From EPA's "Clean Air Fine Particle Implementation Rule"
FR Vol.72 No.79, April 25, 2007

Section II.F. "Reasonably Available Control Technology and Reasonably Available Control Measures" (pp 20609-20633)

Summary of FR notice:

1. Background on Statutory Requirements for RACT and RACM

Section 172 of the CAA requires that each attainment plan "provide for the implementation of all reasonably available control measures as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology), and shall provide for attainment of the NAAQS"

EPA interprets RACM as referring to measures of any type that may be applicable to a wide range of sources (mobile, area, or stationary), whereas RACT refers to measures applicable to stationary sources. Thus, RACT is a type of RACM specifically designed for stationary sources.

Section 172 does not include any specific applicability thresholds to identify the size of sources that States and EPA must consider in the RACT and RACM analysis.

2. What is the Overall Approach to Implementing RACT and RACM?

EPA has determined that, for implementation of the PM2.5 NAAQS, RACT may vary in different nonattainment areas based on the reductions needed for attainment as expeditiously as practicable.

EPA's final rule requires States to conduct an analysis to identify RACT for all affected stationary sources. States can thereafter determine that RACT does not include controls that would not otherwise be necessary to meet Reasonable Further Progress requirements or to attain the NAAQS as expeditiously as practicable (this would be shown through modeling.)

RACT would be determined as part of the broader RACM analysis, and identification of all measures (for stationary, mobile, and area sources) that are technically and economically feasible, and that would collectively contribute to advancing the attainment date (if possible, by at least one year.)

Because RACT is included within RACM, there is no minimum emission threshold for evaluation of stationary source RACT.

In general, the combined approach to RACT and RACM includes the following steps:

- identification of potential measures that are reasonable
- modeling to identify the attainment date that is as expeditious as practicable
- selection of RACT and RACM

For each technologically feasible control technology or measure, the State should provide the following information:

- control efficiency, by pollutant (PM2.5, SO_2, NO_X, VOC, CO)
- possible emission reductions by pollutant
- estimated $/ton reduced
- date by which the measure could be reasonably implemented

3. Observations and Considerations in Determining RACT and RACM? …not much to summarize here

4. What Factors Should States Consider in Determining Whether an Available Control Technology or Measure is Technically Feasible? …not much to summarize here

5. What Factors Should States Consider in Determining Whether an Available Control Technology or Measure is Economically Feasible?

Similar sources may have different marginal costs, profit margins and abilities to pass costs through to the consumer. These factors are appropriate to consider.

One available reference for calculating costs is the EPA Air Pollution Control Cost Manual (6th edition; EPA 452/B-02-001.)

The cost effectiveness of a technology is expressed as its annualized cost divided by the emissions reduced per year ($/ton.) Where multiple control options exist, States should consider not only the $/ton associated with each, but the incremental cost effectiveness between the options as well.

6. What Specific Source Categories and Control Measures Should a State Evaluate When Determining RACT and RACM for a Nonattainment Area?

EPA recommends using the list of source categories as a starting point… (point/area/mobile) They then cite a few examples of control technologies… for stationary sources:

- Stationary diesel engine retrofit, rebuild or replacement, with catalyzed particle filter
- New or upgraded emission control requirements for primary PM2.5 (e.g. new or better baghouses or ESPs, revsed opacity standards, improved compliance monitoring)
- Better capture of fugitive emissions so they can be routed to a control device (e.g. roof monitors)

- New or better controls of precursor gasses (sulfur scrubbers, low-sulfur fuels)
- Energy efficiency measures to reduce fuel consumption
- Measures to reduce fugitive dust from industrial sites

Noted also are some Category-Specific Guidelines on innovative approaches… they give some examples and point to a web site (http://www.epa.gov/ttn/airinnovations/measures_specific.html)

7. How Should States Consider EGU Reductions for CAIR in Meeting RACT/RACM Requirements? …doesn't really apply to Utah

8. What Are the Required Dates for Submission and Implementation of RACT?

States must submit adopted RACT rules to EPA at the same time the SIP (with its attainment demonstration) is due… three years after the effective date of nonattainment.

Implementation of RACT measures should in no case start later than the beginning of the year before the nominal attainment date. [The attainment date can range anywhere from 2 – 7 years after the SIP is due. Thus, if Utah gets an area designation somewhere in 2009, the SIP would be due in 2012, and the attainment date would range between 2014 and 2019… meaning that RACT would be due between 2013 and 2018.]

If our attainment date(s) is later than the earliest edge of the window, we will also need to show Reasonable Further Progress (RFP.) This means that we are showing progress toward an acceptable rate of emissions, and would probably imply that RACT measures need to be phased in… in other words, it couldn't all wait 'till the deadline.

9. Which Pollutants Must Be Addressed by States in Establishing RACT and RACM Limits in Their PM2.5 Attainment Plans?

Primary PM2.5 is obviously one of the pollutants, but there are also precursor gasses to consider. Here's the story on each:

- SO_2 – is assumed to be a precursor in all cases
- NO_X – is assumed to be a precursor unless the State can prove otherwise… in our case, we will consider it as a precursor and RACT will be applied
- VOC – is assumed <u>not</u> to be a precursor unless the State says otherwise… in our case, we will most likely consider it as a precursor and RACT will be applied
- NH_3 – is assumed <u>not</u> to be a precursor unless the State says otherwise… in our case, we will most likely consider it as a precursor
- CO is considered by the air quality model in its evaluation of the chemistry, but it is not mentioned in the guidance… RACT will probably not be required for CO

10. Under the PM2.5 Implementation Program, When Does a State Need To Conduct a RACT Determination for an Applicable Source that Already Has a RACT, BACT, LAER, or MACT Determination in Effect?

SIPs for PM2.5 must assure that the RACT requirement is met, either through a new RACT determination or a certification that previously required RACT controls (e.g. for another pollutant… say PM10) represent RACT for PM2.5.

The State would need to support such a certification with the appropriate documentation.

With respect to prior technology determinations other than RACT, the rule provides:

- Prior BACT and LAER determinations, in many cases but not all, would assure at least RACT level controls (the same holds true for municipal waste incinerators.) States may rely on information gathered from prior BACT or LAER analyses to make this determination.
- MACT standards affecting VOC - where a State has determined VOC to be a significant contributer to PM2.5, compliance with MACT standards may be considered in VOC RACT determinations. States should assess whether VOCs are well controlled under the applicable MACT, which source components have MACT controls, and whether there have been any new developments in technologies or costs. EPA thinks it will be unlikely that States can do much better than what the MACT controls currently require.
- MACT standards affecting PM2.5 – (where control of particulate may be a surrogate for control of hazardous metals) …same story as above.

Seasonal controls are acceptable in Utah where PM and Ozone violations occur in winter and summer respectively.

11. How Should Condensable Emissions Be Treated in RACT Determinations?

In general, condensable emissions are taken into account wherever possible in emission factors used to develop national emission inventories, and States are required under the consolidated emissions reporting rule (CERR) to report condensable emissions in each inventory revision.

EPA is in the process of developing a new stack test method to quantify and characterize both filterable and condensable emissions.

12. What Criteria Should Be Met To Ensure Effective Regulations To Implement RACT and RACM?

After the State has identified a RACT or RACM strategy, it must then implement that measure through a legally enforceable mechanism that must meet four important criteria:

- The baseline emissions from the source or source category and the future year projected emissions must be quantifiable.
- There must be clear, unambiguous and measurable requirements. When feasible, periodic source testing should be used to verify the required emission limits.
- Compliance with the measures must be specific and non-subjective
- The control measures must be permanent and must reflect the assumptions used in the SIP. They must be adopted according to proper legal procedures.

This would be the final step in a process that begins here, with the identification of possible control options, transitions into a modeled demonstration of an overall control strategy, and then becomes a legally enforceable agreement reflecting the assumptions made in the SIP.