

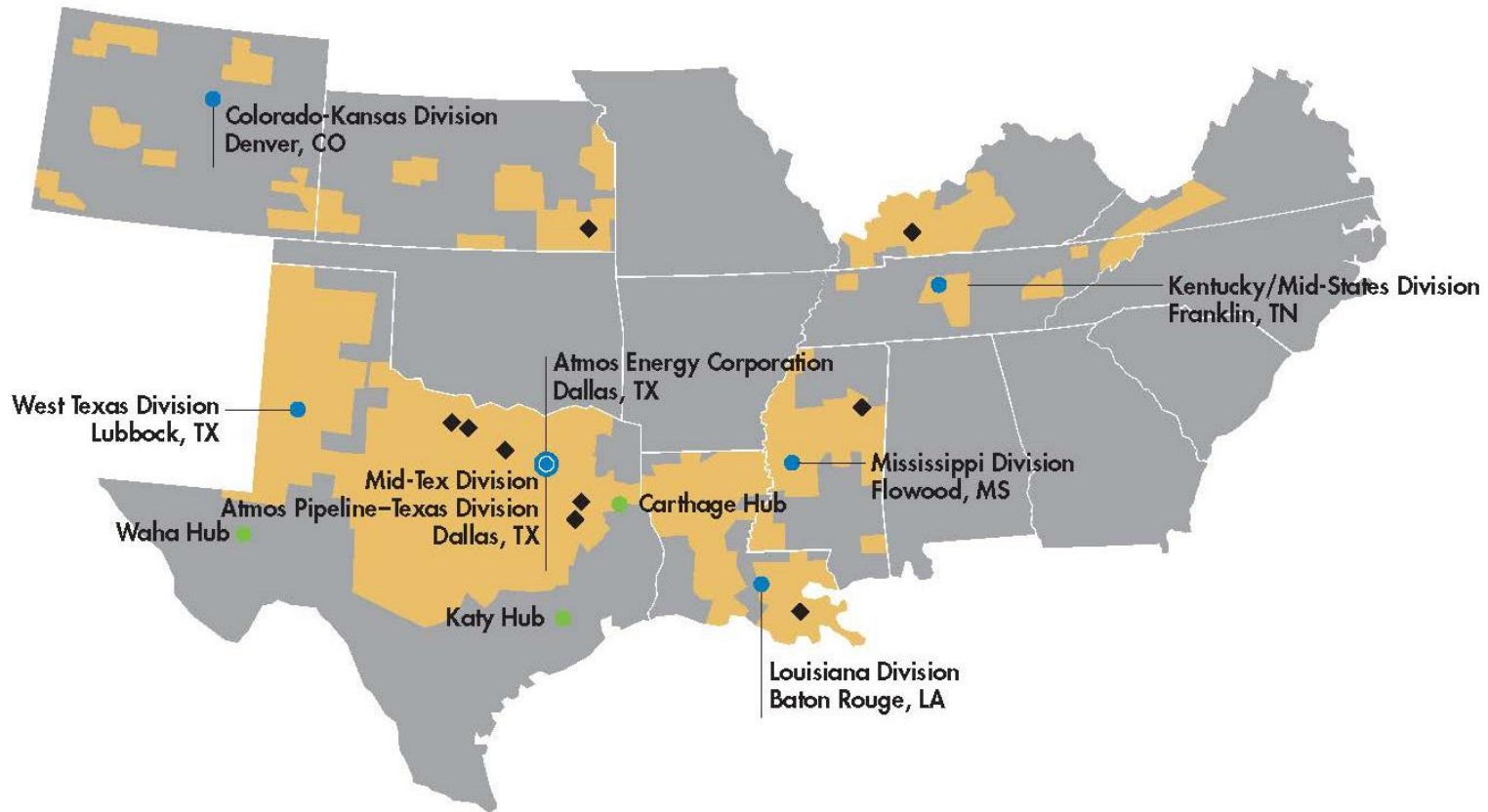
# Atmos Energy

## Sustainable Natural Gas Project

*October 23, 2018*



# About Atmos Energy



- ⊙ Atmos Energy Corporation headquarters
- Division offices
- Natural gas distribution service area
- ◆ Proprietary storage
- Major gas delivery hub

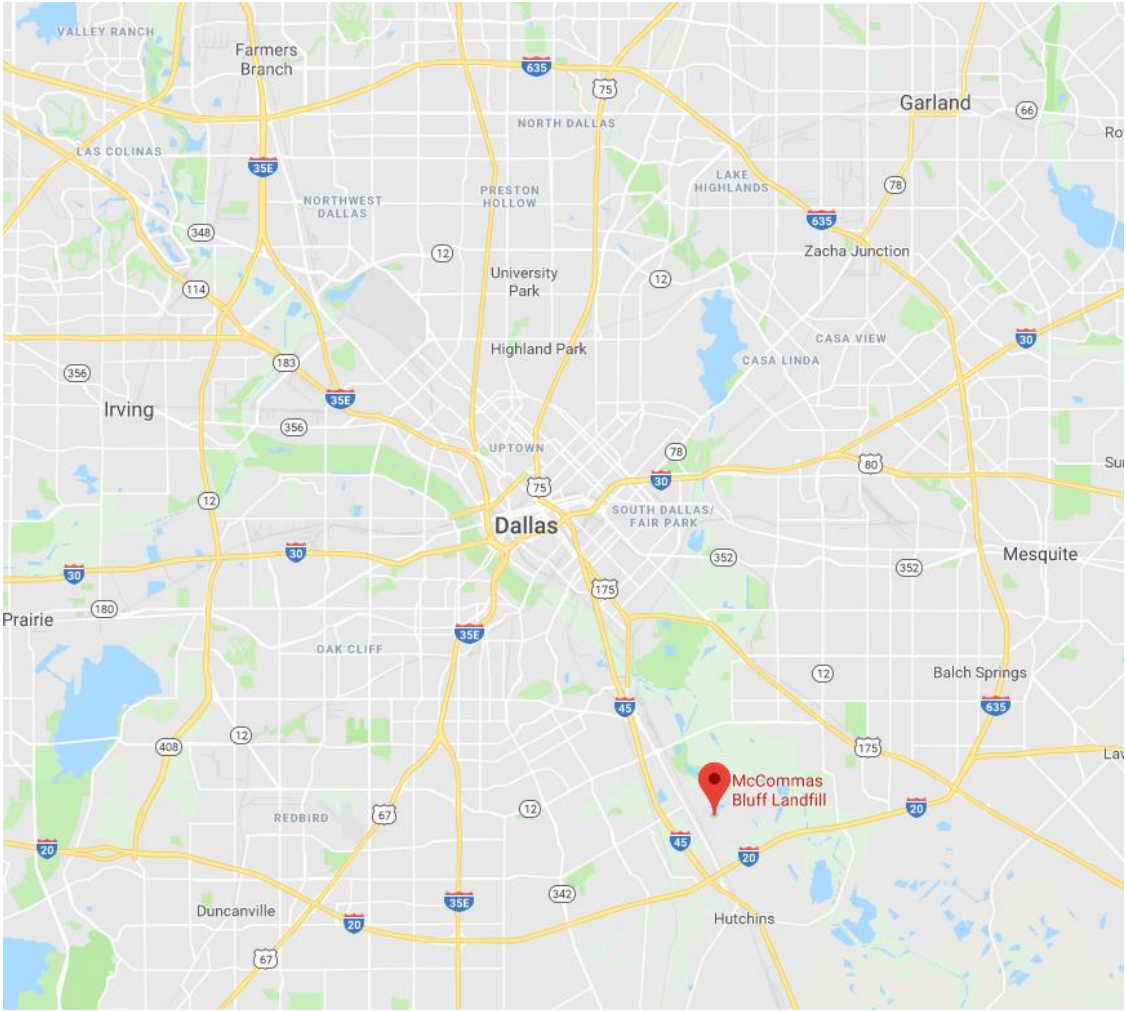
- Over 3 million natural gas distribution customers
- Over 1,400 communities served in 8 states
- Over 70,000 miles of distribution pipe
- 5,600 miles of transmission pipeline
- Atmos' vision is to be the safest provider of natural gas services and has projected annual capital expenditures of about \$1.3 billion to \$1.9 billion through 2022 to replace infrastructure and make our system safer.

# Atmos Energy Landfill Gas



- Atmos currently receives pipeline quality, renewable gas from two landfills in Texas and desires to increase those numbers.
- In the last two or three years developers have presented to Atmos six to eight additional facilities as potential sources of sustainable gas. All these facilities are landfills.
- Atmos currently receives 7,000 Mcf/day from the McCommas Plant and another 3,100 Mcf/day from the Melissa Plant.
- McCommas is located about 8 miles south of the downtown area and Melissa is located 36 miles north of Dallas.
- Atmos has been receiving gas from the McCommas Landfill since 1999.
- Gas quality is Atmos' main concern followed by transportation and delivery of the gas via Atmos' pipeline system.

# McCommas Bluff Landfill



# McCommas Bluff Landfill



## History of McCommas Bluff

- Growing pains
- Multiple plant owners and operators during the first 5+ years with gas deliveries beginning in 2000.
- McCommas is the 2<sup>nd</sup> largest landfill gas plant in Texas and the 13<sup>th</sup> largest in the US.
- Plant treating & monitoring technologies were not fully mature
- Atmos has never received a gas quality complaint from downstream customers!

# McCommas Bluff Landfill



## Upgrades at McCommas

- Plant was upgraded & upsized about six years ago
- Receipt measuring station was upgraded at the same time.

# McCommas Bluff Landfill



## Receipt Measuring Station

- Fully loaded MS cost is about \$1.4 million
- Measuring station should be located close to existing Atmos pipeline assets
- Willing to allow developer to build the station to Atmos specifications
- Atmos always is the operator.



# RNG Future With Atmos



- **Important Considerations**

- Will the plant meet Atmos gas quality specifications?
- Downstream daily customer burner-tip load must comfortably exceed renewable plant residue on a year round basis
- An odorizer should be located at the landfill and/or away from residential and commercial areas
- Local Atmos operators must have the skills to operate relatively sophisticated monitoring/shut-in equipment.

# RNG Future With Atmos



## Atmos Energy Monitors the following key items

- H<sub>2</sub>O vapor
- H<sub>2</sub>S – Automatic shut-in at 4ppm (1/4 grain/CCF)
- CO<sub>2</sub>
- N<sub>2</sub>
- O<sub>2</sub>
- BTU

# RNG Future With Atmos



## Current System Specifications:

- Not more than 5 grains total sulphur per ccf
- Not more than  $\frac{1}{4}$  grain H<sub>2</sub>S per ccf
- Not more than 1 grain mercaptan sulphur per ccf
- BTU (minimum 950, maximum 1100) at 14.65 psi dry
- Temperature (maximum +120 degrees F, minimum +40 degrees F)
- Not more than 2% by volume CO<sub>2</sub>
- Not more than .05% by volume oxygen
- Not more than 7 pounds water vapor /MMcf
- Interchangeability (If):  $\pm 7\%$  from current gas supply IF = BTU divided by v relative density
- Hydrocarbon Dew Point not more than +40 degrees F at delivery pressure
- Not more than 4% by volume total non-hydrocarbon and inert gasses
- Gas must be of merchantable quality, and commercially free from all water, sand and other objectionable fluids, bacteria, solids and gasses.

# McCommas Bluff Landfill



**THE END**