THANK YOU for Joining Us Today!

AGENDA

- Ameren Missouri Overview
- Missouri's Energy Future Challenges

EPA Clean Power Plan

Aging Infrastructure

What We Are Going to See Today:

(10:30) Emergency Operations Center (EOC) – Dave Wakeman

(10:45) Trade Floor – Andrew Meyer

(11:10) Transmission & Dispatch – Jeff Hackman

• Lunch in Transmission & Dispatch Area

(12:10) Storm Response Mobile Command & Supply Trailers

(12:30) St. Louis Downtown Electric Infrastructure (Transmission & Distribution Overhead Equipment, Substations & Underground Network)

Ameren Missouri Overview

- Vertically integrated utility, with regulated electric generation, transmission and distribution; gas distribution
- Serves 1.2 million electric and 129,000 gas customers (3 million people)
- 10,200 MW generation
 - 6,500 MW low-cost, baseload coal-fired and nuclear resources
 - 830 MW of renewable resources (Solar, Hydro and Landfill Gas)
- 24,000 square mile service area
 - 500+ communities
 - 3,000 miles of electric transmission lines
 - 33,000 miles of electric distribution lines
 - 900 Substations
- ~3,700 co-workers
- #1 Property tax payer in Missouri



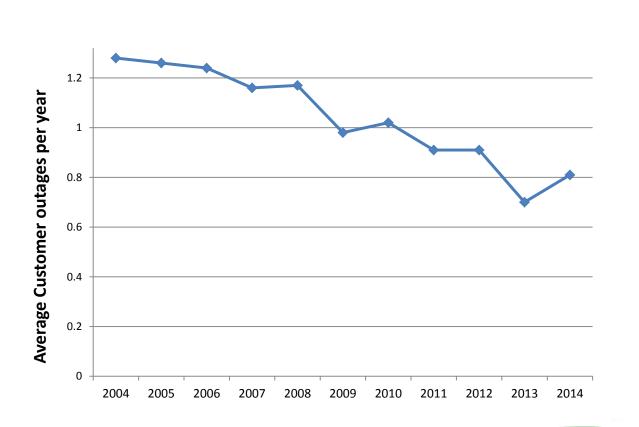
meren

MISSOURI

O'Fallon Renewable Energy Center. Missouri's largest investor-owned utility solar facility, and contains over 19,000 solar panels.

DEPENDABLE ELECTRICITY

Our customers want energy they can count on. Smart technology and grid improvements have helped Ameren Missouri outsmart outages.

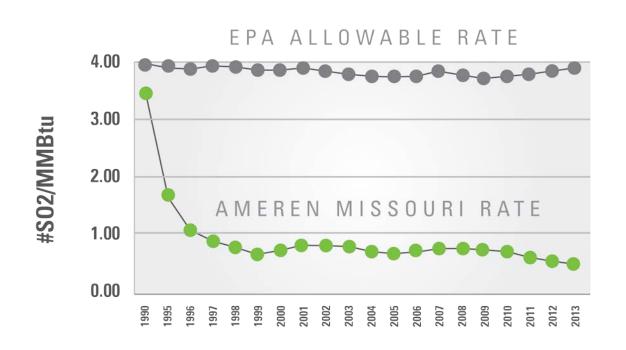


Top
25%

MOST DEPENDABLE ELECTRIC SERVICE NATIONWIDE

CLEANER AIR

Ameren Missouri is aggressively cutting emissions by improving equipment and transitioning to cleaner energy sources.



EMISSIONS REDUCED BY O/O

Aging Electric Infrastructure...a National Issue

President Obama's and the DOE's first Quadrennial Energy Review, "cites a laundry list of current and future threats to the stability of the system, much of it related to aging infrastructure or infrastructure that was simply not designed to counter the threats now facing it." - The Fiscal Times - April 21, 2015



America's Energy Infrastructure in Desperate Shape

The U.S. is more energy independent than it has been in four decades and is witnessing a boom in cheaper clean energy sources, particularly wind and solar. However, the infrastructure used to transport cheaper clean energy sources, parcicularly which and sound stowers, the distance when to both electric power and fossil fuels is a weak link that presents serious challenges for the country. Those are the conclusions of the federal government's first Quadrennial Energy Review, a repor

President Obama directed the Department of Energy to prepare. It was released today. The report cites a laundry list of current and future threats to the stability of the system, much of it The report lites a manner him of timeent and rutine threats to the despiting of the spaceta, manner of related to aging infrastructure, or infrastructure that was simply not designed to counter the threats now facing it. For instance, 59 percent of the pipeline systems that transport natural gas were

The report calls on the federal government to "address the **growing vulnerabilities posed by climate** constructed in the 1960s or earlier.

change, the evolving energy mix, cyber and physical threats, growing interdependencies, aging

The country's transportation, storage and distribution (TS&D) system "is increasingly vulnerable infrastructure and workforce needs." The country's transportation, storage and distribution (1 3000) opposition is an accountry, our to extreme weather events like hutricanes, flooding and wildfires. Changes in the geography of domestic energy production stress the ability of existing infrastructures to move both liquid fuels and electricity from supply regions to demand centers. Congestion in the nation's ports, waterways and rail systems affect the timing and cost of moving not just energy products, but all commodities.

The upside of the challenges facing the TS&D system is that addressing them will necessarily create and upstore of the challenges seeing the 1 John system is that sourcesing them was recessary the alot of jobs - up to 1.5 million of them, according to the report. The downside is that it won't be

nisep. The Department of Energy estimates that a program designed to improve maintenance of natural and Department of Energy estimates that a program designed to improve maintenance or nating gas pipelines would run \$2.5 billion to \$3.5 billion over 10 years. A plan to promote innovative responses to threats to the stability of the electric grid would cost \$3 billion to \$5 billion. A comprehensive electrical grid modernization program would be an additional \$3.5 billion. Groups representing both longtime figures in the energy debates, as well as newcomers, applauded

Unfortunately, experts and advocates have been urging lawmakers to invest in upgrading the U.S. many of the report's recommendations. infrastructure for the better part of a decade to little or no avail. Whether another report added to the pile of existing testimony about the need for a serious infrastructure plan will make a difference is far

"The U.S. is more energy independent than it has been in four decades and is witnessing a boom in cheaper, clean energy sources, particularly wind and solar. However, the infrastructure used to transport both electric power and fossil fuels is a weak link that presents serious challenges for the country."

"Changes in the geography of domestic energy production stress the ability of existing infrastructures to move both liquid fuels and electricity from supply regions to demand centers."

"...addressing them will necessarily create a lot of jobs – up to 1.5 million of them, according to the report." (Pres. Obama directed the DOE to produce the report)

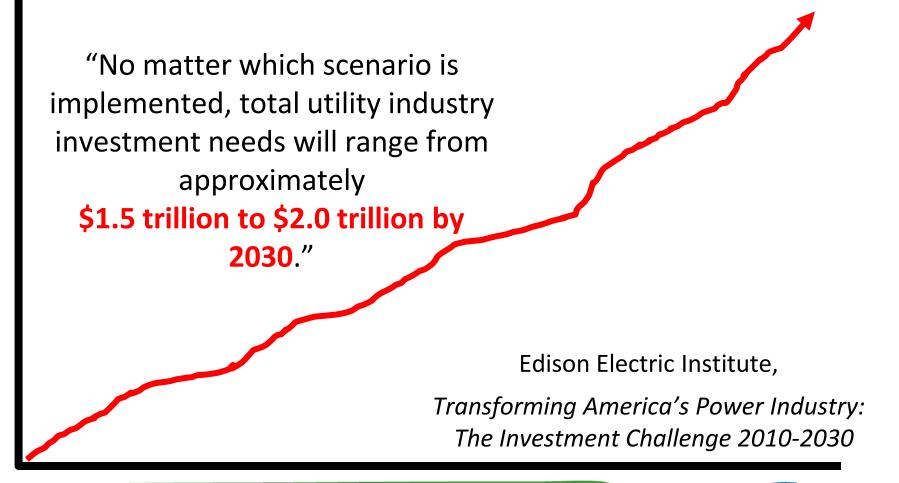
"Unfortunately, experts and advocates have been urging lawmakers to invest in upgrading the U.S. infrastructure for the better part of a decade to little to no avail."

> **Quadrennial Energy Review** U.S. Dept. of Energy

(quoted in the April 21, 2015 - The Fiscal Times



Today is the *most significant demand* for utility grid investments since the 1970s

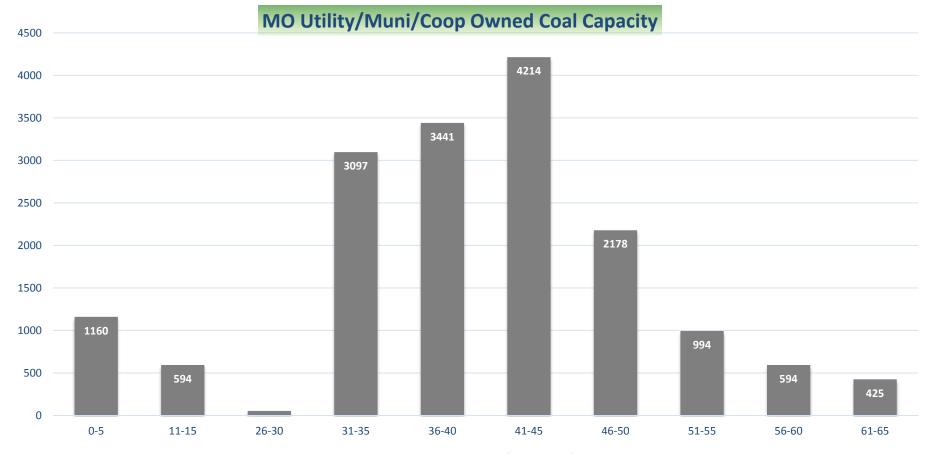


Missouri's Energy Infrastructure Receives a Low Grade

Infrastructure Category	Grade
Aviation	С
Bridges	C-
Dams	D-
Drinking Water	C-
Energy	D+
Inland Waterways	D
Levees	C-
Railroads	С
Roads	С
Schools	С
Wastewater	C-
OVERALL MO INFRASTRUCTURE	C-

- The American
 Society of Civil
 Engineers
 (ASCE) gives
 Missouri low
 grades for its
 infrastructure,
 with an overall
 grade of C-.
- Roads, bridges and energy infrastructure have a lot of similarities.

Missouri's Aging Generation Fleet



Age of Coal Plant (in years)

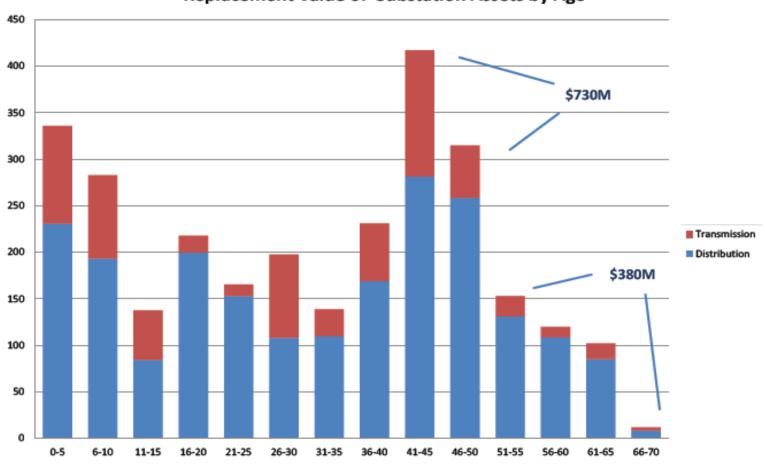
Meramec Energy Center – 62 years Sioux Energy Center – 48 years

Labadie Energy Center – 45 years Rush Island Energy Center – 39 years



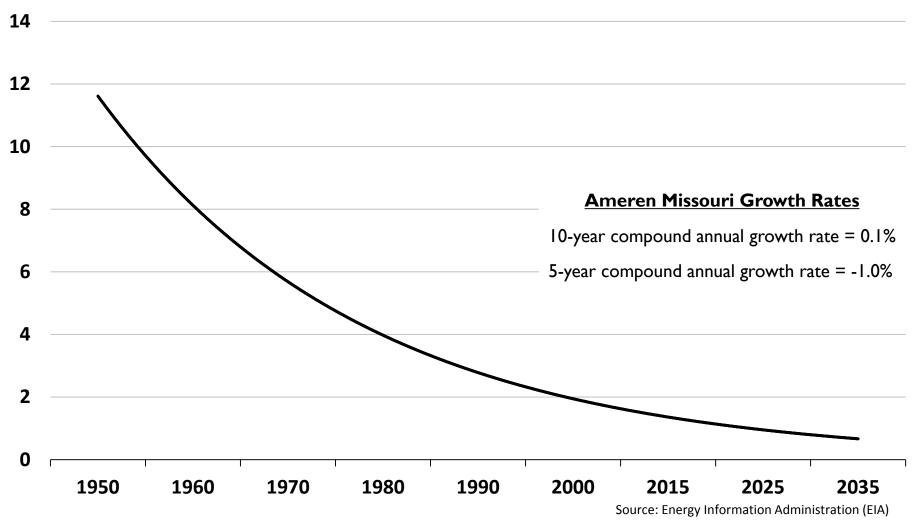
Missouri's Aging Distribution System







Electric Demand Growth Trend







Rising Cost

- The EPA has implemented several regulations that are driving up costs (and several more regulations are proposed)
- NRC
- NERC
- FERC
- MISO
- Cybersecurity
- Other

