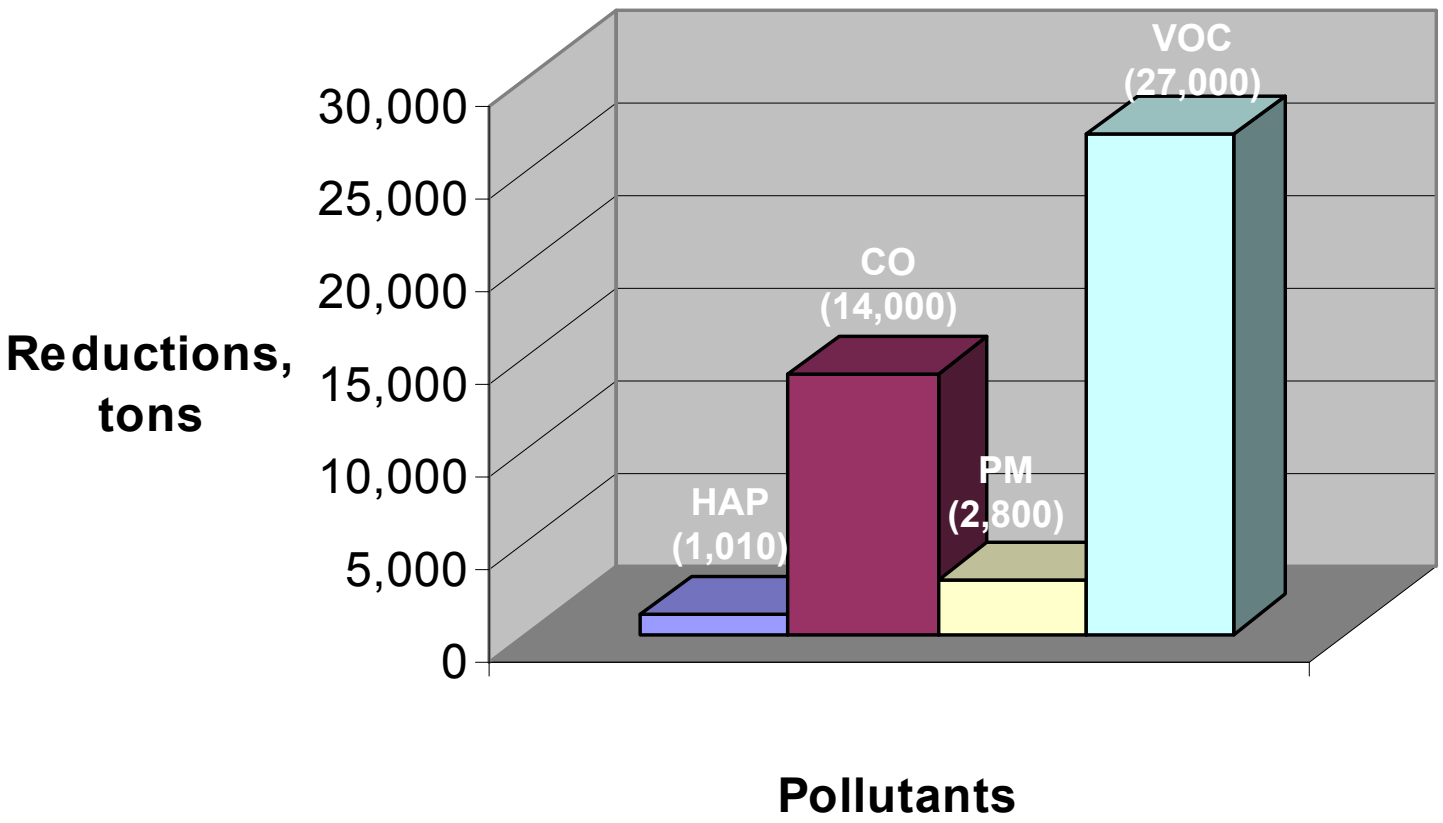
# Impacts of the RICE Rule

- Over 900,000 existing CI engines estimated to be impacted
- 80% of those are emergency engines

## Emission Reductions for 2013 (Estimated)



# Estimated Control Costs

- For the year 2013:
  - Capital costs: $744 million
  - Annual costs: $373 million

# Estimated Annual Benefits
## (based on $PM_{2.5}$ & precursor reductions)

- ~ 110 - 270 fewer premature deaths
- Dozens fewer
  - Hospital/ER visits
  - Cases of severe health effects (e.g., chronic bronchitis, heart attacks)
- Thousands fewer minor respiratory symptoms
- These benefits ≈ $940M to $2.1B annually

# Emergency Engine Requirements

- No limits on hours of operation for emergency service
- Maintenance checks & readiness testing limited to 100 hrs/yr

# Emergency Engine Requirements

- 50 hrs/yr allowed for non-emergencies, but:
  - Counts as part of the 100 hr/yr maintenance & testing limit
  - Not for peak shaving, or generating income
  - Up to 15 of the 50 hrs/yr can be used for demand response in emergency situations (e.g., imminent blackout)

# RICE = Reciprocating Internal Combustion Engines

- There are two types of RICE:
  - CI = Compression Ignition (diesel)
  - SI = Spark Ignition (gas-fired)
- Stationary version of car/truck engines
- Used to drive compressors, pumps, electric generators & other equipment

# Examples of RICE

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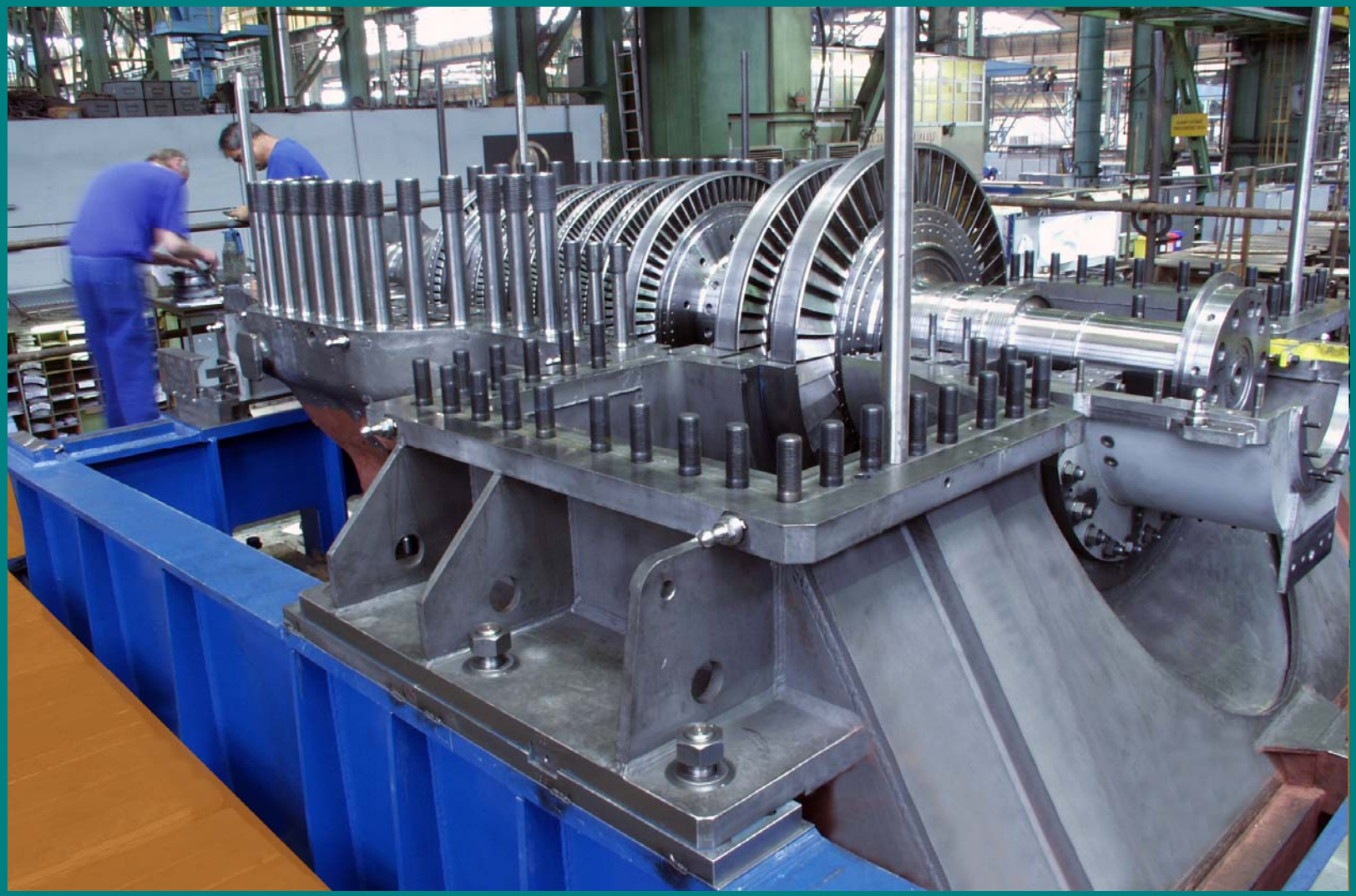
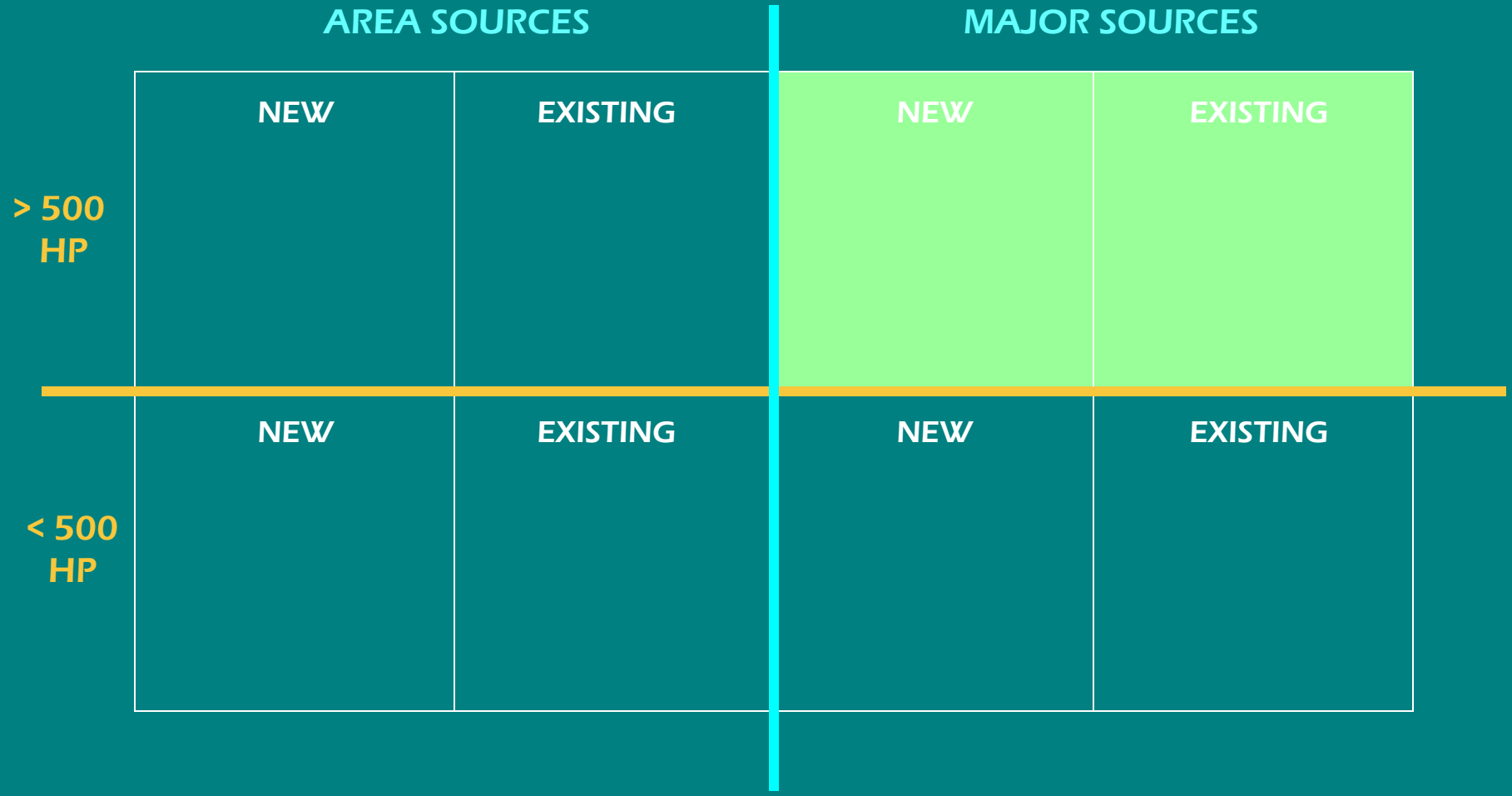


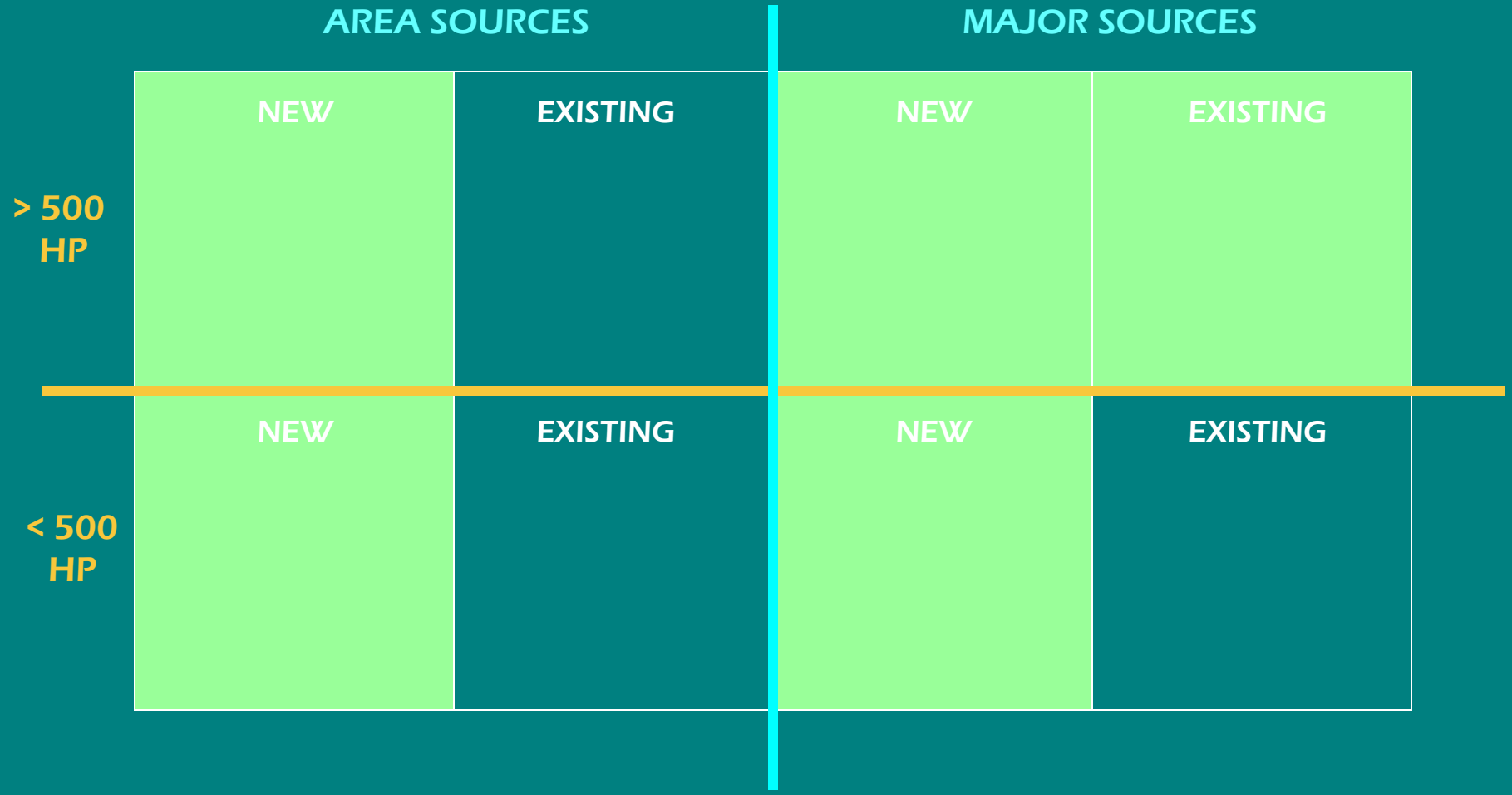
# Examples
## (soundproofed generator)

# RICE NESHAP: 2004




Covered engines > 500 HP located at major sources

# RICE NESHAP: 2008




Added new engines ≤ 500 HP located at major sources, plus all new engines at area sources

# This newest rule covers

- Existing engines:
  - < 500 HP at major sources
  - Of any size at area sources
  - Non-emergency engines > 500 HP at major sources (due to a consent decree)

# Just to clarify . . .

- Proposed rule (March 5, 2009) covered both CI & SI engines
- Final rule issued in two parts:
  - CI engines: covered by rule we're discussing **today**
  - SI engines: covered by rule to be signed August 10, 2010

# Standards and Requirements: Three Groups

- Non-emergency engines > 300 HP
- Non-emergency engines 100 - 300 HP at major sources
- Engines that are
  - < 100 HP at major sources
  - < 300 HP at area sources
  - All emergency engines (major / area sources)

# Non-emergency engines > 300 HP: Emission Standards

- Numerical CO emission limits
  - based on oxidation catalyst controls
- Operating limitations for engines >500 HP
  - Catalyst pressure drop & inlet temperature
- Ultra-low sulfur diesel (15 ppm S content)
  - if displacement <30 liters/cylinder
- Crankcase emission control requirements

# Non-emergency Engines > 300 HP Performance Testing

- Initial performance test to show compliance
- Initial test + subsequent testing every 8,760 hours of operation or 3 years for engines >500 HP

# Non-emergency engines > 300 HP Monitoring & O/M Requirements

- Operate/maintain crankcase controls per manufacturer's instructions
- For engines > 500 HP:
  - Continuous monitoring of catalyst inlet temperature
  - Monthly catalyst pressure drop checks

# Non-emergency Engines 100 - 300 HP at Major Sources:

- Emission Standards: numerical CO emission limits
- Initial performance test required

# < 100 HP @ Major Source, ≤ 300 HP @ Area Source, & All Emergency Engines

- At major sources, work practice standards for:
  - Engines < 100 HP
  - Emergency engines
- At area sources, management practice standards for:
  - Engines ≤ 300 HP
  - Emergency engines

# What Are Work/Management Practices?

- Change oil/filter, inspect air cleaner, hoses & belts on prescribed schedule
- Operate/maintain engine & control device per mfr's instructions or owner-developed maintenance plan
- May use oil analysis program instead of prescribed oil change frequency
- Emergency engines must keep records of hrs of operation & install hour meter

# Recordkeeping & Reporting for Non-emergency Engines*

- Submit:
  - Semi-annual compliance report
  - Initial notification
  - Notification of performance test
  - Notification of compliance
- Keep records of maintenance

***For engines**
**≥ 100 HP at major sources**
**and >300 HP at area sources**

# Recordkeeping & Reporting

- For emergency engines:
  - Record hours of operation
  - Keep maintenance records
  - No notifications required
- If <100 HP at major source / ≤ 300 HP at area source:
  - Keep records of maintenance

# Emergency Engines at Residential, Institutional, or Commerical Area Sources

- Guidance for determining if a facility is one of these types of sources coming soon
- Engine **must** meet definition of an emergency engine

# Startup, Shutdown, & Malfunction Requirements

- Initially, compliance was not required in such circumstances
- Dec 2008 D.C. Circuit Court vacated exemption in General Provisions

# Startup, Shutdown, & Malfunction: Response to Court Decision

- Emission standards apply during shutdowns & malfunctions
- Startup & idling time must be kept to 30 minutes or less
- Also applies to engines covered by 2004 and 2008 RICE rules
- Removed requirement for S/S/M plan

# Key Dates:

- Compliance date:  May 3, 2013
- Existing sources must comply with startup/shutdown/malfunction requirements as of  May 3, 2010

# Implementation Materials

- Go to http://www.epa.gov/ttn/atw/rice/ricepg.html
  - Sample notification available now
  - Flow charts & compliance requirement summaries coming this summer

# REMEMBER . . .

- Final rule on spark ignition engines to be signed 8/10/10