

# NACT 334

## CLASS EXERCISE: TOP-DOWN BACT

### Instructions

Using top down BACT conduct BACT analysis for the attached example.

#### Step 1

- **Identify** control technologies
  - Low emitting processes
  - Add-on controls
  - Combination of the two

#### Step 2

- **Eliminate** technically infeasible options
  - Clearly show that the physical, chemical, and/or engineering principles preclude the successful use of that option
  - Considerations include availability and/or applicability

#### Step 3

- **Rank** technologies by order of control efficiencies
  - Use common units
  - Focus on the maximum control

#### Step 4

- **Evaluate** from the Top-Down
  - Select most effective option, based on energy, environmental and economic concerns
  - Consider direct energy consumption
  - Focus on energy required for the control and not for manufacturing
  - BACT is based on the cost of controls and not the economic impact on the facility

#### Step 5

- **Select** the most effective option that has not been rejected
  - Cost-effectiveness is usually measured and referred to in terms of dollars per ton of pollution removed

#### Remember:

- **The BACT analysis must be performed on a pollutant-by-pollutant basis**
- **BACT is part of the cost of doing business**
- **The affordability to the applicant is not a proper consideration**

# BACT Exercise 1

A company proposes to install a new 100 MMBtu/hr boiler at an existing major stationary source for NO<sub>x</sub> that triggers BACT. The applicant has proposed a boiler that uses Flue Gas Recirculation (FGR) control and emits 60 ppm (0.072 lb/MMBtu) NO<sub>x</sub> as BACT.

AP-42 uncontrolled emission factor for this size boiler is 115 ppm (0.14 lb/MMBtu).

The agency has identified additional Controls and with the following budget cost estimates from the manufacturers' representatives:

Selective Catalytic Reduction (SCR) – post combustion 90% reduction (0.014 lb/MMBtu).

Capital cost 5,000,000 operating cost \$50,000 per year.

Low NO<sub>x</sub> burner 30 ppm (0.036 lb/MMBtu) Capital cost \$270,000 operating cost 2000/year.

Assume Annualized Cost = 20% of capital cost.

Conduct the top down BACT analysis. (see handout)

What would be required as BACT in YSAQMD?

What would be required as BACT in SDAPCD?

What would be required as BACT by your agency?

Bonus: If this were in a non-attainment area what would be required as LAER?