

Cholla Power Plant & EPA's Regional Haze Rules

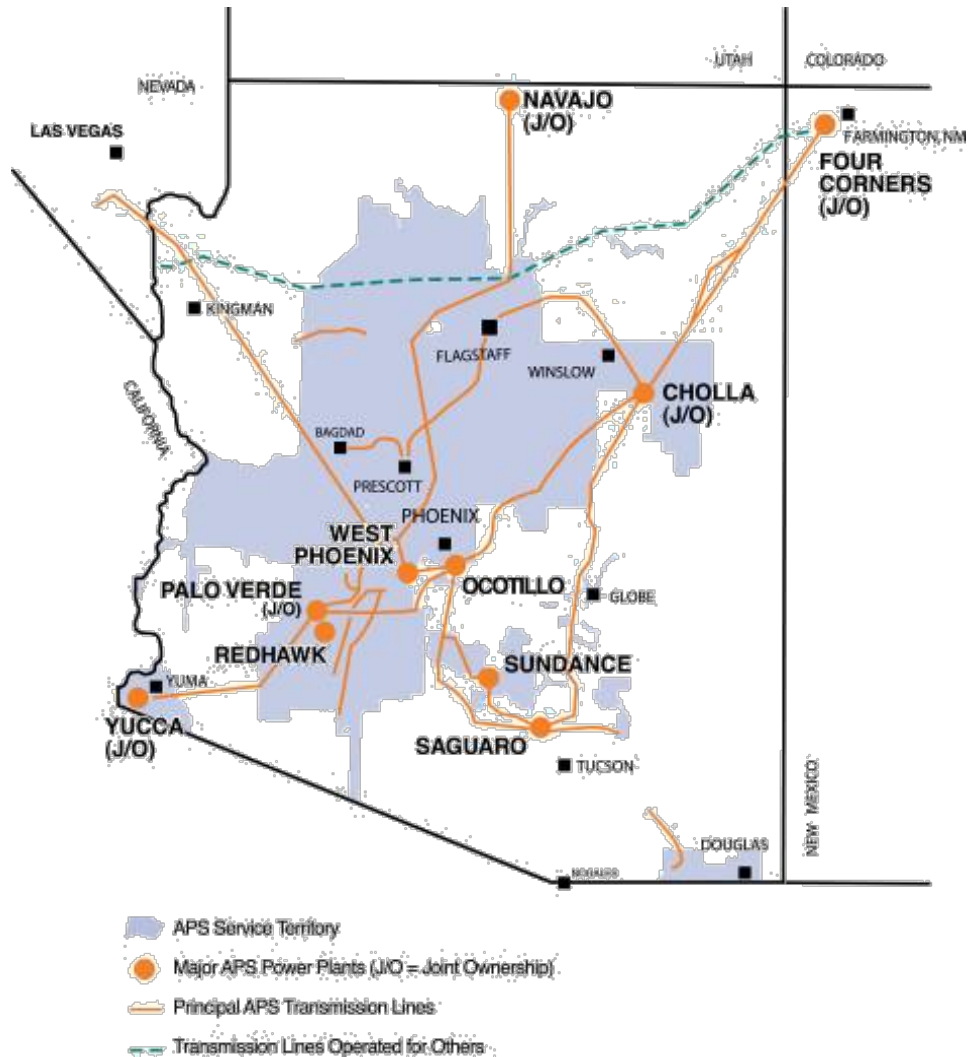
Little Colorado River Plateau Resource
Conservation & Development Area, Inc.

6th Annual Winter Watershed Conference
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Ann Becker



The APS System



Arizona Public Service Company: Cholla Power Plant

- 4 generating units
- 1,027 megawatts (250,000 Arizona homes)
- 264 employees
- \$29M in annual payroll
- \$30M in products and services
- \$15M in state, local and federal taxes
- \$103,000 plant and employee contributions to United Way





Cholla Power Plant: Recent Pollution Control Project Upgrades

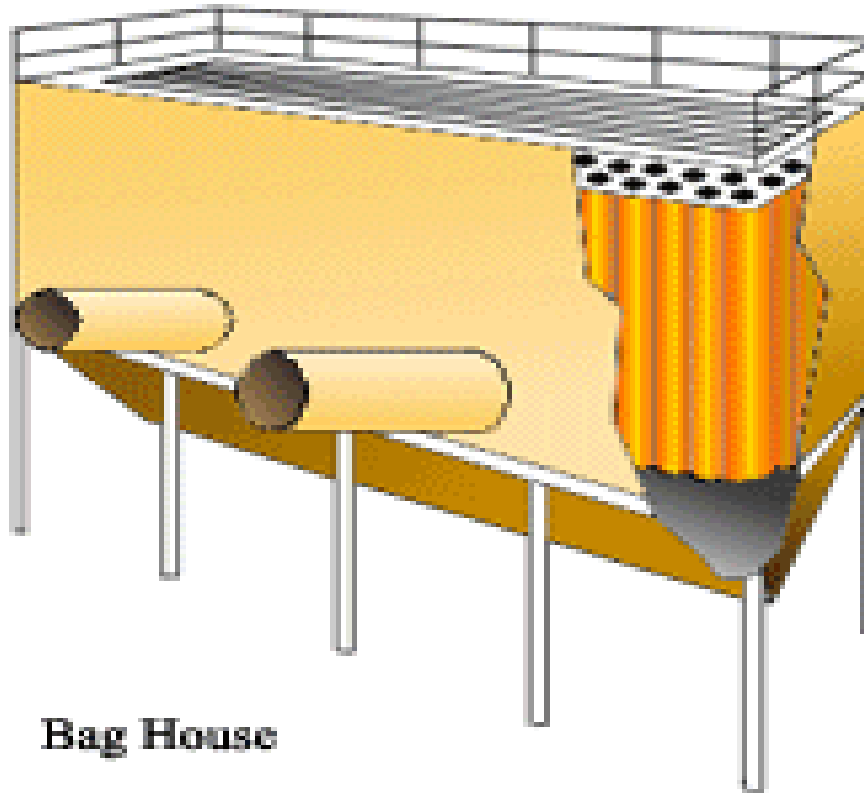
Unit	Year	Project	Pollutant	% Reduction	Cost
1	2007	LNB/SOFA	NOx	56%	\$4.5M
	2007	Fabric Filter	PM	99.9%	\$22.8M
	2007	FGD	SO2	90%	\$5.2M
2	2008	LNB/SOFA	NOx	42%	\$4.5M
4	2008	LNB/SOFA	NOx	56%	\$4.9M
	2008	Fabric Filter	PM	99.9%	\$70.1M
	2008	FGD	SO2	93.7%	\$67.0M
3	2009	LNB/SOFA	NOx	56%	\$4.0M
	2009	Fabric Filter	PM	99.9%	\$66.9M
	2009	FGD	SO2	93.7%	\$70.9M

Since 2007, plantwide emissions have reduced as follows:

- SO2: 67% reduction
- NOx: 25% reduction
- PM: 14% reduction

Total capital expenditure for projects: \$324M

Particulate Matter Control: Cholla Unit 4 Fabric Filter Layout



Bag House

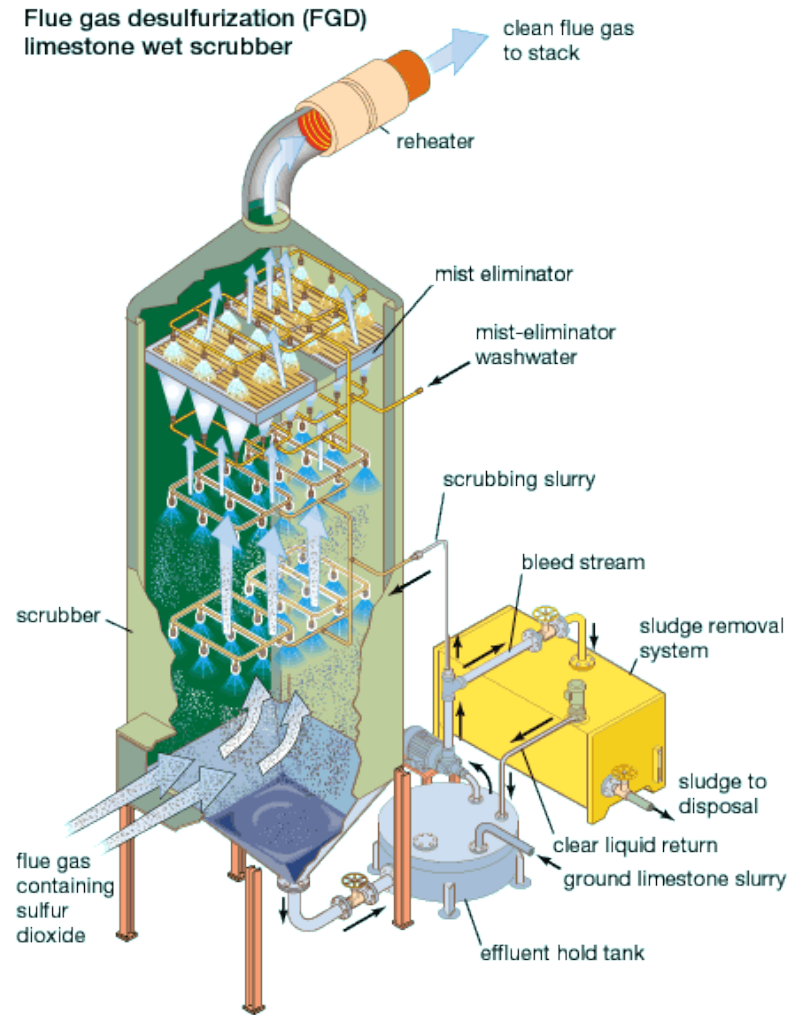
Particulate Matter Control: Cholla Unit 4 Fabric Filter



SO₂ Control: FGD (Flue Gas Desulfurization)



Scrubbers



SO₂ Removal

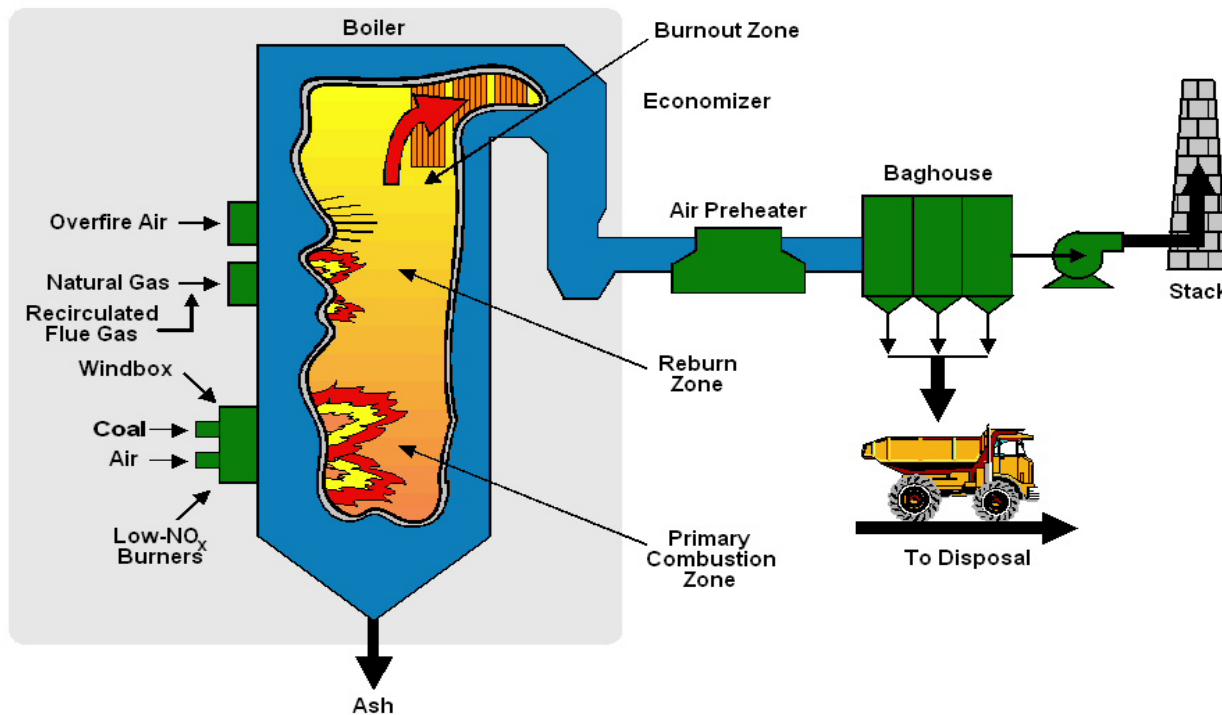
NO_x Control

Low NO_x Burners:

Reduces flame temperature and thus less NO_x formation

Overfire Air:

Allows for more complete combustion and thus less NO_x



Regional Haze

What is regional haze?

- Produced by many sources
- Human caused and natural sources
- Primarily caused by particulates and sulfates (nitrates from NO_x contribute < 5% to haze in southwestern US)
- Across broad geographic areas
- Transported great distances
- Measured in deciview (DV) units
 - 1 dv is threshold for perceptible to the human eye (is equal to about 5% opacity)



0 DV impairment



10 DV impairment



Regional Haze


How is regional haze regulated?

- Clean Air Act “Regional Haze / BART” program
- BART = Best Available Retrofit Technology
- Sole purpose of program: improve visibility in national parks and wilderness areas (*aesthetic* program, not health program)
- EPA’s rules: sources must conduct analysis (a “BART” analysis) of whether cost-effective pollution controls will visibly reduce haze
- The decision must be based on five factors:
 - Visibility improvement
 - Costs
 - Existing controls
 - Remaining useful life of existing equipment
 - Energy and non-air quality environmental impacts (including *local economic impacts*)



Regional Haze Program in Arizona

- 2005: EPA's Regional Haze rule required states to submit State Implementation Plans by 2007
- 2007: ADEQ requested APS to conduct analysis for Cholla Power Plant
- 2008: APS conducted analysis for Cholla Units 2-4
 - Unit 1 not BART-eligible due to unit's age
 - BART-eligible means operational after August 7, 1962 and in existence on August 7, 1977
 - Cholla Unit 1 commenced operation on May 1, 1962
 - Analysis showed that existing controls constituted BART for SO₂, PM and NO_x emissions
- 2010: APS submitted updated BART analysis for Cholla
- 2011: ADEQ reviewed APS analysis and agreed with conclusions
 - ADEQ submitted regional haze SIP to EPA on February 28, 2011



EPA's Response to ADEQ SIP: Proposed FIP

- July 2, 2012:
 - EPA rejected ADEQ's proposed Cholla BART determination for NO_x
 - EPA instead proposed Selective Catalytic Reduction (SCR) technology on Cholla Units 2, 3 and 4
- Total APS cost to implement EPA's proposed rule: \$436M
 - Unit 2 Scrubbers and Fabric Filter \$129M
 - Units 2 & 3 SCR \$182M
 - Unit 4 SCR \$125M
- September 2012: APS filed legal and technical comments opposing EPA's proposal



EPA's Final FIP for Cholla

- Dec. 5, 2012: EPA issued final FIP for Cholla
 - Disapproves the portions of the ADEQ SIP concerning controls at Cholla (overrules ADEQ)
 - Requires SCRs by Dec. 5, 2017 (five years)
 - Imposes 0.055 lb/mmBtu NO_x emission limit
 - Imposes new 95% removal efficiency requirement for SO₂



APS's Position

- EPA over-stepped its authority in rejecting ADEQ's BART determination
 - The Clean Air Act gives ADEQ the primary responsibility to determine BART
 - EPA's rule fails to give proper deference to ADEQ
- EPA failed to compare the costs of controls and the resulting visibility benefits, as required under the Act and EPA's own rules
- Retrofitting SCRs on Cholla units will not produce any perceptible improvement in visibility in the region
- Proposed NO_x limit is unachievable; no coal plant has ever achieved the NO_x rate EPA proposed for Cholla



Next Steps

- ADEQ is expected to file lawsuit against EPA
- APS, SRP and AEP Co are evaluating filing lawsuits against EPA