TERRA PRAXIS

ABOUT

Launched in 2021, TerraPraxis is a nonprofit organization that leverages the expertise of co-founders, Kirsty Gogan and Eric Ingersoll, and team in environmental advocacy, government, and designing clean energy solutions that leverage the power of the market.

TerraPraxis was born out of the realization that a massive reimagination of the global energy system is needed to **protect our planet and grow human prosperity, particularly for the difficult-to-decarbonize sectors of coal, industrial heat, and heavy transport.** We believe that when the true challenges of achieving Net Zero emissions by 2050 start to bite, the more necessary zero-carbon advanced heat sources (advanced fission, fusion, and geothermal) will be, thanks to their tiny land use, small lifecycle footprint, and abundant zero-carbon energy output.

The problem is that current industry and deployment models for advanced heat sources cannot deliver fast enough, nor at the scale required, to meet the urgent global need for affordable, reliable, zero-carbon energy. TerraPraxis has been anticipating this challenge and has been designing transformative solutions (for coal plant conversion, clean hydrogen, synthetic fuels production, and flexible co-generation) to achieve the urgency, scale, and low costs required.

OUR FLAGSHIP PROGRAM: REPOWERING COAL BY 2050

Repowering 2,400 coal-fired power plants with zero-carbon advanced heat sources worldwide by 2050 is **the single largest carbon reduction opportunity on the planet and the most practical way to accelerate the clean energy transition**. It would **also enable a just transition** by eliminating 40% of global carbon emissions from energy, while sustaining local jobs and reusing existing infrastructure and transmission lines to deliver zero-carbon energy to millions of people worldwide.

Over the past two years, TerraPraxis has solidified our role as a global thought leader and convener in Repowering Coal. Our solution has been validated by the U.S. Department of Energy and the International Energy Agency in their recent publications. We have recruited a world-class team of strategic partners who are determined to work with us to Repower Coal by 2050, including Microsoft, Bryden Wood, OECD NEA (Nuclear Energy Agency), Schneider Electric, MIT, University at Buffalo, and a Customer Advisory Group that includes some of the largest utilities in the world.

terrapraxis.org

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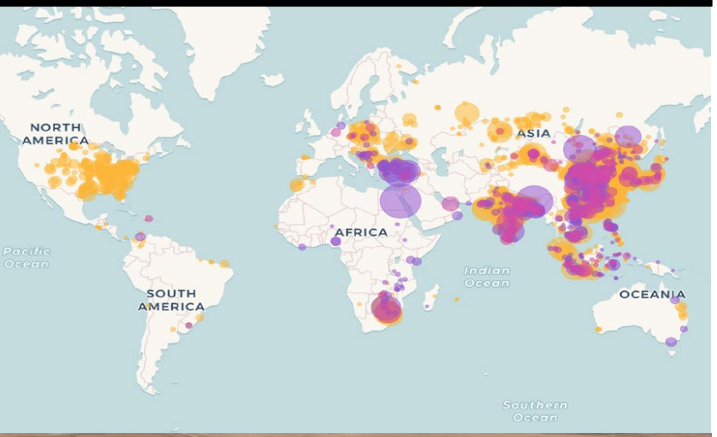
"TerraPraxis is at the absolute center of the world's innovation to cut the cord between power and carbon, while enabling the world to continue to rely on the power plants that have been built and the infrastructure that already exists."

- Brad Smith, Microsoft President & Vice Chairman

TERRAPRAXIS INNOVATES, DESIGNS, AND ACCELERATES SCALABLE, EQUITABLE SOLUTIONS FOR NEGLECTED AREAS OF THE DECARBONIZATION CHALLENGE

^ Brad Smith, Kirsty Gogan, and Eric Ingersoll at Microsoft and TerraPraxis' strategic partnership signing in Redmond, Washington, August 2022.

PROGRAM HIGHLIGHT REPOWERING COAL BY 2050 / TO PROTECT OUR PLANET & GROW HUMAN PROSPERITY ON A GLOBAL SCALE



^ Global mapping of coal plants operating (yellow), under construction (pink), and planned (purple). (Carbon Brief, 2022).
^ Coal plant showing how it could be repowered with small modular reactors. (TerraPraxis, 2022).
> Rumina Velshi speaking at the CEM12 session on 'Net Zero with Clean Fuels,' hosted by the NICE Future Initiative and TerraPraxis.

KEY ACTIVITIES

1. **Leading a global consortium**—including regulators, governments, utilities, nuclear service providers, advanced heat source vendors, designers, and assemblers—**to resolve the major barriers to advanced heat source deployment,** including long and expensive feasibility assessment, bespoke plant design, and regulatory review uncertainty, which increase project costs and cause project delays.

2. Building a coalition of coal plant owners and institutional investors who commit to evaluating their coal-fleets to **increase utilization of the $250B in U.S. Department of Energy, Loan Program Office lending ability allocated by the Inflation Reduction Act (IRA)** for repowering coal plants with advanced heat sources.

3. Partnering with Microsoft to build and deploy a set of tools to automate the evaluation, design, and regulatory approval processes needed to **transform coal plants from polluting liabilities into investment opportunities**, and coal plant owners and institutional investors into Repowering Coal customers.

4. **Designing a set of conceptual standardized building systems with engagement from world-class safety regulators**, in partnership with Bryden Wood.

5. **Building a streamlined nuclear licensing strategy** with regulators and other key stakeholders to accelerate deployment of hundreds of gigawatts of Repowering Coal projects by 2050.

"I would like to applaud Kirsty Gogan and Eric Ingersoll on their work around flexible nuclear applications, including heating, hydrogen, and repowering coal plants, with small modular reactors. This kind of ingenuity serves as a reminder: regulators must always be ready for whatever comes our way...we need to know and understand what's coming."

- Rumina Velshi, President and CEO of the Canadian Nuclear Safety Commission

TERRAPRAXIS THOUGHT LEADERSHIP HAS CONTRIBUTED TO A PERMANENT CHANGE IN BOTH THE PERCEPTIONS OF, AND POTENTIAL SOLUTIONS TO, THE CLIMATE PROBLEM