Day 1: History and Background; RACT (RACM/BACM) determination process	**Time**
· Welcome to the course. Logistics, introductions of course instructors, learning objectives	5
· Clean Air Act structure. Focus on where control technology requirements exist, especially RACT/BACT/LAER	20
Why Control NOx?	15
FTP Intro	5
Basics of NOx formation and NOx control	60
break	30
Calculating Nox Emissions and Nox Control	30
Exercise - accounting for NOx control in PTE calculations.	15
· History and definitions of RACT, BACT, and LAER and when each is each required.	20
RBLC - uses and caveats/dangers, how best to use it in analysis	15
break	10
· The role of RACT in SIP planning and the relationship between RACT and Reasonably Available Control Measure (RACM) requirements. · RACT review process, anti-backsliding provisions, and state/local discretion.	15
· Source types subject to NOx RACT and status of adoption of RACT measures for those sources in states, measures adopted, state-to-state consistency.	15
break	10
·Brief overview of source types subject to VOC RACT	10
Monitoring - CEMS and converting wet to dry, X% oxygen to Y% oxygen	20
Introduce homework exercise (add -review GHG Gas Turbine white paper)	5
Total Day 1:	300

Day 2: BACT and LAER; NOx control technology options for specific source categories	**Time**
Welcome back, logistics reminder, review of today's topics, any questions - review HW?	10
Review homework exercise	10
Overview of permit types. Before we get into BACT and LAER, refresh attendees about PSD vs. NNSR vs. minor source.	20
BACT and LAER · How BACT and LAER are determined: § Multi step BACT process	25

§ Example determinations for source categories of interest	20
break	30
Review of top-down BACT determinations: cost-effectiveness, tech feasibility,…	20
§ How do states interpret BACT (e.g., cost thresholds in BACT determinations, consideration of new technologies and alternative production processes/sites/sizes).	25
§ Enforceability basics	20
break	10
§ Multi step LAER process	20
Made up LAER example where they review what submitted to agency - completeness? Feasibility?	20
break	10
· Discussion of control technologies, including Selective Non-Catalytic Reduction (SNCR), Advanced SNCR, and Selective Catalytic Reduction (SCR); - Qualitative discussion of older technologies*, including: low NOx burners, ultra-low NOx burners, oxygen trim monitoring, water injection, flue gas recirculation, over-fire air and under-fire air; - Qualitative discussion of Nonselective Catalytic Reduction (NSCR), fuel injection timing retard, and other engine modifications.	30
Engine Control Exercise	15
Introduce homework exercise	5
Total Day 2:	290

Day 3: Class Exercises for up to five source categories	**Time**
Intro / Review homework exercise	15
· RACT exercise IC Engines (group)	55
break	30
· BACT exercise for engines	50
break	10
· BACT exercise for turbines	50
· LAER exercise for boilers	50
· Post Test/discussion of answers.	30
· Class Evaluation	10
Total Day 3	300