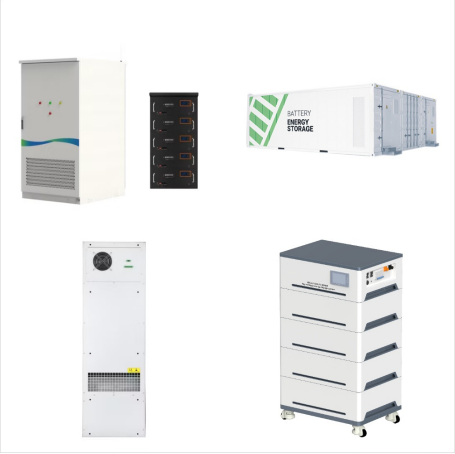
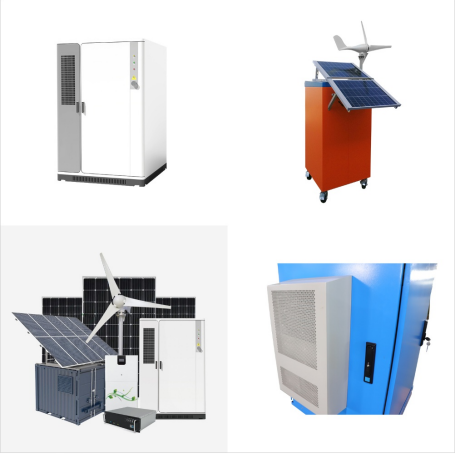
Jeffrey Bielicki. 2013. See full PDF download Download PDF. Zero is the only acceptable leakage rate for geologically stored CO 2 : an editorial comment. Rodica Loisel. Climatic Change, 2009 (FEPs) targeted at geological storage of CO2. Energy Procedia 2011, 4, 4059-4066 [7] US EPA Vulnerability Evaluation Framework for Geological

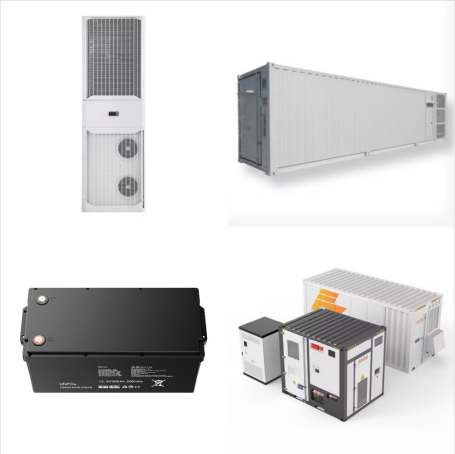


The addition of flexible carbon-free generation sources could enable deeper levels of decarbonization on grids that are challenged by high penetrations of wind and solar capacity. (Sepulveda et al., 2018) These flexible sources could include load-following renewables to balance generation variability, as well as short- and long-duration energy storage that can ???

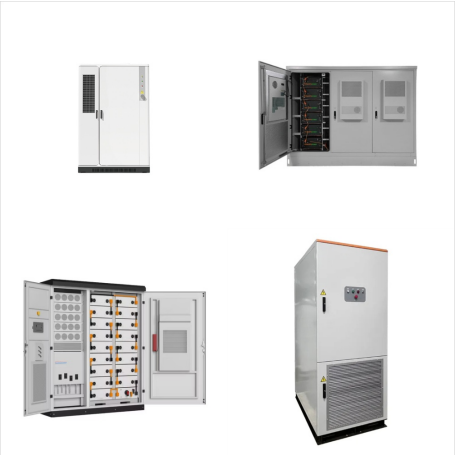


Flexible CO2-plume geothermal (CPG-F): Using geologically stored CO2 to provide dispatchable power and energy storage MR Fleming, BM Adams, JD Ogland-Hand, JM Bielicki, TH Kuehn, Energy Conversion and Management 253, 115082, 2022

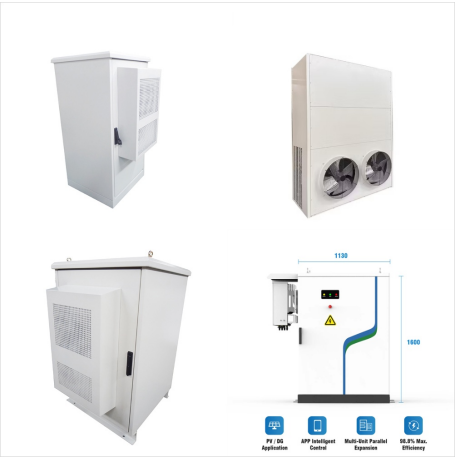
MECHANISMS OF GEOLOGICALLY STORED CO2 FOR ENERGY STORAGE JEFFREY BIELICKI



DOI: 10.1016/j.enconman.2020.113548 Corpus ID: 230553331; The value of CO2-Bulk energy storage with wind in transmission-constrained electric power systems @article{OglandHand2021TheVO, title={The value of CO2-Bulk energy storage with wind in transmission-constrained electric power systems}, author={Jonathan D. Ogland-Hand and ???

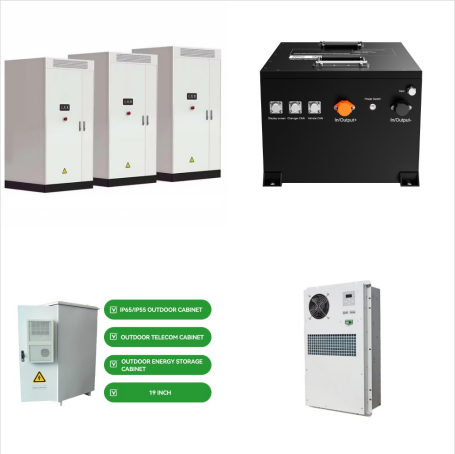


Abstract. The energy transition towards net-neutral and net-negative greenhouse gas emissions requires the co-evolution of innovation, research, investment, and deployment strategies for existing and emerging renewable energy technologies, including geothermal energy, negative emissions technologies (NETs), and carbon dioxide (CO2) capture and storage (CCS).

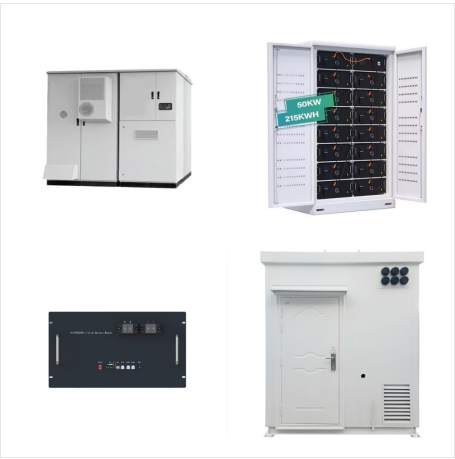


Jonathan Ogland-Hand | Integrated Systems Analyses of Using Geologically Stored CO2 and Sedimentary Basin Geothermal Resources to Produce and Store Energy | The Ohio State University | Environmental Science Graduate Program; Ph.D. received 2019. Position after receiving Ph.D.: Post-Doc, ETH-Z?rich

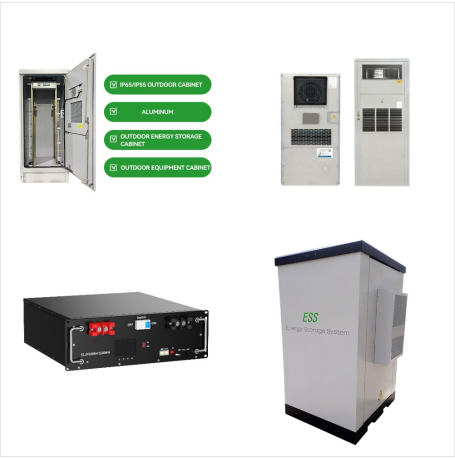
MECHANISMS OF GEOLOGICALLY STORED CO2 FOR ENERGY STORAGE JEFFREY BIELICKI



To isolate the CO2 from the atmosphere at meaningful scale, the CO2 will likely need to be geologically stored in deep saline aquifers. Here we propose to leverage geologic CO2 storage (GCS) in sedimentary basin geothermal resources to produce geothermal heat and electricity for the process energy requirements of solid sorbent DACC.

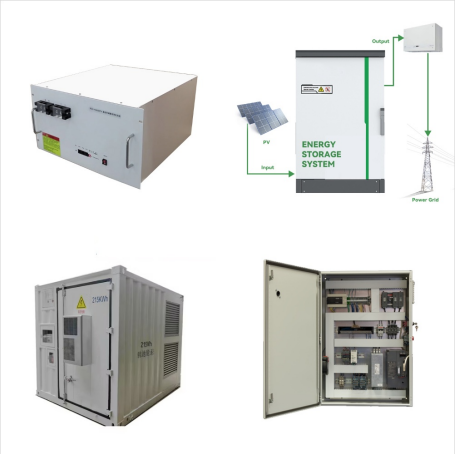


. This paper presents the feasibility study of CO2 sequestration from the sources to the sinks in the prospective of Italian Industries. CO2 produced at these sources captured, compressed to supercritical pressures, transported ???

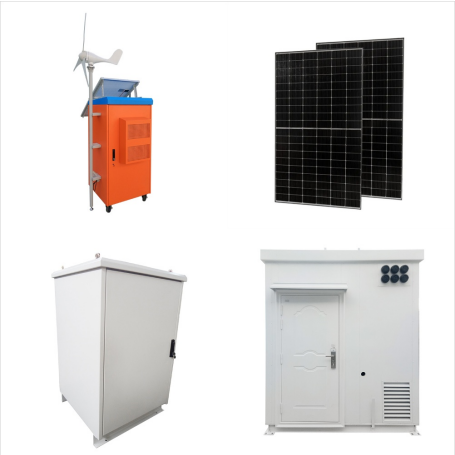


The need for a deep understanding of CO2 interactions with other mols. is significant given the importance of supercrit. CO2 (s.c.-CO2) as a green solvent, and interest in design of novel materials for CO2 capture and storage.

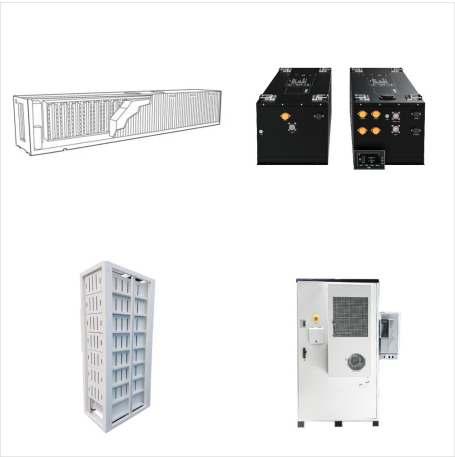
MECHANISMS OF GEOLOGICALLY STORED CO2 FOR ENERGY STORAGE JEFFREY BIELICKI



Dr. Bielicki runs the Energy Sustainability Research Laboratory at Ohio State University where he and his students research issues in which energy and environmental systems and policy interact, specifically on topics related to carbon management, renewable energy, and the energy-water nexus. He holds a joint appointment in the Department of Civil, Environmental, and Geodetic ???



electricity system, there are few, if any, technologies currently capable of storing energy on seasonal time-scales. Here, we report on our work using geologically stored CO 2 for seasonal ???



In this study, a Flexible CO2 Plume Geothermal (CPG-F) facility is introduced, which can use geologically stored CO2 to provide dispatchable power, energy storage, or both dispatchable power and

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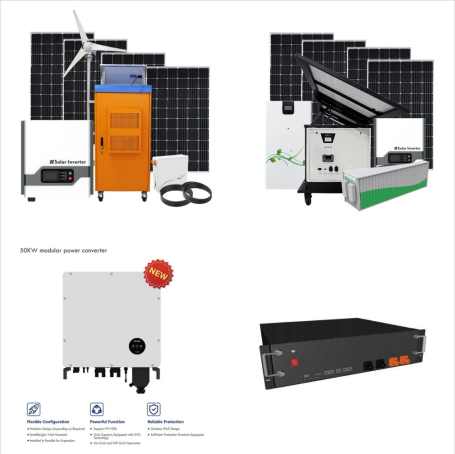
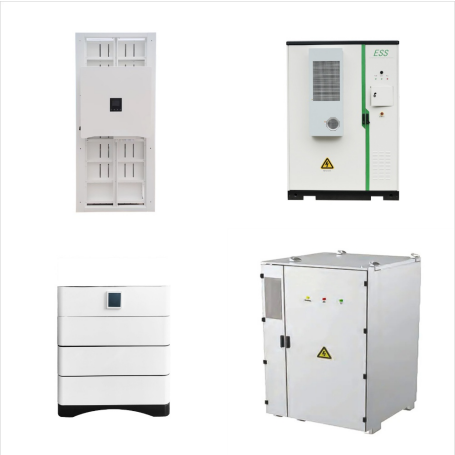
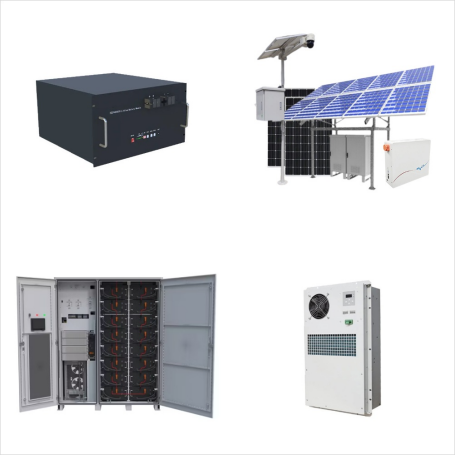


CO 2-Plume Geothermal (CPG) power plants can use geologically stored CO 2 to generate electricity. In this study, a Flexible CO 2 Plume Geothermal (CPG-F) facility is introduced, which can use geologically stored CO 2 to provide dispatchable power, energy storage, or both dispatchable power and energy storage simultaneously???providing baseload ???

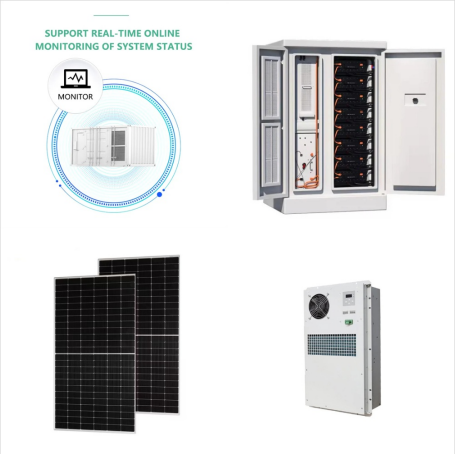


This review is divided into four parts: (1) an overview of the principles of CO2 geo-storage, (2) an examination of trapping mechanisms for CO2 geo-storage, (3) an analysis of experimental and

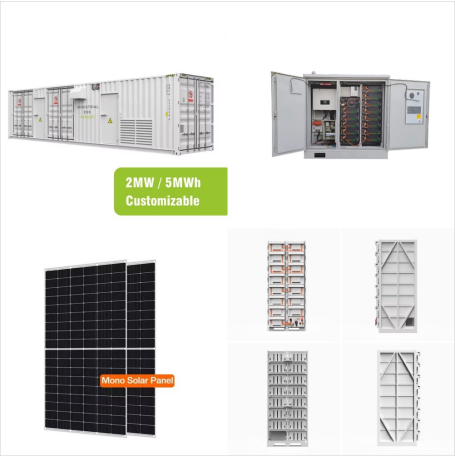


Volume 8: Advances in Energy Innovation and Development Using Geologically Sequestered CO2 to Generate and Store Geothermal Electricity: CO2 Plume Geothermal (CPG) Benjamin M. Adams,Martin O. Saar,Jeffrey M. Bielicki,Jonathan D. Ogland-Hand,Mark R. Fleming

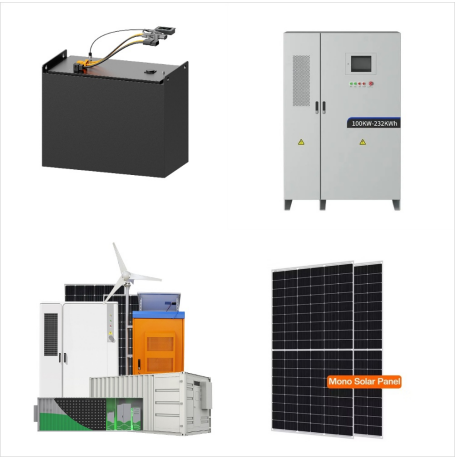
MECHANISMS OF GEOLOGICALLY STORED CO2 FOR ENERGY STORAGE JEFFREY BIELICKI



We present an approach that uses the huge fluid and thermal storage capac-ity of the subsurface, together with geologic carbon dioxide (CO 2) -storage, to harvest, store, and dispatch energy from subsurface (geothermal) and surface (solar, nuclear, fossil) thermal resources, as well as excess energy on electric grids. Captured CO 2 is injected into saline ???



Here, we investigated how the charging and discharging cycles affect the power storage capacity and power output capacity of a CO2-BES facility. We simulated the operation of CO2-BES with seven different operating cycles for fourteen years.



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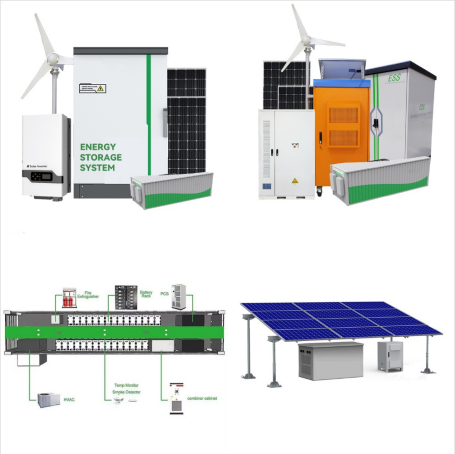

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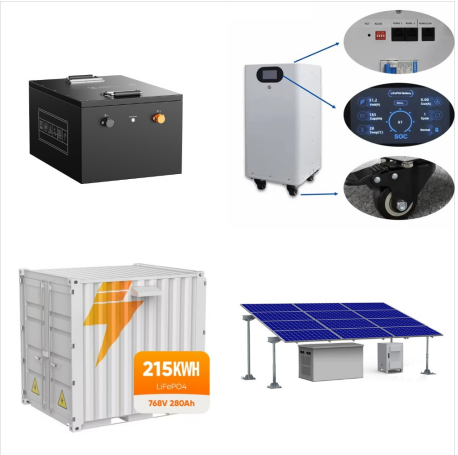
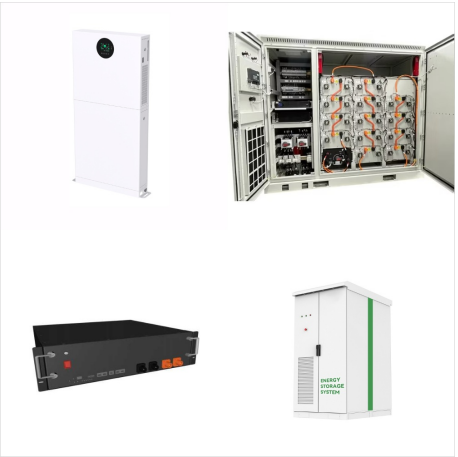
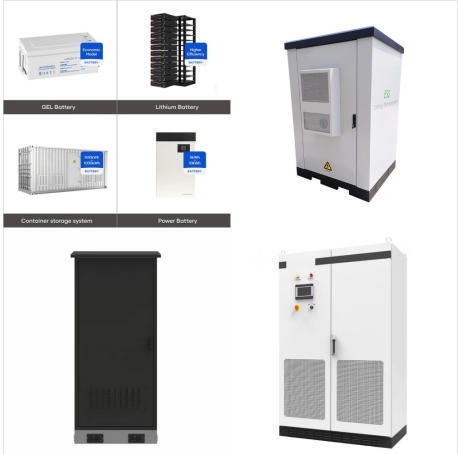


Jeffrey M Bielicki; Mechanisms of Geologically Stored CO2 for Energy Storage. Article. Carbon-dioxide (CO2) bulk energy storage (CO2-BES) is an emerging CO2 capture, utilization, and

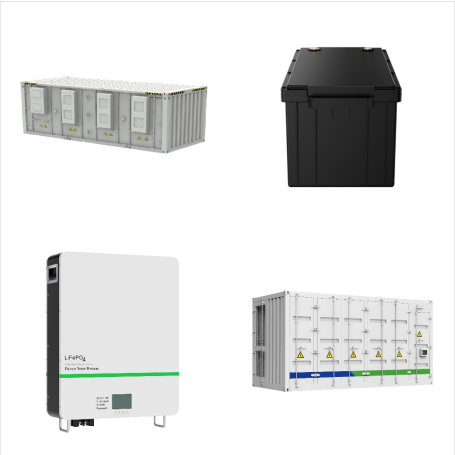


geologically stored carbon dioxide (CO 2) is used as the subsurface working fluid because CO 2 is a more efficient heat extraction fluid than brine (Randolph and Saar, 2011; Adams et al., 2015). Even more recently, sedimentary basin geothermal resources and geologically stored CO 2 have been investigated to provide energy storage services. For

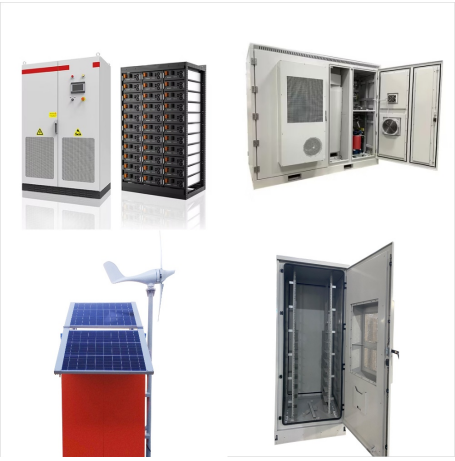
MECHANISMS OF GEOLOGICALLY STORED CO2 FOR ENERGY STORAGE JEFFREY BIELICKI



2 capture and storage). At present, there are 65 geologic CO 2 storage projects worldwide, of which 26 are operating, and 40 MtCO 2/yr are being stored. 13 (Global CCS Institute, 2020). Ifthe CO 2 isemplaced in an aquifer within asedimentary basin geothermal resource, it may be possible to circulate a portion of the geologically stored CO

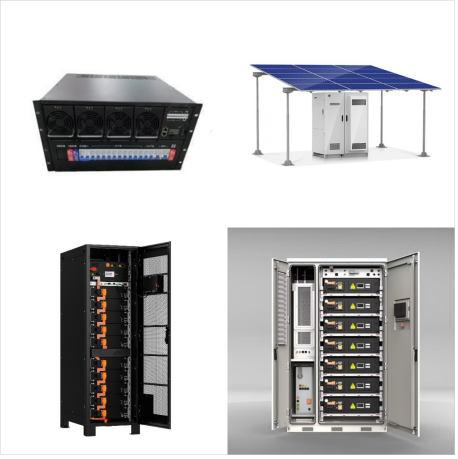


In this study, we investigate how CO 2-bulk energy storage (CO 2-BES) could operate in a realistic case study of a transmission-constrained setting in the United States.The CO 2-BES approach is based on the notion that CO 2, that is isolated from the atmosphere in deep (>800 m), porous, and permeable aquifers in sedimentary basin geothermal resources, can be ???

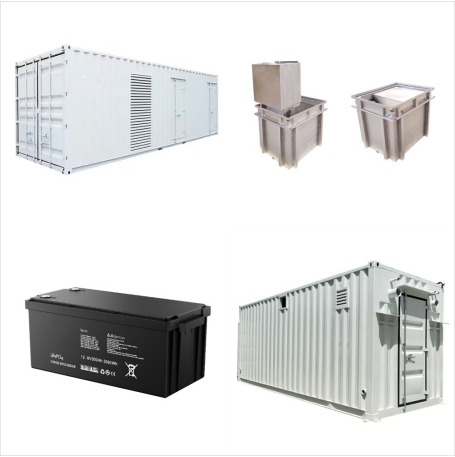


Jeffrey M. Bielicki 1,2 ??? Martina Leveni 1 ??? Jeremiah X. Johnson 3 [email We also present the potential for using geologically stored CO 2 for bulk energy storage which could provide valuable time-shifting and other services ???

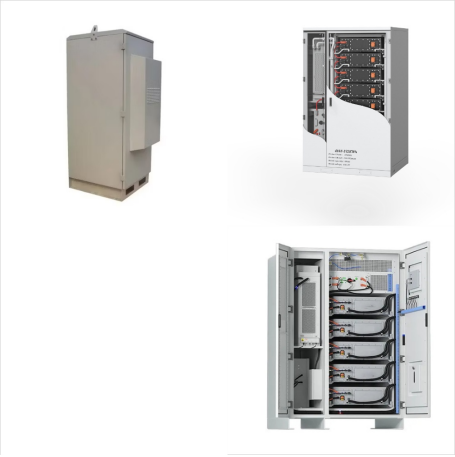
MECHANISMS OF GEOLOGICALLY STORED CO2 FOR ENERGY STORAGE JEFFREY BIELICKI



Associate Professor Bielicki's study reveals that a Flexible CO2 Plume Geothermal (CPG-F) facility, capable of providing both dispatchable power and energy storage, can deliver 190% more power than a conventional CPG power plant for 8 hours while costing 70% more in capital, making it an efficient baseload power and dispatchable storage option.



Authors Jeffrey Bielicki. Share. Summary. We also present the potential for using geologically stored CO2 for bulk energy storage which could provide valuable time-shifting and other services to the power grid. We explore the promise and challenges of these technologies, identify key research gaps, and offer a critical appraisal of the role



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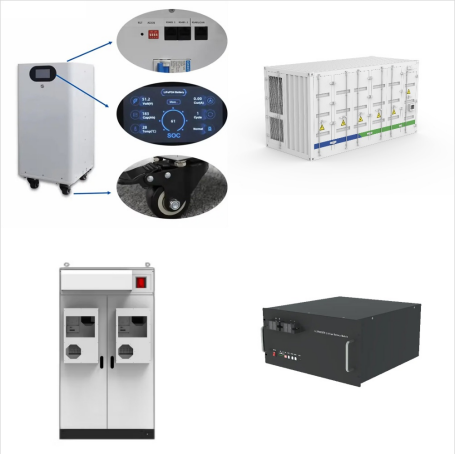

Storing large amounts of intermittently produced solar or wind power for later, when there is a lack of sunlight or wind, is one of society's biggest challenges when attempting to decarbonize energy systems. Traditional energy storage technologies tend to suffer from relatively low efficiencies, severe environmental concerns, and limited scale both in capacity and time. ???