Power Plant Update
AAPCA – 4/26

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Final Carbon Pollution Standards to Reduce Greenhouse Gas Emissions from Power Plants

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Summary of Final Standards and Guidelines

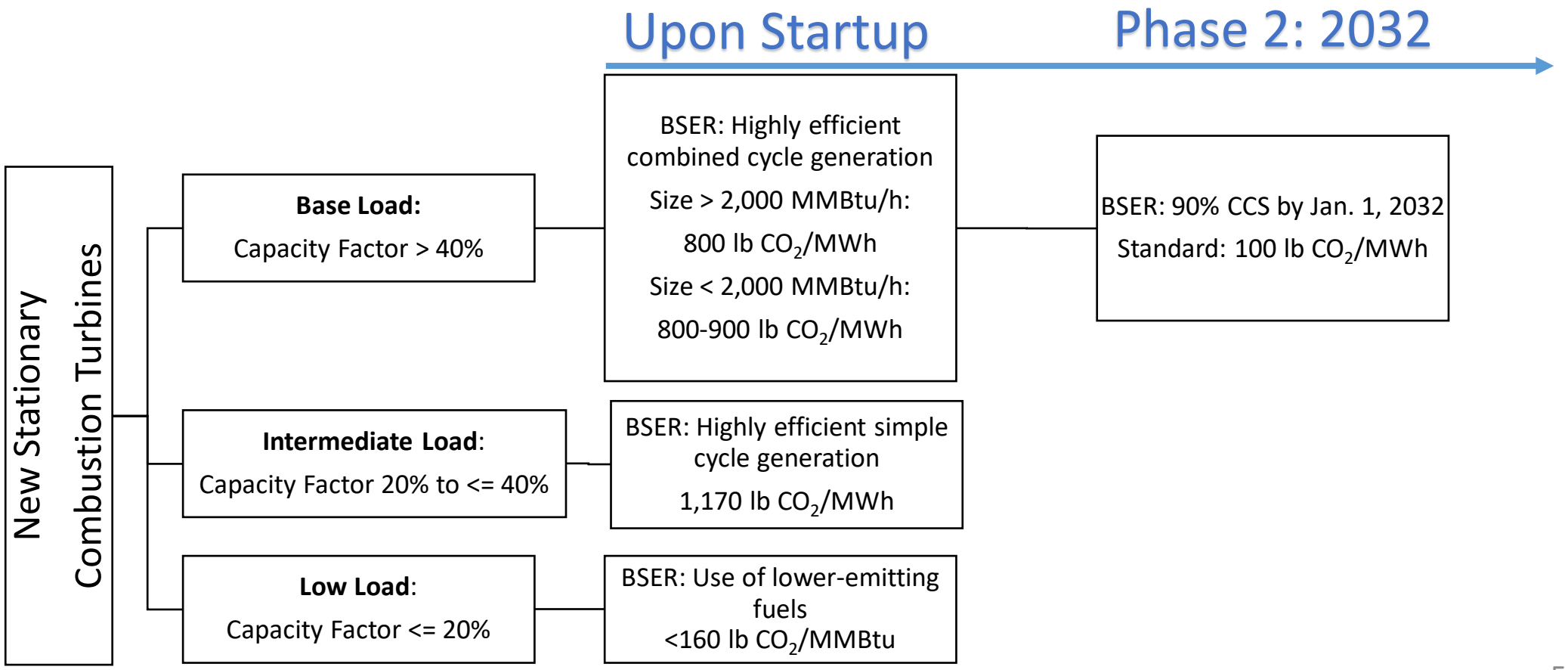
- **New gas-fired combustion turbines:**
  - Base load turbines (>40% capacity factor): initial "phase one" standard based on efficient operation of combined cycle turbine; "phase two" standard based on 90% capture of CO_2 with a compliance deadline of Jan. 1, 2032
  - Intermediate turbines (between 20% and 40% capacity factor): standard based on efficient operation of simple cycle turbine
  - Low load turbine (less than 20% capacity factor): standard based on low-emitting fuel
- **Existing coal-fired steam EGUs:**
  - "Long-term" units (plan to operate on or after Jan. 1, 2039): standard based on 90% capture of CO_2 with a compliance deadline of Jan. 1, 2032
  - "Medium-term" units (plan to operate on or after Jan. 1, 2032, with a commitment to cease operation before Jan. 1, 2039): standard based on 40% co-firing with natural gas with a compliance deadline of Jan. 1, 2030
  - Units that commit to cease operation by Jan. 1, 2032 are not subject to the rule
- **Existing oil and natural gas-fired steam EGUs:**
  - Standards based on routine operation and maintenance, with different levels of stringency for base load, intermediate, and low load units

Key Changes Since Proposal

- Existing coal-fired steam generating units
  - Two subcategories for existing coal-fired steam generating units – instead of four as proposed
    - "Long-term" units – plan to operate on or after Jan. 1, 2039
    - "Medium-term" units – plan to operate on or after Jan. 1, 2032 and permanently cease operation before Jan. 1, 2039
  - Providing an applicability exemption for units that plan to permanently cease operation by January 1, 2032
  - Extending the compliance date from January 1, 2030, to January 1, 2032, for existing coal-fired steam generating units to meet a standard of performance based on implementation of 90% CCS
- New combustion turbines
  - Have expanded applicability of most stringent "base load" standard to units operating above 40% capacity factor
  - Have moved compliance deadline for CCS-based standard for base load units to 2032 (was 2035 at proposal)
  - Have removed low-GHG hydrogen co-firing as a BSER pathway for base load and intermediate units
  - Minor changes to "phase one" efficiency-based standards for base load and intermediate units
- Adjustments for reliability
  - Revised subcategories, longer compliance timeframe for CCS installation, a suite of compliance options
  - Addition of two reliability-related instruments as an additional layer of safeguard to support power companies, grid operators, and states in maintaining the reliability of the electric grid during the implementation of these final rules.
- EPA is not finalizing proposed requirements for existing fossil fuel-fired stationary combustion turbines.

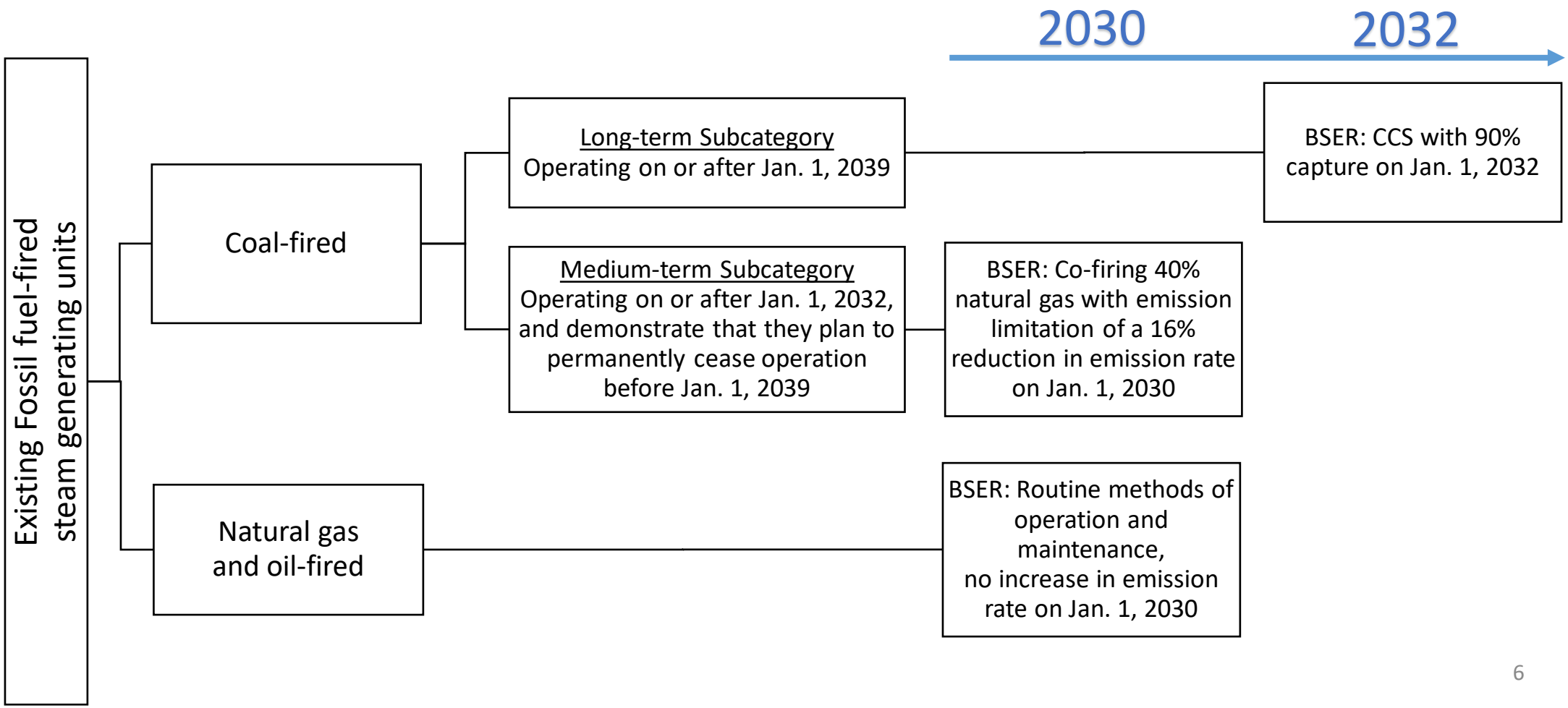
Final Standards for New Stationary Combustion Turbines

- Standards effective from date of proposal publication (May 23, 2023)
- Three subcategories: base load, intermediate load, low load
- Standards are technology neutral, affected sources may comply with it by co-firing hydrogen



Final Emission Guidelines for Existing Steam Generating Units

- Two subcategories for existing coal-fired units, depending on operating horizon: (1) Units operating on or after Jan. 1, 2039 and (2) Units that are operating on or after Jan. 1, 2032, and demonstrate they plan to permanently cease operation before Jan. 1, 2039
- Units that demonstrate they plan to permanently cease operations before Jan. 1, 2032 are not subject to these standards



State Plans for FINAL Emission Guidelines

State Plan Submission Deadline

- Submission within 24 months after publication of the final emissions guidelines

State Plan Components

- Requirements specific to these emission guidelines to ensure transparency, including a website hosted by EGU owners/operators to publish documentation and information related to compliance with the state plan

Compliance Deadlines

- January 1, 2030, or January 1, 2032, depending on subcategory
- Compliance must be demonstrated annually
- States may include a mechanism in their plans to extend the compliance date by up to one year for affected EGUs installing a control technology that experience and subsequently provide documentation of a delay entirely outside of the owner/operator's control (e.g., permitting- or construction-related) that makes it impossible to commence compliance by the compliance deadline

Meaningful Engagement

- General implementing regulations (Subpart Ba) apply, and require states to describe their meaningful engagement with pertinent stakeholders, including communities that are most affected by and vulnerable to emissions from these EGUs, and reliability authorities
- Helps ensure that the priorities, concerns and perspectives of these communities are heard during the planning process

State Plans for Final Emission Guidelines

Presumptive Standards of Performance

- For each subcategory, EPA has determined a BSER and degree of emission limitation and is providing a corresponding methodology for establishing presumptively approvable standards of performance
- Expressed as rate-based emission limitations (i.e., limitations on the amount of a regulated pollutant that can be emitted per unit of output, per unit of energy or material input, or per unit of time)

Remaining Useful Life and Other Factors (RULOF)

- As provided in subpart Ba, under certain circumstances, states may apply a less stringent standard to a particular source based on that source's remaining useful life and other factors
- RULOF is intended as a limited variance from the EPA's determinations to address unusual circumstances at particular facilities

Increments of Progress (IoPs) and Reporting Obligations

- Will serve as clear, transparent, and enforceable implementation checkpoints between state plan submittal and the compliance dates. Similarly, reporting obligations for affected EGUs that have demonstrated they plan to permanently cease operating provide transparency to stakeholders
- States may generally choose the calendar dates for their IoPs

State Plans for Final Emission Guidelines

Compliance Flexibilities

- States may incorporate compliance flexibilities, such as emission averaging, trading, and unit-specific mass-based compliance, into their state plans, subject to parameters laid out by EPA in the emission guidelines, including:
  - For mass-based compliance flexibilities, EPA is requiring the use of a backstop emission limitation applied to individual sources
  - EPA is providing a presumptively approvable methodology for unit-specific mass-based compliance for affected EGUs in the long-term coal-fired subcategory
- If a state chooses to incorporate compliance flexibilities into their state plans, the state must demonstrate that the plan achieves a level of emission reduction equivalent to each source individually achieving their rate-based standard of performance, and the state must document and justify any assumptions underlying the calculation of the aggregate standard of performance or mass limit/budget
- EPA believes that the use of compliance flexibilities, within the parameters specified in the emission guidelines, can create an incentive for overperformance and may also provide some additional operational flexibility to states and affected EGUs in achieving the required level of emission reduction

Mercury and Air Toxics Standards (MATS) for Coal-Fired Power Plants

Review of the 2020 Residual Risk and Technology Review (RTR) Final Rule

April 25, 2024

Final Rule Strengthens MATS

- Particulate Matter (PM) standard used as a surrogate for non-mercury HAP metals, and compliance demonstration requirement:
  - Tighter filterable particulate matter (fPM) standard of **0.010 lb/MMBtu**
    - **Strengthens by 67 percent** compared to 2012 MATS standard of 0.030 lb/MMBtu
- Require all sources to use PM Continuous Emissions Monitoring Systems (PM CEMS) to demonstrate compliance
    - 0.010 lb/MMBtu is the lowest possible fPM limit where PM CEMS can provide valid and enforceable data
- Mercury (Hg) standard for lignite-fired EGUs
  - Tighter Hg emission standard of **1.2 lb/TBtu**
    - **Strengthens by 70 percent** compared to 2012 MATS standard of 4.0 lb/Tbtu
    - 1.2 lb/TBtu is the standard that must be met by all non-lignite-fired EGUs
- Remove startup definition #2

Startup Requirements

- MATS had two options for defining startup:
  - Definition #1: startup ends when steam is used for generation or any on-site purpose
    - requires use of clean fuels for ignition and control device use when coal/oil combustion begins (except for dry scrubber or selective catalytic reduction units, which come online as conditions allow)
  - Definition #2: startup ends 4 hours after the start of generation of electricity or useful thermal energy
    - operators must provide records of clean and non-clean fuel use, load characteristics, as well as exhaust flow and PM control device parameters
- **Final Rule:** Removes startup definition #2