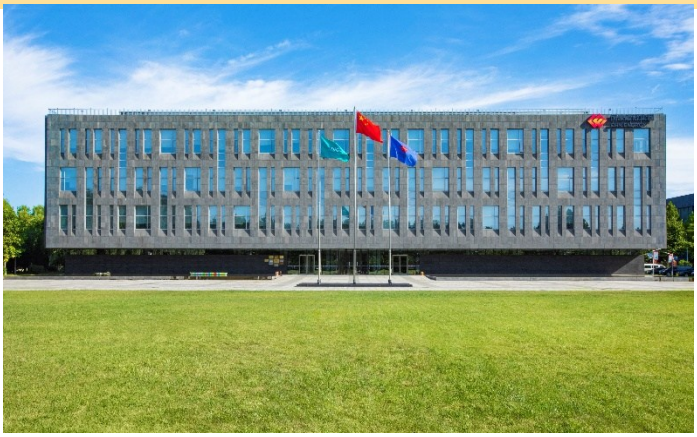
Forty-Second Annual International Pittsburgh Energy and Carbon Management Conference (PECMC)

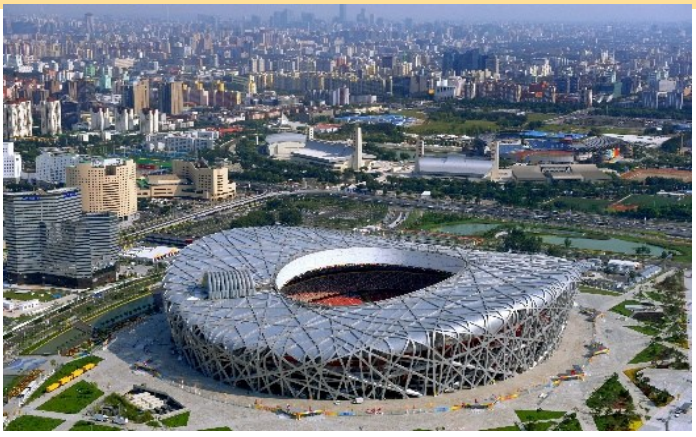
October 22-24, 2025

Call-for-Papers

Abstracts Deadline: July 1, 2025

"Technology Innovation for Sustainable Energy Development"





Beijing, China

University of Pittsburgh

NATIONAL INSTITUTE OF CLEAN AND-LOW-CARBON ENERGY

北京低碳清洁能源研究院

Call-for-Papers

42nd Annual International Pittsburgh Energy and Carbon Management Conference (PECMC)

The 42nd International Pittsburgh Energy and Carbon Management Conference (PECMC) will be held on October 22-24, 2025, at the Jingyi Hotel, Beijing, China (http://www.beijingjingyihotel.com/).

The Conference was founded in the early 1970's to address global shortages of energy. This year, we are switching gears to focus on using energy and carbon management technologies to minimize the effects of climate change. Our faithful conference attendees, who have been successful in developing and using a fossil fuel-based economy over the years, are also focusing on mitigating the global temperature rise impacted by mankind's reliance upon fossil fuels and the resultant greenhouse gas emissions. Our Conference is dealing with both energy and non-energy uses of fossil fuels in conjunction with carbon management to meet the ambitious Net Zero emissions scenario by the year 2050. In this pathway, in addition to the main pillars of decarbonization, including energy efficiency & conservation, renewables, nuclear, low-emissions fuels, and carbon capture & storage technologies, there are cross-cutting enablers, such as innovation, international collaboration, and digitalization, which could accelerate progress by strengthening policy or providing more effective technological solutions. (For more background information on the world's energy system including energy supply & transportation, uses of energy, and managing demand & emissions, visit the International Energy Agency website https://www.iea.org/energy-system.)

Conference Theme: "Technology Innovation for Sustainable Energy Development" surrounding the continued clean coal utilization for supporting the future clean energy market.

The PECMC committees kindly invite you to submit papers and attend this important event.

Abstracts Submission

Abstracts of potential papers may be submitted in all program topics. The abstract must include sufficient and adequate information for evaluation by the Technical Program Committee of the conference.

An abstract template is available here: https://www.engineering.pitt.edu/subsites/conferences/pcc/pittsburgh-coal-conference/conference/2023-conference/abstract-template/

Please submit an abstract by email to ipcc@pitt.edu, p0018324@ceic.com

The submission deadline is July 1, 2025.

Conference Proceedings

The proceedings of the PECMC-2025 will be published online after the conference.

For a paper to be included in the conference proceedings, a paid registration of the presenter must be received and a complete manuscript in English, must be sent by email to the conference office prior to the conference date.

Proceedings of the previous International Pittsburgh Coal conferences are available and can be purchased online:
https://www.engineering.pitt.edu/subsites/conferences/pcc/pittsburgh-coal-conference/Proceedings/orderform/

Note to Authors

The PECMC does not provide any financial support to contributing authors. Benefits from participation include the privilege of presenting papers at the conference and publication of the papers in the Conference Proceedings for worldwide distribution.

Oral Presentations & Posters

Oral Presentations: Each author is allowed 20 minutes, including 5 minutes Q&A.

Presenter Instructions are available here:
https://www.engineering.pitt.edu/subsites/conferences/pcc/pittsburgh-coal-conference/conference/presenter-instructions/

Contact us

Conference Website: http://www.pccpitt.org

For questions about the Conference

University of Pittsburgh contact:

Ms. Rebecca Bauroth, Conference Coordinator
Email: ipcc@pitt.edu
Tel: +1 (412) 624-7440
We are currently working remotely; please leave a voice message and we will return your call.

National Institute of Clean-and-Low-Carbon Energy contact:

Dr. Peng Wu
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Monday to Friday, 9:00 AM - 4:00 PM, Beijing Time, GMT+8.

Registration Rates

	Non-Chinese		Chinese	
	Before 31 Aug 2025	After 31 Aug 2025	Before 31 Aug 2025	After 31 Aug 2025
Full registration	**$600**	**$650**	**¥ 3000**	**¥ 3800**
Student	**$300**	**$350**	**¥ 2000**	**¥ 2400**
One Day registration	**$300**	**$350**	**¥ 2000**	**¥ 2400**
Accompanying person	**$450**	**$500**	**¥ 2500**	**¥ 3000**

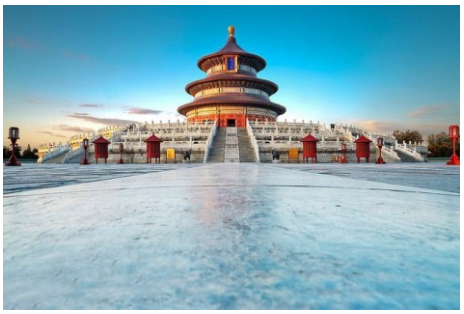
- **Services included in the full registration fees:**
- **Coffee Breaks,**
- **Lunches,**
- **Dinners,**
- **Conference Materials**

Daily Technical Tours

A daily technical tour by bus to a coal-fired power plant or a gas-fired power plant for at least 10 people.
(Cost per person, including lunch is 150 USD).

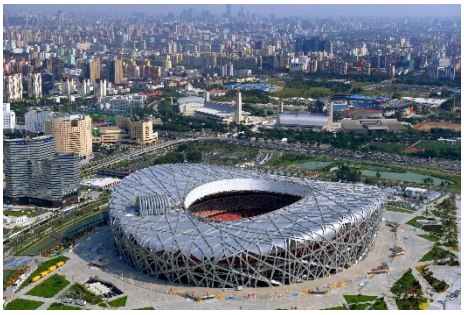
Cultural Tours

The Forbidden City
1 day
A guided tour through the Palace Museum (Forbidden City), exploring imperial architecture, Qing and Ming dynasty artifacts, and the symbolism behind the ancient Chinese court



Temple of Heaven
Half day
Visit the Temple of Heaven, where emperors prayed for good harvests. The session can include insights into ancient Chinese cosmology and its influence on architecture.

The Great Wall (Badaling Great Wall)
1 day
Walk along the most famous and best-preserved section of the Great Wall. This guided tour offers historical context on its strategic importance and engineering marvels, with breathtaking panoramic views.



Beijing Olympic Park
1 day
Explore the site of the 2008 Summer Olympics, including landmarks like the Bird's Nest and Water Cube, with discussions on China's global presence, urban planning, and sports culture.

Terracotta Warriors
2 days (Take bullet Train from Beijing to Xi'an)
Discovered in 1974 in Xi'an, this life-sized clay army was buried with Emperor Qin Shi Huang to guard him in the afterlife. It is considered one of the greatest archaeological finds of the 20th century.

Please contact the registration desk for reservation.

Program Topics

1. Gasification Technologies
- Industrial Applications, Economics and Environmental Issues
- Underground Coal Gasification (UCG)
- Syngas to Power (Gas Turbines, Fuel Cells)
- Gasification Science and Modeling
- Novel Gasification Technologies and Concepts
- Co-Gasification of Coal and other Carbon-Based Fuels
- Systems Analysis
- Low Rank Coal Utilization
- Polygeneration

2. Clean Coal Demonstration and Commercial Projects
- Existing and planned clean coal major demonstrations (process and technology demonstrations, (i.e., CCS, IGCC, SCPC, USC, SNG, CTL, Oxy-combustion, etc.)
- Existing and planned clean coal commercial projects (fully integrated systems) and trends
- Industrial-scale and utility-scale carbon capture and carbon storage projects (i.e., >250,000 tons/year of CO_2), lessons learned from technology, demonstrations and first commercial deployments
- Energy storage demonstrations applicable to medium- and long-term storage of energy from coal and fossil energy systems Intermediate-scale demonstrations, (i.e., 25-50 MWe)
- Commercially available technology reviews/updates (vendor reports on advanced technology commercial offerings)
- Financing, business and risk management strategies for major demonstration and commercial projects, including first-of-a-kind projects with or without carbon capture and storage
- Regulatory impacts on major demonstration and commercial projects
- Insurance strategies for CO_2 capture and geologic storage

3. Combustion Technologies
- Industrial applications and environmental Issues
- Flue gas clean up and ash chemistry
- Modeling and economic evaluation
- Combustion technology advancements (Pulverized Coal, Fluidized Beds, Co-Firing, etc.)
- Novel Combustion and Cycle Technologies (Oxyfuel, Chemical looping, CO_2 Cycles, etc.)
- Basic studies, materials, and instrumentation

4. Clean Coal and Gas to Fuels
- Coal-To-Liquids fuels, CTL (Direct Liquefaction, Fischer-Tropsch, MTG, DME, etc.)
- Gas-To-Liquid, GTL
- Synthesis gas cleanup
- Substitute Natural Gas (SNG)
- Hydrogen production
- Syngas to chemicals/materials

5. Carbon Management
- Pre-combustion capture
- Post-combustion capture
- Direct Air Capture (DAC)
- CO_2 sequestration (Monitoring, Mitigation and Verification; Storage: Depleted Oil/Gas Reservoirs, Aquifers, Basalt, Coal Bed Methane, etc.)
- Transportation infrastructure issues
- Legal and regulatory issues
- Carbon dioxide to chemicals/fuels

6. Value-Added Products from Coal
- Nano-carbons
- Fibers
- Composites
- 3D Printing
- Additive Manufacturing
- Electrodes
- Capacitors
- Construction Materials
- Concretes
- Thermal Insulators
- Activated Carbons
- Tars, Cokes and Pitches
- Chemicals
- Covetics and other carbon alloys

7. Energy Storage
- Chemical (Hydrogen, Ammonia, Methanol)
- Thermal (Thermochemical, Sensible, Latent)
- Mechanical (Compressed Air, Pumped Hydro)
- Electrochemical (Batteries: Flow, Li-ion, Lead Acid)
- Other (Geothermal)

8. Clean Hydrogen
- Production
- Transportation
- Storage
- Utilization

9. Coal Bed Methane and Shale Gas
- Geology
- Exploration
- Resources and reserves
- Drilling and production
- Completion methods
- Gas quality and processing
- Environmental impacts
- Abating methane emissions from gas and coal production
- Economics and future outlook

Program Topics (cont.)

10. Power Plants
- Thermodynamic and economic analysis
- Boiler technology and design
- Steam turbine technology (reheat, regeneration, steam seals, blade aerodynamics)
- Gas turbines technology (syngas or hydrogen-rich combustion, compressor aerodynamics, turbine blade heat transfer, materials)
- Heat Recovery Steam Generator (HRSG)
- Condenser design and operation
- Cooling tower design and improvements
- Water treatments
- Post combustion gas cleaning
- IGCC integration and components (ASU, gasifiers, syngas cooling, gas clean up, water- gas-shift, and desulfurization)
- Oxy-fuel combustion plants
- Organic Rankine Cycle (ORC)
- Combined Heating and Power (CHP)
- Energy storage (CAES, ice)
- Power plants operation and maintenance experiences
- Any other or innovative new cycles

11. Critical Minerals and Rare Earth Elements (REE) in Fossil Fuel Derived Solids and Liquids
- Critical minerals and rare earth elements in coal and petroleum fuels
- Critical mineral and rare earth element chemistry in power systems
- Mining waste
- Fly ash and slag
- Separation methods
- Rare earth geochemistry
- Measurement and characterization: challenges and solutions
- Modeling
- Mining and recovery methods in industry
- Status of supply and trade
- Emerging issues

12. Coal Ash Management
- Ash pond reclamation
- Extension of landfills over ash ponds
- Long-term recovery of materials from ash ponds
- Long-term recovery of materials from ash ponds
- Secondary uses of closed ash ponds
- Coal Combustion Residuals (CCRs) landfill management
- Beneficial uses of CCRs
- Critical mineral and rare earth element extraction from CCRs
- Role of CCRs for CO_2 storage

13. Coal Science
- Chemistry
- Geoscience/coal resources
- Trace elements/emission
- Coal processing
- Coal preparation
- Coal utilization
- Coal utilization by-products (Ash, Fertilizers, etc.)

14. Coal Mining, Preparation, and Handling
- Coal seam and coal mine methane/gas management in coal mines
- Geological issues related to coal mining/properties of coal-measure, rocks/ground behavior
- Coal mining and reclamation
- Mine safety

15. Sustainability and Environment
- Energy production and water use – conservation and recycle
- Life Cycle Analysis (LCA) or Energy Production Systems (EPS)
- Energy production and the environment
- Energy sustainability – efficiency and conversation to reduce GHG
- GHG, inventory protocol, legal and regulatory considerations, credits

16. Artificial Intelligence and Digital Twin Applications in Carbon Management and Energy Systems
- AI-driven process optimization for carbon capture, storage, and utilization (CCUS)
- Digital twin modeling of power plants and industrial carbon sources
- Predictive maintenance and anomaly detection in energy infrastructure
- Machine learning for emissions forecasting and control
- Integration of AI with carbon footprint monitoring and reporting
- Intelligent control systems for decarbonized energy systems
- Data-driven decision support for low-carbon system planning
- Real-time monitoring and diagnostics for energy and carbon flows

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