

On May 11, 2023, the U.S. Environmental Protection Agency (EPA) proposed new carbon pollution standards for coal and gas-fired power plants. The proposal sets limits for new gas-fired combustion turbines, existing coal, oil, and gas-fired steam generating units, and certain gas-fired combustion turbines. The proposed new source performance standards (NSPS) and emission guidelines reflect the application of the best system of emission reduction (BSER). In determining BSER, the EPA considers costs, energy requirements, and other statutory factors, and must ensure that the technology has been adequately demonstrated to improve the emissions performance of the covered electric generating units. Notes: BSER = best system of emission reduction; CCS = carbon capture and sequestration. The proposed definition of “low-GHG hydrogen” is hydrogen produced with less than 0.45kgCO₂e/kgH₂ overall well to gate emissions. *Source: EPA Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants Proposed Rule (May 2023).* —**Sonal Patel** is a senior associate editor at **POWER** magazine.

PROPOSED BSER LEVELS FOR 111(B)—NEW STATIONARY COMBUSTION TURBINES

Phase I (By date of promulgation or upon initial startup)	Phase II Beginning in 2032–2035	Phase III Beginning in 2038
Low Load Subcategory (Capacity Factor <20%)		
BSER: Use of low emitting fuels (e.g., natural gas and distillate oil) Standard: From 120 lb CO ₂ /MMBtu to 160 lb CO ₂ /MMBtu, depending on fuel type	No proposed Phase II or Phase III BSER component or standard of performance	
Intermediate Load Subcategory (Capacity Factor 20% to ~50%*) *Upper bound limit based on EGU design efficiency and site-specific factors		
BSER: Highly efficient simple cycle generation Standard: 1,150 lb CO ₂ /MWh-gross	BSER: Continued highly efficient simple cycle generation with 30% (by volume) low-GHG hydrogen co-firing beginning in 2032 Standard: 1,000 lb CO ₂ /MWh-gross	No proposed Phase III BSER component or standard of performance
Baseload Subcategory (Capacity Factor >~50%*) *Limit		
BSER: Highly efficient combined cycle generation Standard: 770 lb CO ₂ /MWh-gross (EGUs with a baseload rating of 2,000 MMBtu/h or more) Standard: 770 lb–900 lb CO ₂ /MWh-gross (EGUs with a baseload rating of less than 2,000 MMBtu/h)	Low-GHG Hydrogen Pathway BSER: Continued highly efficient combined cycle generation with 30% (by volume) low-GHG hydrogen co-firing beginning in 2032 Standard: 680 lb CO ₂ /MWh-gross CCS Pathway BSER: Continued highly efficient combined cycle generation with 90% CCS beginning in 2035 Standard: 90 lbCO ₂ /MWh gross	Low-GHG Hydrogen Pathway BSER: Co-firing 96% (by volume) low-GHG hydrogen beginning in 2038 Standard: 90 lb CO ₂ /MWh-gross CCS Pathway: No Phase III BSER component or standard of performance

PROPOSED BSER LEVELS FOR 111D—EXISTING COAL, OIL, AND NATURAL GAS-FIRED BOILERS AND LARGE, FREQUENTLY USED NATURAL GAS COMBUSTION TURBINES

Coal-Fired Boilers	Natural Gas and Oil-Fired Boilers	Natural Gas Combustion Turbines
For units operating past Dec. 31, 2039: BSER: CCS with 90% capture of CO ₂ (88.4% reduction in emission rate)	BSER: Routine methods of operation and maintenance with an associated degree of emission limitation of no increase in emission rate (lb CO ₂ /MWh-gross).	For turbines of more than 300 MW, and a capacity factor of more than 50%: CCS Pathway BSER: By 2035: highly efficient generation coupled with CCS with 90% capture of CO ₂ (90 lb CO ₂ /MWh)
For units that cease operations before Jan. 1, 2040, and are not in other subcategories: BSER: Co-firing 40% (by volume) natural gas with emission limitation of a 16% reduction in emission rate (lb CO ₂ /MWh-gross basis)		Low-GHG Hydrogen Pathway BSER: By 2032: highly efficient generation coupled with co-firing 30% (by volume) low-GHG hydrogen (680 lb CO ₂ /MWh)
For units that cease operations before Jan. 1, 2032, and units that cease operations after Jan. 1, 2035, that adopt enforceable annual capacity factor limit of 20%: BSER: Routine methods of operation and maintenance with associated degrees of emission limitation of no increase in emission rate		Low-GHG Hydrogen Pathway BSER: By 2038: highly efficient generation coupled with co-firing 96% low-GHG hydrogen (90 lb CO ₂ /MWh)