USEA Briefing
Washington DC

Neil Kern, July 21, 2016

Safe Harbor Statement

This document includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Forward-looking statements are based on management's beliefs and assumptions.

These forward-looking statements are identified by terms and phrases such as "anticipate," "believe," "intend," "estimate," "expect," "continue," "should," "could," "may," "plan," "project," "predict," "will," "potential," "forecast," "target," "guidance," "outlook," and similar expressions. Forward-looking statements involve risks and uncertainties that may cause actual results to be materially different from the results predicted. Factors that could cause actual results to differ materially from those indicated in any forward-looking statement include, but are not limited to: state, federal and foreign legislative and regulatory initiatives, including costs of compliance with existing and future environmental requirements or climate change, as well as rulings that affect cost and investment recovery or have an impact on rate structures or market prices; the extent and timing of the costs and liabilities relating to the Dan River ash basin release and compliance with current regulations and any future regulatory changes related to the management of coal ash; the ability to recover eligible costs, including those associated with future significant weather events, and earn an adequate return on investment through the regulatory process; the costs of decommissioning Crystal River Unit 3 could prove to be more extensive than amounts estimated and all costs may not be fully recoverable through the regulatory process; credit ratings of the company or its subsidiaries may be different from what is expected; costs and effects of legal and administrative proceedings, settlements, investigations and claims; industrial, commercial and residential growth or decline in service territories or customer bases resulting from customer usage patterns, including energy efficiency efforts and use of alternative energy sources including self-generation and distributed generation technologies; additional competition in electric markets and continued industry consolidation; political and regulatory uncertainty in other countries in which Duke Energy conducts business; the influence of weather and other natural phenomena on operations, including the economic, operational and other effects of severe storms, hurricanes, droughts and tornadoes; the ability to successfully operate electric generating facilities and deliver electricity to customers; the impact on facilities and business from a terrorist attack, cybersecurity threats, data security breaches and other catastrophic events; the inherent risks associated with the operation and potential construction of nuclear facilities, including environmental, health, safety, regulatory and financial risks; the timing and extent of changes in commodity prices, interest rates and foreign currency exchange rates and the ability to recover such costs through the regulatory process, where appropriate, and their impact on liquidity positions and the value of underlying assets; the results of financing efforts, including the ability to obtain financing on favorable terms, which can be affected by various factors, including credit ratings and general economic conditions; declines in the market prices of equity and fixed income securities and resultant cash funding requirements for defined benefit pension plans, other post-retirement benefit plans and nuclear decommissioning trust funds; construction and development risks associated with the completion of Duke Energy and its subsidiaries' capital investment projects in existing and new generation facilities, including risks related to financing, obtaining and complying with terms of permits, meeting construction budgets and schedules, and satisfying operating and environmental performance standards, as well as the ability to recover costs from customers in a timely manner or at all; changes in rules for regional transmission organizations, including changes in rate designs and new and evolving capacity markets, and risks related to obligations created by the default of other participants; the ability to control operation and maintenance costs; the level of creditworthiness of counterparties to transactions; employee workforce factors, including the potential inability to attract and retain key personnel; the ability of subsidiaries to pay dividends or distributions to Duke Energy Corporation holding company (the Parent); the performance of projects undertaken by our nonregulated businesses and the success of efforts to invest in and develop new opportunities; the effect of accounting pronouncements issued periodically by accounting standard-setting bodies; the impact of potential goodwill impairments; the ability to reinvest prospective undistributed earnings of foreign subsidiaries or repatriate such earnings on a tax-efficient basis; the expected timing and likelihood of completion of the proposed transaction with Piedmont, including the timing, receipt and terms and conditions of any required governmental and regulatory approvals of the proposed transaction that could reduce anticipated benefits or cause the parties to abandon the transaction, the diversion of management's time and attention from Duke Energy's ongoing business during this time period, the ability to maintain relationships with customers, employees or suppliers as well as the ability to successfully integrate the businesses and realize benefits and the risk that the credit ratings of the combined company or its subsidiaries may be different from what the companies expect; and the ability to successfully complete future merger, acquisition or divestiture plans.

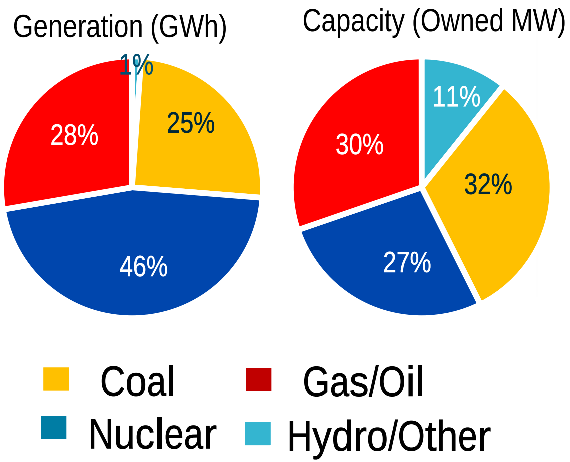
Additional risks and uncertainties are identified and discussed in Duke Energy's and its subsidiaries' reports filed with the SEC and available at the SEC's website at www.sec.gov. In light of these risks, uncertainties and assumptions, the events described in the forward-looking statements might not occur or might occur to a different extent or at a different time than Duke Energy has described. Duke Energy undertakes no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

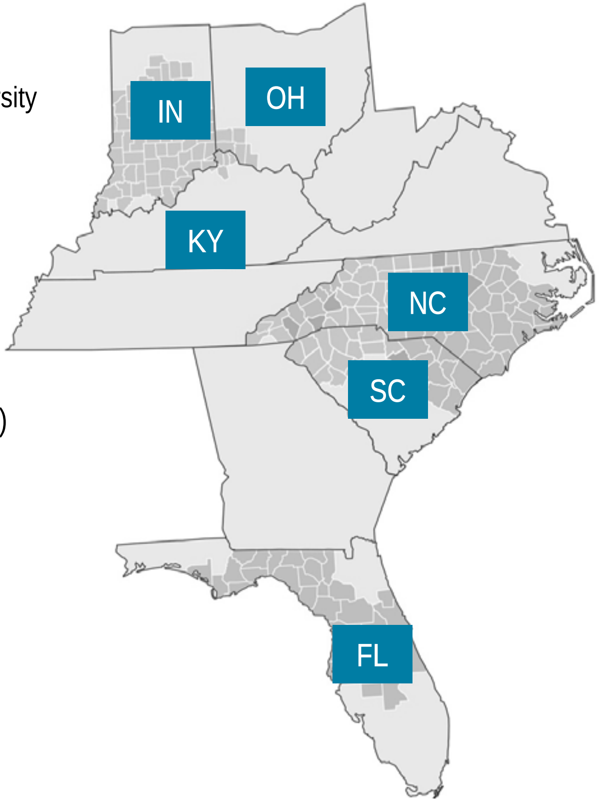
Overview: Regulated Electric Generation and Capacity by Region

Portfolio Scale (1)

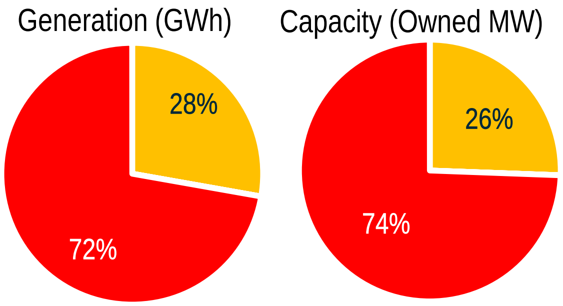
- 6 jurisdictions with regulatory and geographic diversity
- 7.4 million electric retail customers
- 50 GW owned, available summer capacity
- 32,300 miles of transmission
- 263,900 miles of distribution

Carolinas

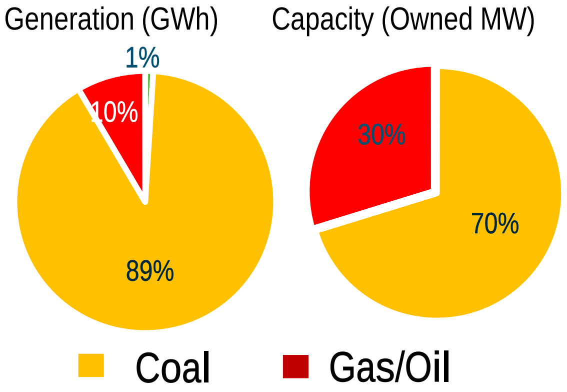




Florida



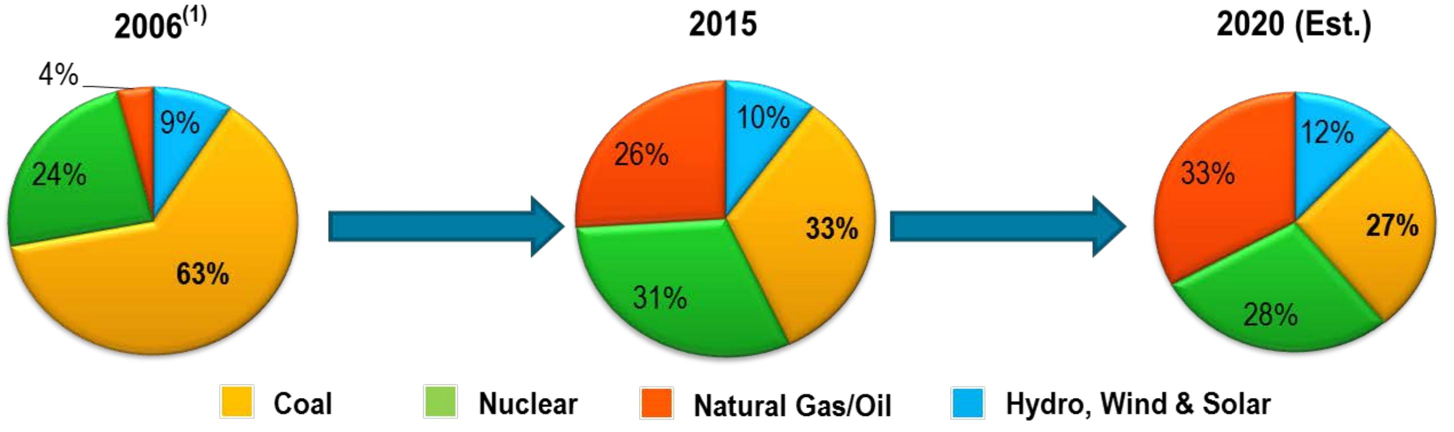
Midwest



(1) Generation energy mix for owned generation only for 2015 as of 12/31/2015. Capacity estimates illustrative of 2015.

Moving toward a lower carbon footprint and increased fuel diversity

Total Company Fuel Diversity (MWh Output)



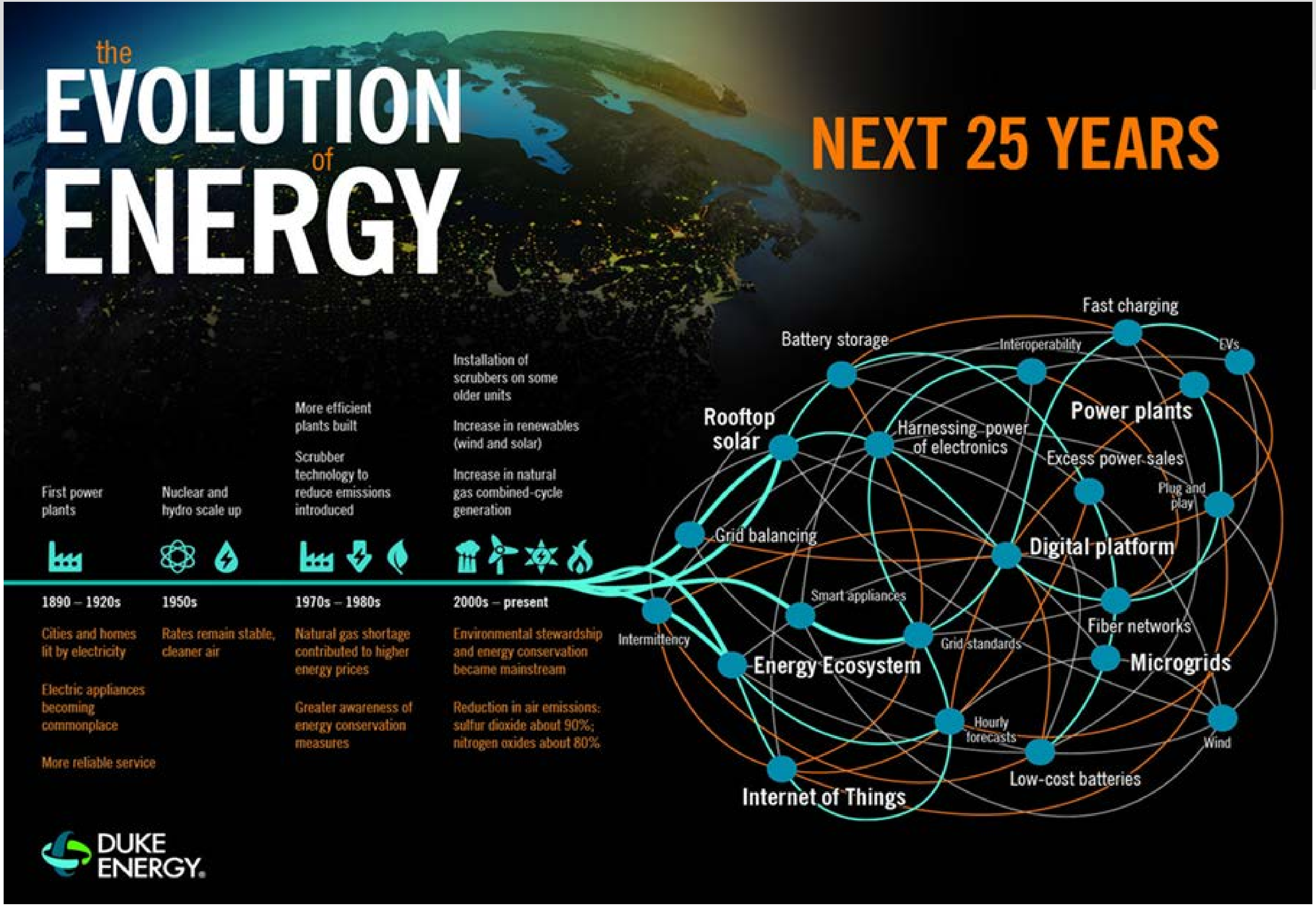
Reduction of US Generation Emissions from 2005-2015[2]

CO_2 ↓ 28% SO_2 ↓ 90% NOx ↓ 68%

Primary Drivers in Emission Reductions:

- Additions of pollution control equipment
- Retirement of higher emitting plants
- Decreased coal generation
- Increased gas generation

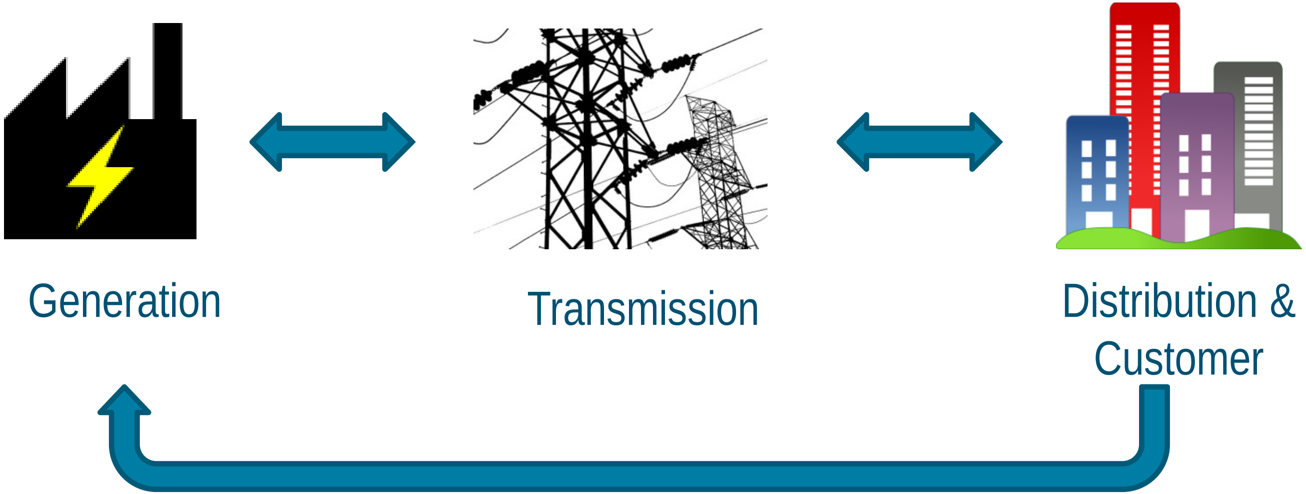
(1) 2006 data does not include Progress Energy .
(2) Data based on Duke Energy's ownership share of generating assets as of the end of each calendar year. The data exclude emissions from the commercial Midwest generation assets sold in April 2015, and include emissions from the NCEMPA generation assets (partial ownership interest in several Duke Energy Progress plants) purchased in August 2015.



the EVOLUTION of ENERGY
NEXT 25 YEARS
First power plants
1890 – 1920s
Cities and homes lit by electricity
Electric appliances becoming commonplace
More reliable service
Nuclear and hydro scale up
1950s
Rates remain stable, cleaner air
More efficient plants built
Scrubber technology to reduce emissions introduced
1970s – 1980s
Natural gas shortage contributed to higher energy prices
Greater awareness of energy conservation measures
Installation of scrubbers on some older units
Increase in renewables (wind and solar)
Increase in natural gas combined-cycle generation
2000s – present
Environmental stewardship and energy conservation became mainstream
Reduction in air emissions: sulfur dioxide about 90%; nitrogen oxides about 80%
Fast charging
Battery storage
Interoperability
EVs
Rooftop solar
Harnessing power of electronics
Power plants
Excess power sales
Plug and play
Grid balancing
Digital platform
Smart appliances
Intermittency
Fiber networks
Grid standards
Energy Ecosystem
Microgrids
Hourly forecasts
Wind
Low-cost batteries
Internet of Things
DUKE ENERGY

Planning for the Future

- Paradigm shift from how traditional utility planning takes place.

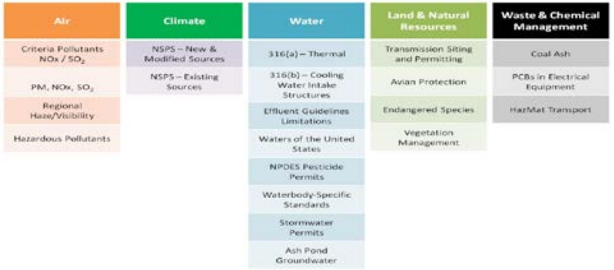


- Distribution planning could significantly influence generation planning in the future.
- Generation must be able to serve the grid and respond quickly to changing grid signals.
- Must maintain the goal of providing reliable electricity to customers at all times.

6 Mega Trends Affecting Centralized Generation

1. Environmental Regulations

Effect: Increasing pressure, especially on existing coal fleet, with proposed and enacted regulations.
Need: Understand best technology options to enable development of comprehensive and effective compliance strategies.



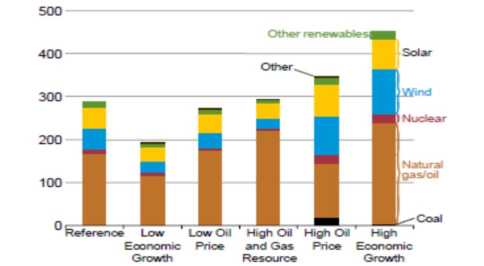
2. Natural Gas; Availability and Pricing

Effect: Lowest cost new generation is NGCC. Duke Energy's generation fleet is converging to around ⅓ nuclear, ⅓ coal, ⅓ natural gas.
Need: Maintain balanced generation portfolio. Support the development of advanced nuclear and fossil generation technology.

3. Reduced Emphasis on Nuclear and Coal Fleets

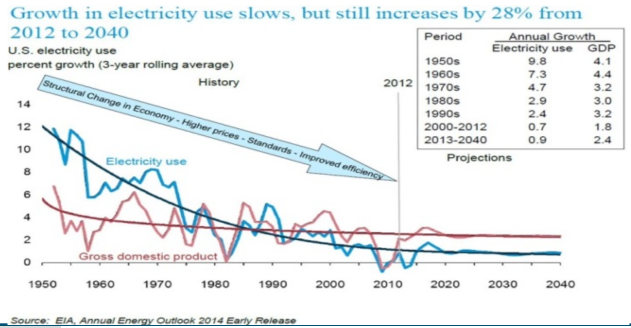
Effect: Coal plant retirements. Construction of new NGCC to replace retired coal plants. Nuclear licenses expiring. Increasing deployment of distributed generation.
Need: Long-term operations, flexibility and viability.

EIA: Cumulative additions to electricity generation capacity, 2013-40 (gigawatts)



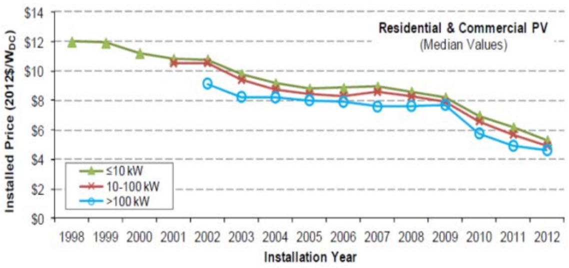
4. Decreasing Demand Growth & Customer Trends

Effect: Generation fleet expansion curtailed.
Need: Maintain balanced generation portfolio. Long-term operation and viability of generation centralized fleet.



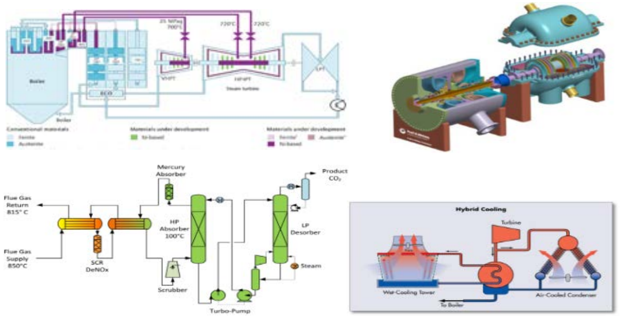
5. Decreasing Distributed Generation and Renewable Costs

Effect: Disruptive technology impacting traditional electric utility business model. Increasingly decentralized generation. Costs are decreasing faster than fossil generation assets and are able to be rapidly deployed.
Need: Maintain balanced generation portfolio. Long-term operation and viability of generation centralized fleet.

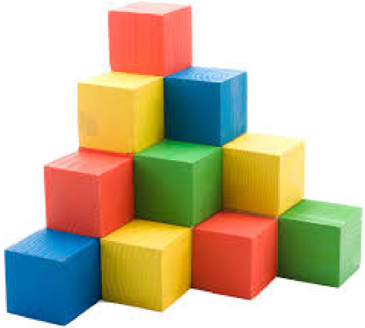


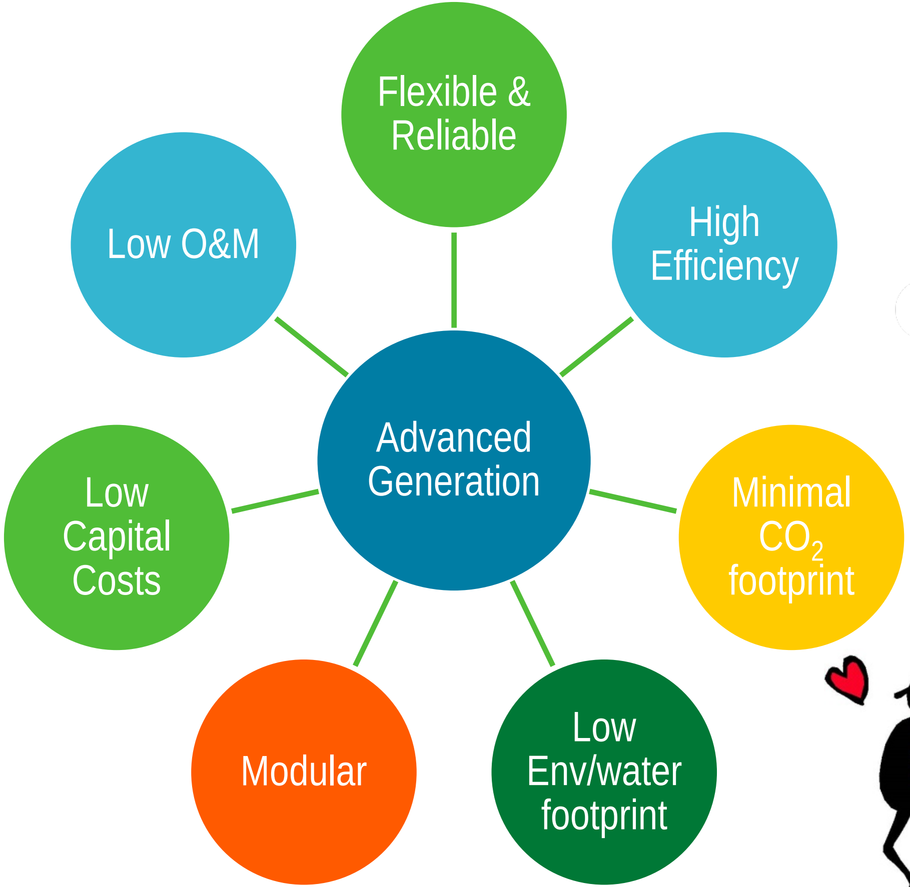
6. New Technology

Effect: Opportunity to transfer knowledge and technology into business to address key generation issues.
Need: Technology roadmaps aligned with business needs.

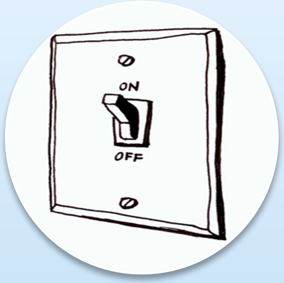


Advanced Fossil Plant Wish List



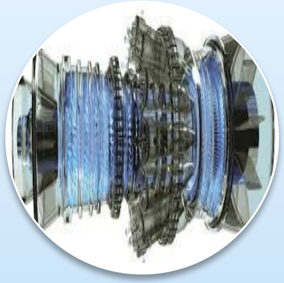


Complimenting Variable Generation



Dispatchable Power

- Asset output is able to be controlled by the system operator



System Inertia

- Ensure grid frequency stability

Peak Capacity

- Dispatch energy at peak demand
- Rapid response

Reserve Capacity

- Provide day ahead reserve capacity
- Provide safety margin

These characteristics enable the adoption of variable resources

Pictures: GE, Cal ISO, ORNL

Supercritical CO_2 Power Cycles

- Why sCO_2 as the working fluid?
  - At high temperature and pressure CO_2 behaves like a liquid reducing auxiliary power requirements.
  - No phase change
  - High density = more power / ft^2
  - Lower footprint and smaller equipment can potentially lead to lower capital costs
  - Higher efficiency = lower emissions
  - Inert, nontoxic, widely available

20 meter Steam Turbine (300 MWe)
(Rankine Cycle)

1 meter sCO_2 (300 MWe)
(Brayton Cycle)

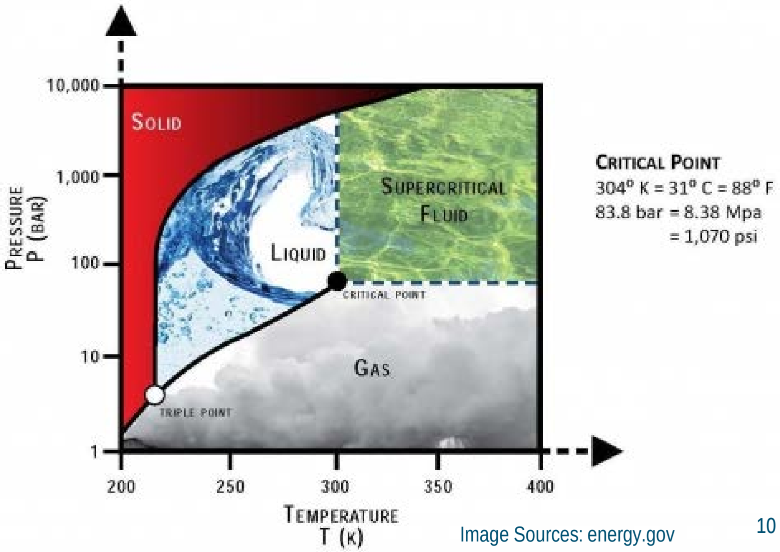
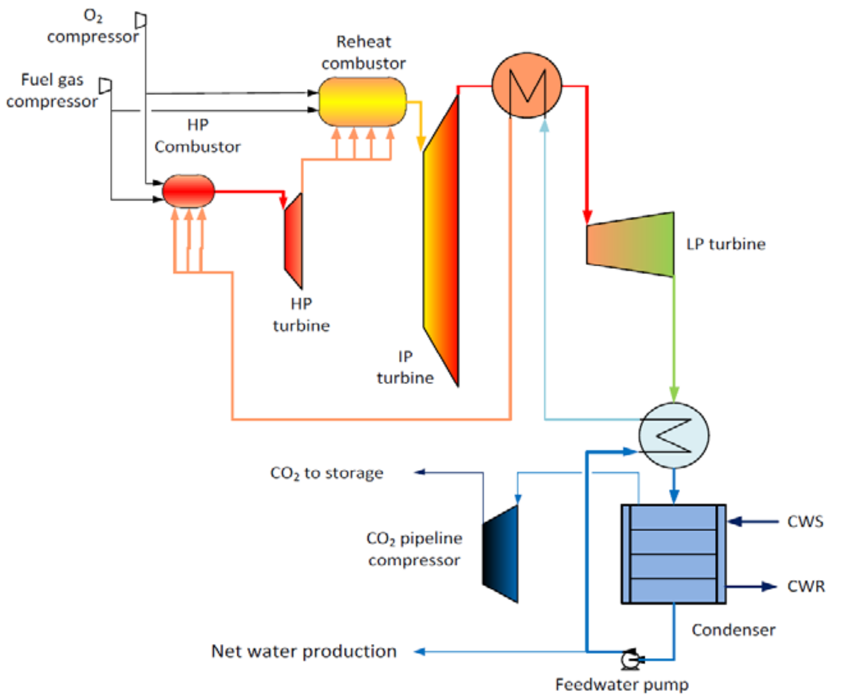


Image Sources: energy.gov

Direct Fired sCO_2 System

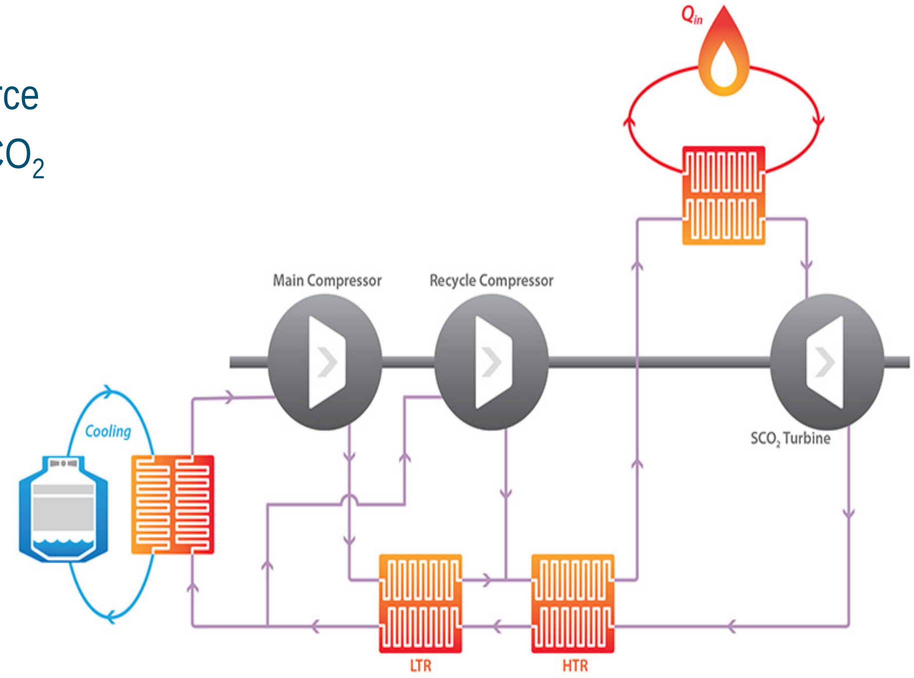
- Technology overview
  - Oxy-combustion of natural gas and oxygen
  - Semi closed loop of sCO_2
- Benefits
  - Inherent carbon capture
  - Compact turbomachinery
- Challenges
  - Materials at high temperature and pressure
  - Integration of air separation unit
  - Achieving complete combustion
  - Combustion dynamics in CO_2 atmosphere
- When to consider?
  - Carbon constrained future
  - Market for CO_2



Source: EPRI, 3002003664

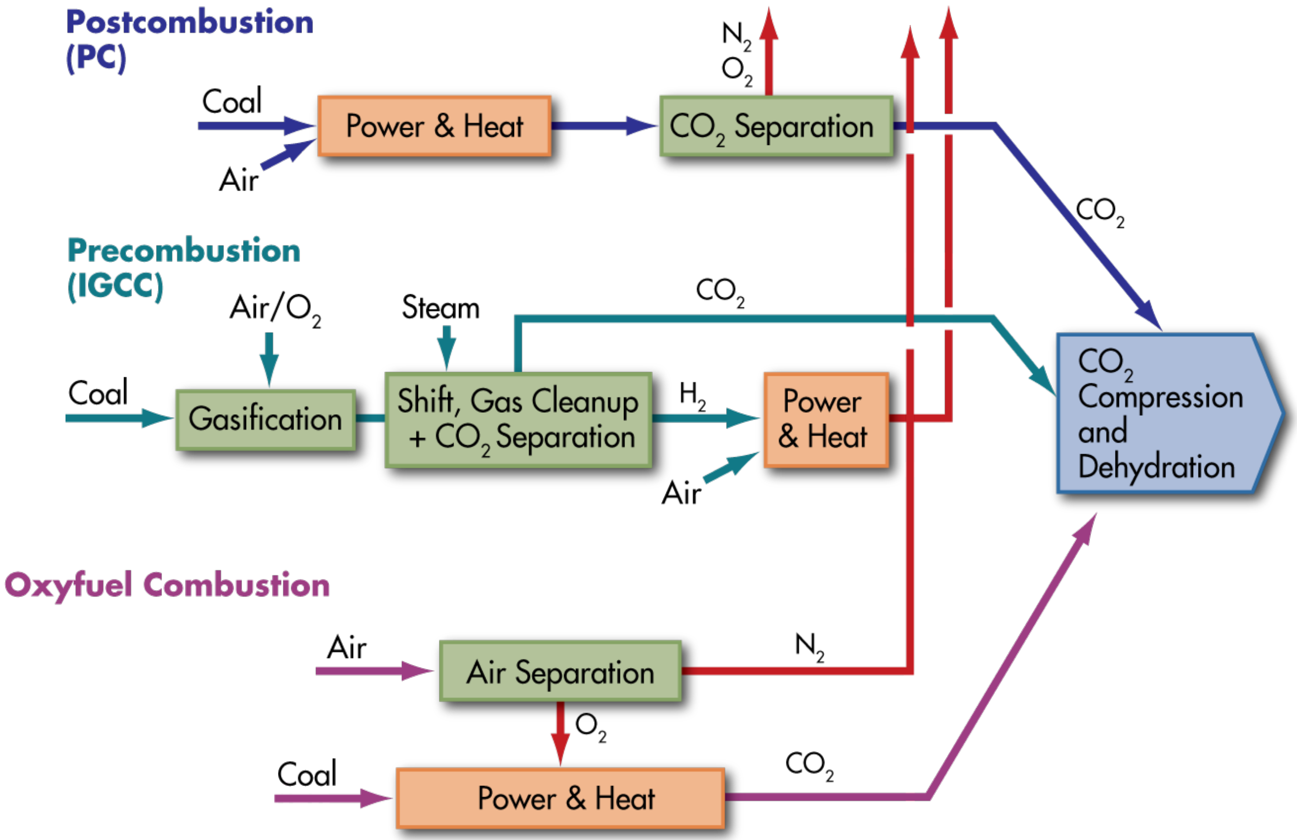
Indirect Fired sCO_2 Cycle

- Technology overview
  - System can be indirectly heated by any source
  - Similar to traditional steam boiler but with sCO_2
- Benefits
  - Fuel/heat source agnostic
  - Higher efficiency
  - Smaller turbomachinery
- Challenges
  - Materials
  - Heat exchangers
  - Primary heater pressure drop
- When to consider?
  - Next generation systems: Nuclear, solar, fossil, geothermal



Source: National Energy Technology Laboratory

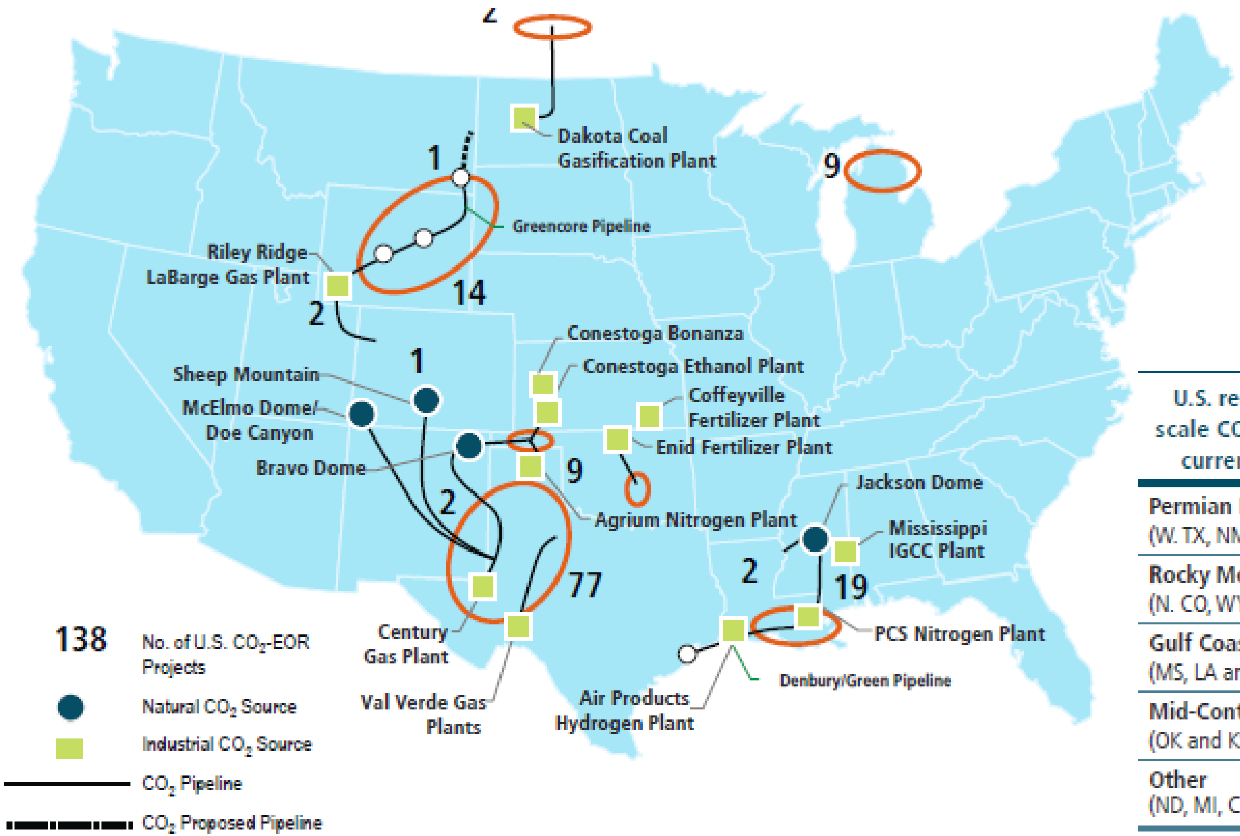
Carbon Capture Pathways



Source: IPCC

Capture System Footprint

CO_2 Transportation



U.S. regions with large-scale CO_2 pipeline systems currently in operation	Miles of Pipeline
Permian Basin (W. TX, NM, and S. CO)	2,320
Rocky Mountains (N. CO, WY and MT)	810
Gulf Coast (MS, LA and E. TX)	740
Mid-Continent (OK and KS)	480
Other (ND, MI, Canada)	215

Source: April 2015 QUADRENNIAL ENERGY REVIEW

US CO_2 Production by Sector

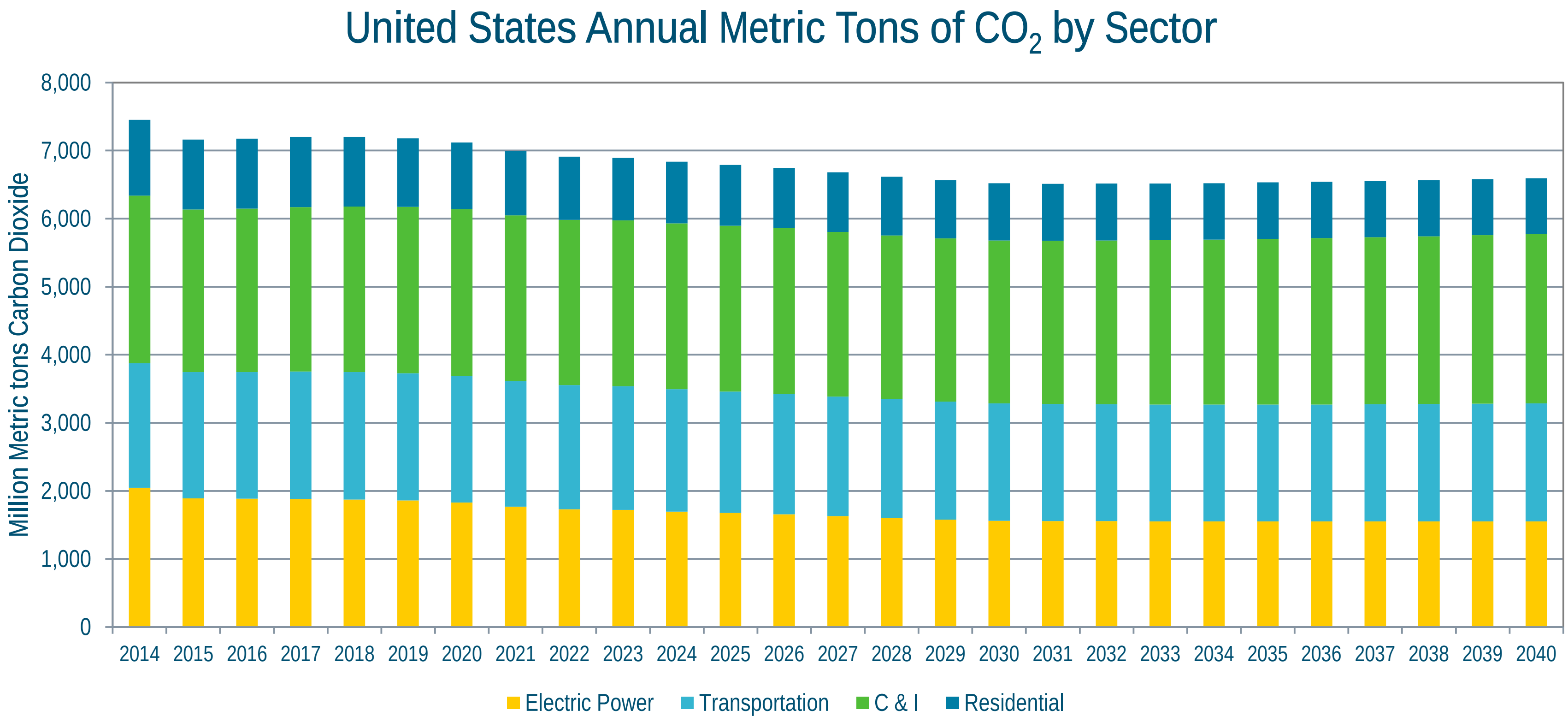
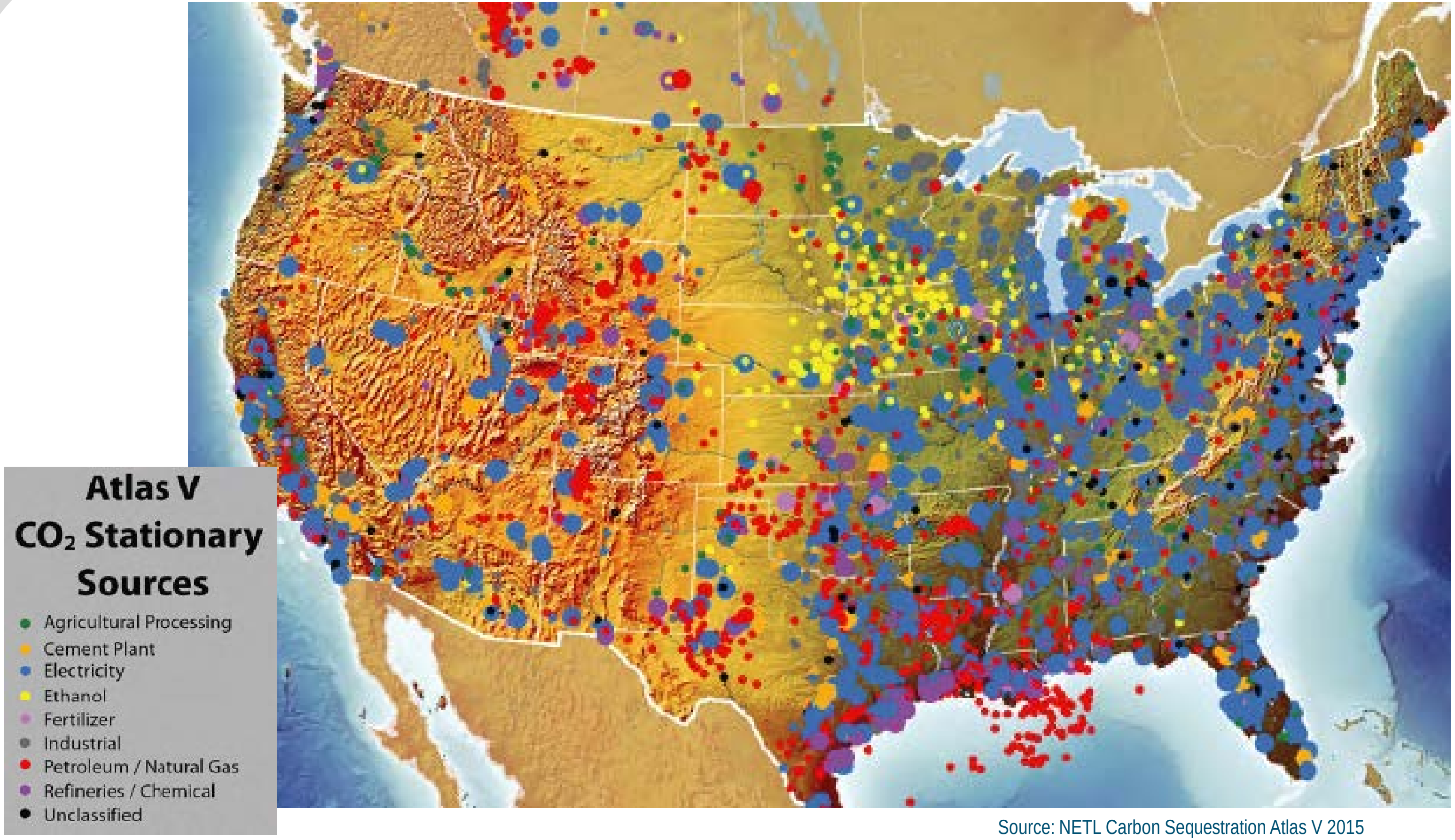


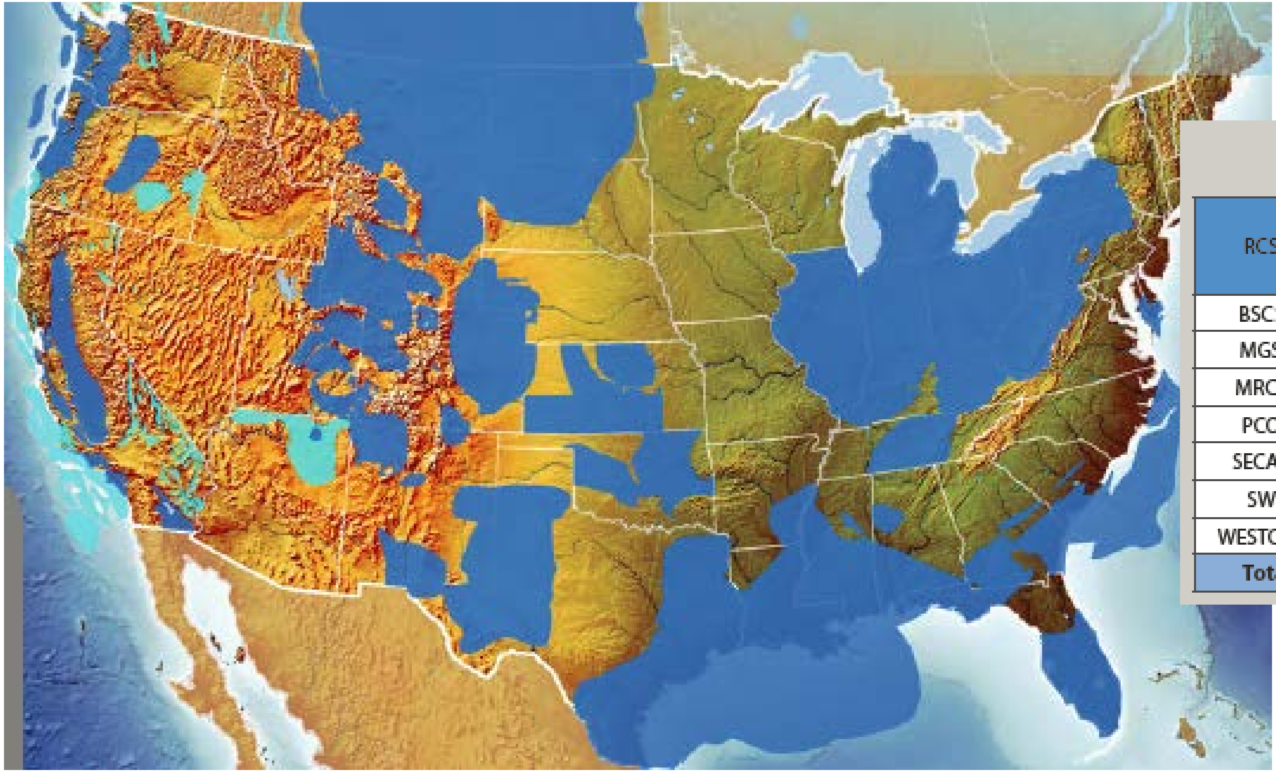
Chart Generated with Data from EIA Annual Energy Outlook 2016

Stationary CO_2 Sources



Source: NETL Carbon Sequestration Atlas V 2015

Saline Storage Capacity

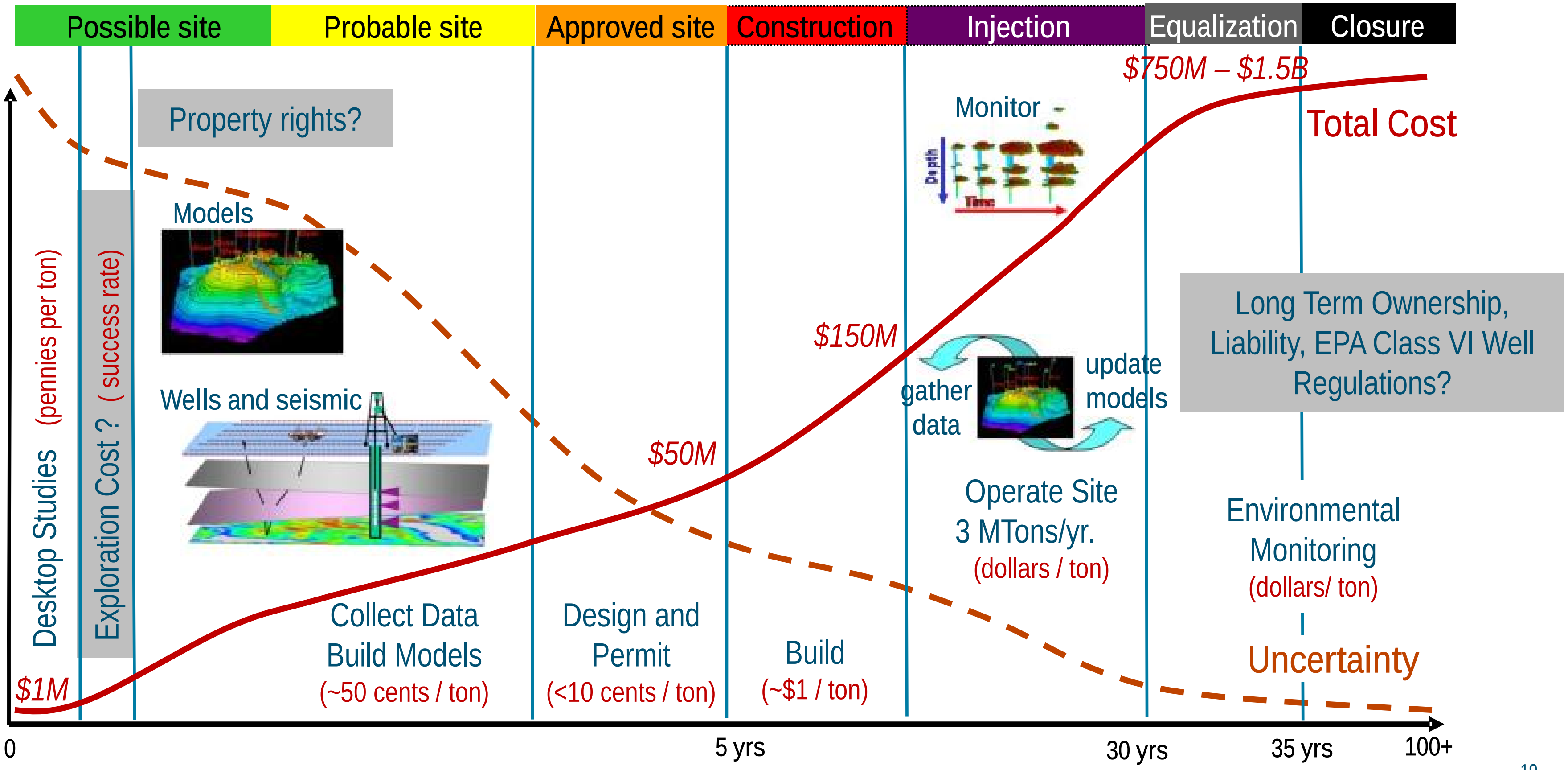


CO_2 Storage Resource Estimates for Saline Formations by RCSP*

RCSP	Low	Medium	High
	Billion Metric Tons	Billion Metric Tons	Billion Metric Tons
BSCSP	211	805	2,152
MGSC	41	163	421
MRCSP	108	122	143
PCOR	305	583	1,012
SECARB	1,376	5,257	14,089
SWP	256	1,000	2,693
WESTCARB	82	398	1,124
Total	**2,379**	**8,328**	**21,633**

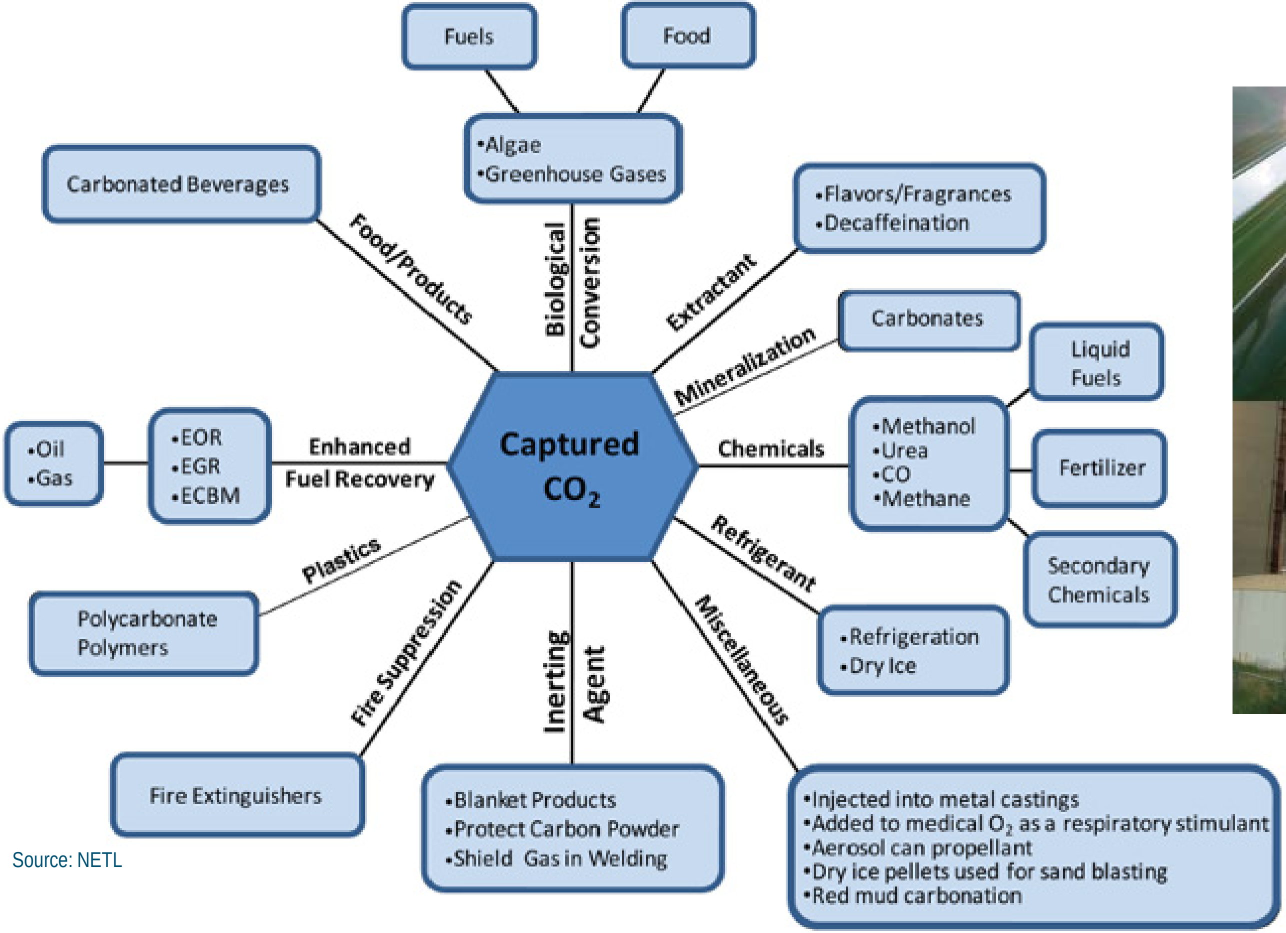
Source: NETL Carbon Sequestration Atlas V 2015

CO_2 Storage



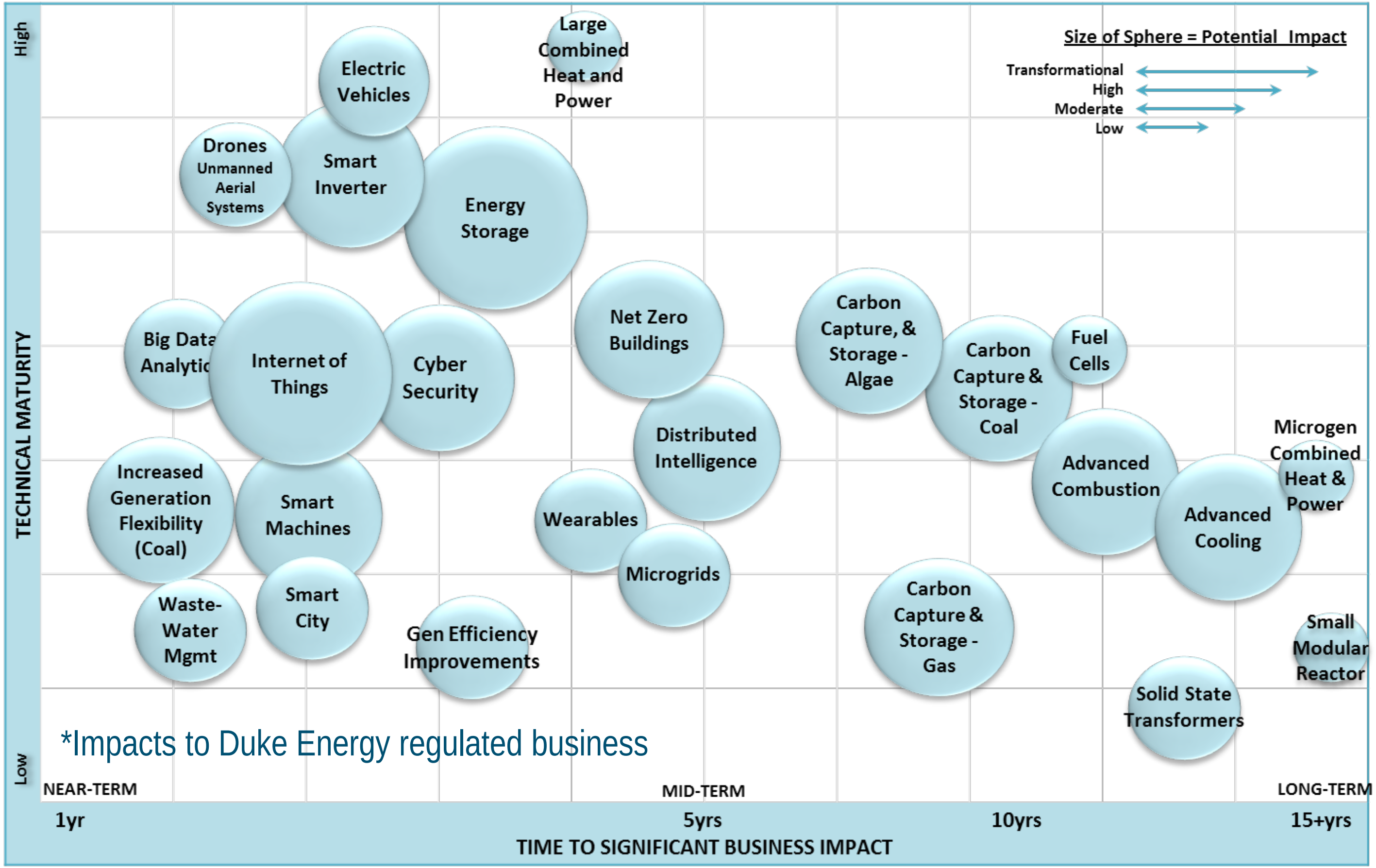
Possible site
Probable site
Approved site
Construction
Injection
Equalization
Closure
$750M – $1.5B
Total Cost
Property rights?
Monitor
Depth
Time
Desktop Studies (pennies per ton)
Exploration Cost ? (success rate)
Models
Wells and seismic
$150M
gather data
update models
Long Term Ownership, Liability, EPA Class VI Well Regulations?
$50M
Operate Site
3 MTons/yr.
(dollars / ton)
Environmental Monitoring
(dollars/ ton)
Collect Data
Build Models
(~50 cents / ton)
Design and Permit
(<10 cents / ton)
Build
(~$1 / ton)
Uncertainty
$1M
0
5 yrs
30 yrs
35 yrs
100+

Utilization Options



Source: NETL

Conclusion



Size of Sphere = Potential Impact
Transformational
High
Moderate
Low
High
Low
TECHNICAL MATURITY
Large Combined Heat and Power
Electric Vehicles
Drones Unmanned Aerial Systems
Smart Inverter
Energy Storage
Big Data Analytic
Internet of Things
Cyber Security
Net Zero Buildings
Carbon Capture, & Storage - Algae
Carbon Capture & Storage - Coal
Fuel Cells
Distributed Intelligence
Increased Generation Flexibility (Coal)
Smart Machines
Wearables
Advanced Combustion
Microgen Combined Heat & Power
Advanced Cooling
Microgrids
Waste-Water Mgmt
Smart City
Gen Efficiency Improvements
Carbon Capture & Storage - Gas
Small Modular Reactor
Solid State Transformers
*Impacts to Duke Energy regulated business
NEAR-TERM
MID-TERM
LONG-TERM
1yr
5yrs
10yrs
15+yrs
TIME TO SIGNIFICANT BUSINESS IMPACT

DUKE ENERGY®