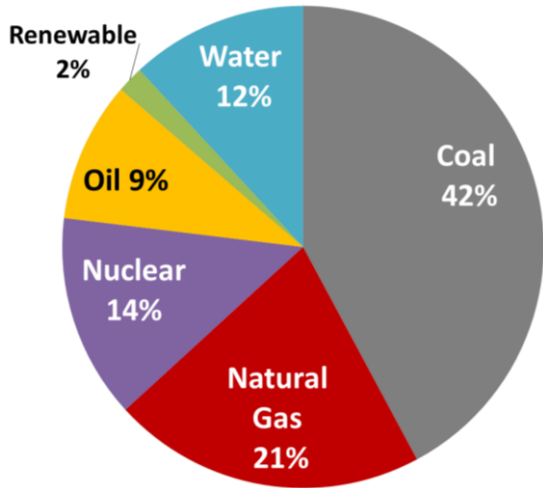
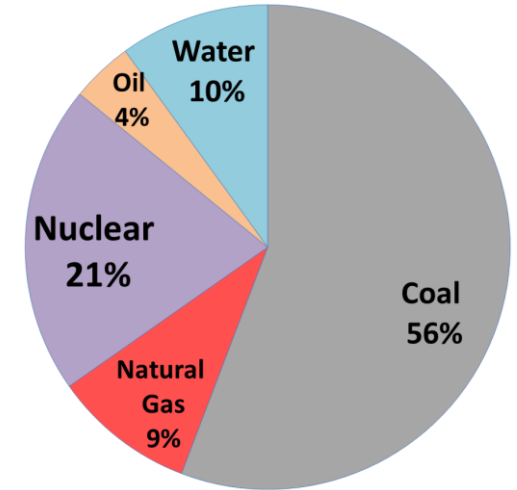


People First, Safety Always

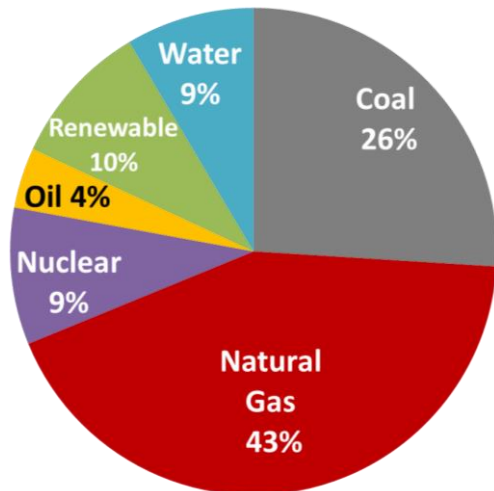
Why Methane
Emissions Reductions
And HOW??



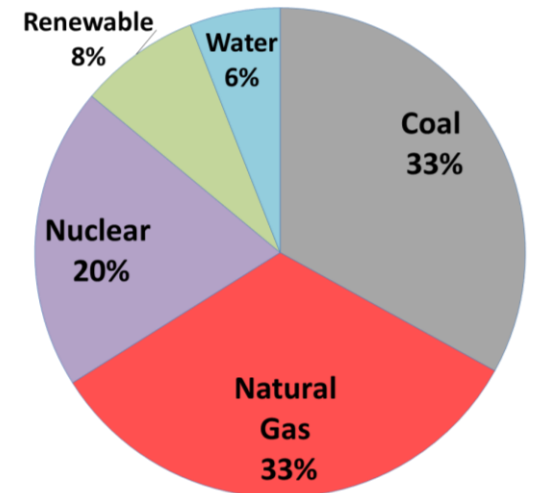
1990 Total Capacity
794 GW



1990 Generation
2,808 thousand GWh



2015 Total Capacity
1,183 GW



2015 Generation
4,092 thousand GWh

WHY?

Changes in fuel mix for Electric Capacity and Generation in the U.S.

Source: Based on data derived from Velocity Suite, an ABB company, October 2016.

WHY?

Done right, savings will be realized!



Why??

- Supportive Administration;
- We are achieving reductions
 - 37% increase in production with 17% reduction in methane emissions;
- BUT
 - State requirements
 - Public Perception
 - License to operate
 - Public Opposition
 - KEEP IT IN THE GROUND

Methane Reductions – How??

- Station emissions
 - 4 times/year/station is not “done right”
 - Combustion efficiency opportunities
 - Fugitive emissions opportunities
- Leak surveys and repairs
 - Technology solutions
 - OGI cameras identifying and quantifying emissions
 - Fixed sensors identifying, quantifying and notifying local operations of emissions

Methane Reductions – How??

- Pipeline Blowdowns
 - PHMSA changes to reduce required blowdowns using technology and integrity management principles
 - Consistent process for EVERY blowdown to reduce emissions
- Carbon neutral pipelines
 - What would it take
 - It has been done

Questions?