; Professor of Chemical Engineering and Climate, Columbia University*

4:20 p.m. **Wrap-Up Discussion and Next Steps**

4:30 p.m. **Poster Session and Reception** | Treehouse Lounge