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Emerging Fuels for Power Generation Assets

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Abstract
With increasing electricity demand from data centers and the growth in variable energy resources on the grid, the availability of dispatchable, flexible, and clean power generation resources could be critical for power sector reliability and resilience. The conversion of existing dispatchable fossil assets and future system designs to utilize clean emerging fuels such as hydrogen, ammonia, and renewable liquid fuels could help meet this need. In addition to reducing emissions, these emerging fuels may offer an opportunity to diversify fuel sourcing and improve energy security.

To this end, EPRI's Emerging Fuels for Power Generation program focuses on prime mover assets, including gas turbines (GTs), heat recovery steam generators (HRSGs), boilers, reciprocating internal combustion engines (RICE), and fuel cells. This presentation will provide an overview of EPRI's ongoing work to inform the safe, affordable, reliable and environmentally sustainable transition of current and future prime movers to emerging fuels. Examples of previous industry-leading EPRI projects include hydrogen, renewable diesel, and alcohol fuel demonstrations on a range of gas turbine, RICE, and boiler sizes. EPRI personnel were responsible for project management, fuel sourcing, test plan development, and on-site test execution, including criteria pollutant data collection and analysis. These valuable collaborations between fuel suppliers, OEMs, host utilities, and EPRI provided essential learnings for future emerging fuel system design, testing, and operation.