



# Natural Gas Power Generation

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# Typical Data Centers

- Typical design
- Backup generation – typical Tier II
- Installed capacity in 10's of MW
- Fuel Oil trucked in with additional storage as applicable



Source: Atlanta Journal Constitution Aug 23, 2023

# Natural Gas for Backup Power

- Footprint
- Noise
- Emissions

Technology		Tier II Diesel	Nat Gas
Full Load ISO Rated Output (1)	kW	2,500	3,000
Uncontrolled Operating Emissions (2)			
Nox	lb/MWh	16.86	3.15
CO	lb/MWh	1.34	6.3
VOC	lb/MWh	0.33	0.79
PM (Total)	lb/MWh	0.65	0.08
CO2 (3)	lb/MWh	1516	985
Starting Time (4)		10 Sec	2 Min Normal 45 Sec Fast
Expected Noise at 6ft	dB(A)	85-90	85-90

**Notes:**

1. Performance shown represents brochure data at ISO rated conditions. Actual performance will vary based on site conditions.

2. Emissions are based on base load conditions at average ambient and operating on NG or Diesel as noted.

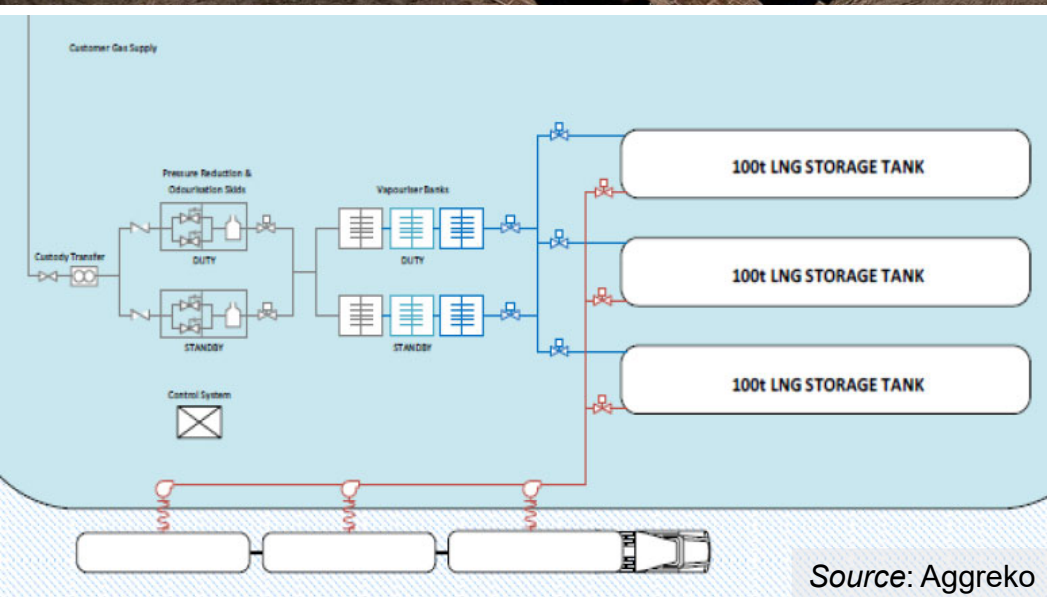
3. Based on an assumed 117 lb/MMBTU and 163 lb/MMBTU carbon content for NG and Diesel

4. Start time assumes an un-operational cold unit. Faster starts can be achieved with unit in idle.



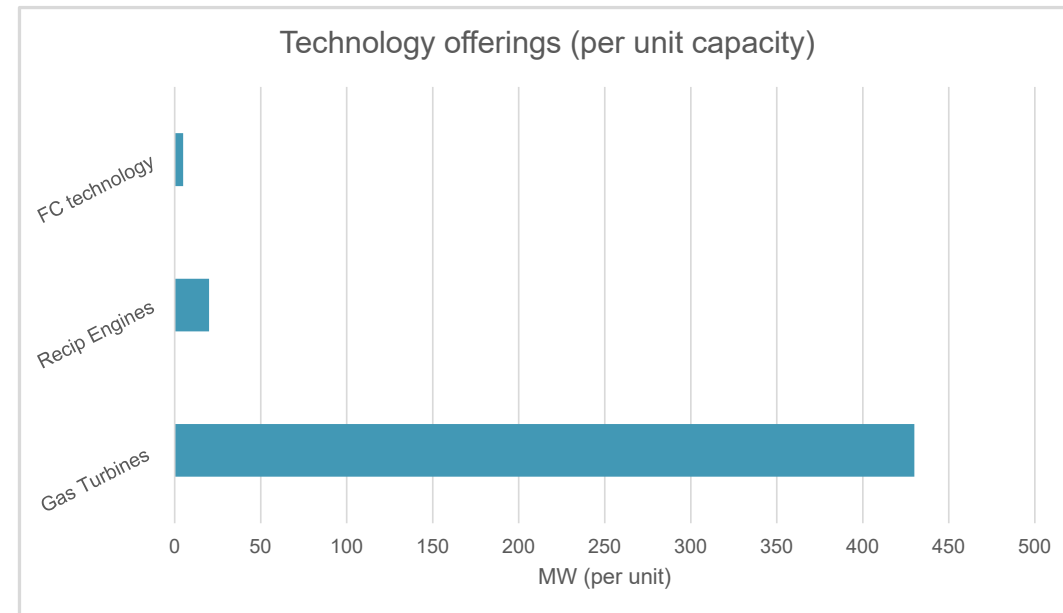
## Natural Gas for Backup Power

- Fuel Supply
  - Contracting for commodity and delivery
  - Pipeline fuel availability
  - Firm Vs storage
  - Alternates – CNG / LNG
    - Space considerations



# Natural Gas for Onsite Power

- Grid constraint issues
- Technology alternates
  - Evaluate based on installed capacity need
    - Fuel Cell technology
    - Recip engines
    - Gas turbines – SC / CC
  - Readiness for Hydrogen
- Fuel requirements including inlet pressure
- AHJ requirements, local permitting



# Thank You



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