Dry Scrubbing

McIlvaine, Inc. Webinar

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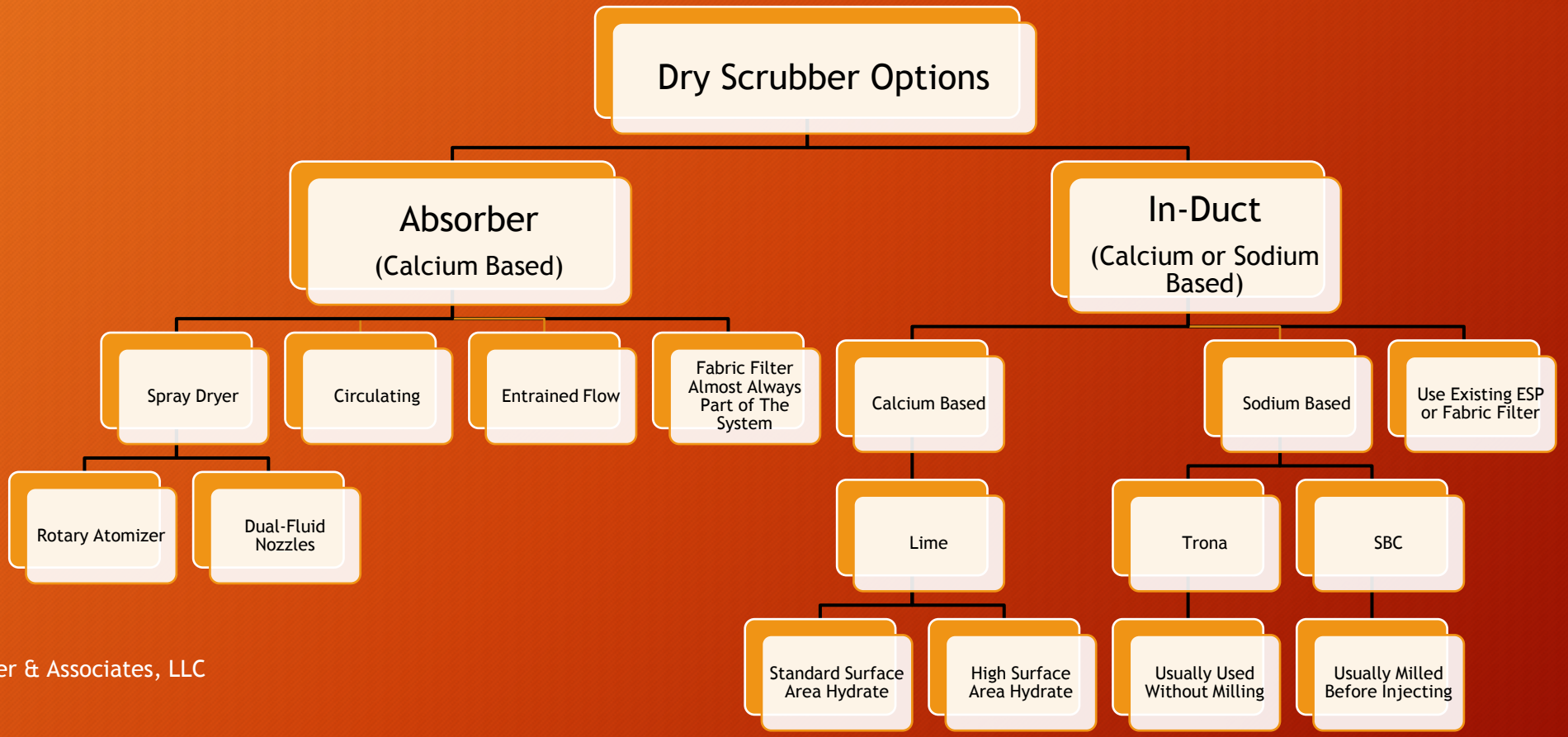
Dry Scrubber Options



Spray Dryer/Fabric Filter Systems Have Been Operating On Coal Fired Power Plants Since The 1980's

- Approximately 50 Spray Dryer/Fabric Filter systems in operation on coal-fired Utilities in the US
- Largest single module ~300 – 400 MW
- Reagent - Lime slurry
- Slurry atomized in spray dryer
- Fabric filter separates particulates
- Byproduct of reaction – Natural oxidation – predominantly calcium sulfite

Photo Courtesy of Babcock & Wilcox

Circulating Dry Scrubbers Are Now Being Installed On Coal-Fired Power Plants Around The World

- Approximately 10 CDS/Fabric Filter systems in operation on coal-fired Units in the US
- Largest single module ~400 MW
- Reagent – Hydrated lime powder
- Hydrated lime and water injected separately into CDS
- Fabric filter separates particulates
- Byproduct of reaction – Natural oxidation – predominantly calcium sulfite

Photo Courtesy of Gainesville Regional Utilities

Which Dry Scrubber Technology Do I Choose?

Technology	Capital Cost	Operating Cost (At Same Removal Level)	SO2 Removal Capability	Load Flexibility
Spray Dryer	2	1	2	2
Circulating Dry Scrubber	3	2	3	1
Dry Sorbent Injection	1	3	1	3

1 = Lowest 2 = Medium 3 = Highest

Selection of Dry Scrubber Technologies

- The installed base of spray dryer/fabric filter systems is larger than the present base of circulating dry scrubber/fabric filter systems.
- Many Dry Injection systems are being installed
- CDS/FF systems have an advantage in SO_2 removal capability and fuel flexibility
- SDA/FF systems have an advantage in load flexibility, lime consumption, and an experience "base" [But experience base of CDS systems is growing]
- Dry injection systems have advantages in simplicity, low capital cost, and the ability to use either calcium or sodium reagents
- Both SDA and CDS systems have approximately the same water and power consumptions. Dry injection systems have no water and lower power consumption
- Overall selection between these 3 technologies will require an analysis guided by Utility priorities