



# Business & Financial Conference

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# American Public Power Association Business & Finance Conference

• Dan Aschenbach, Senior Vice President

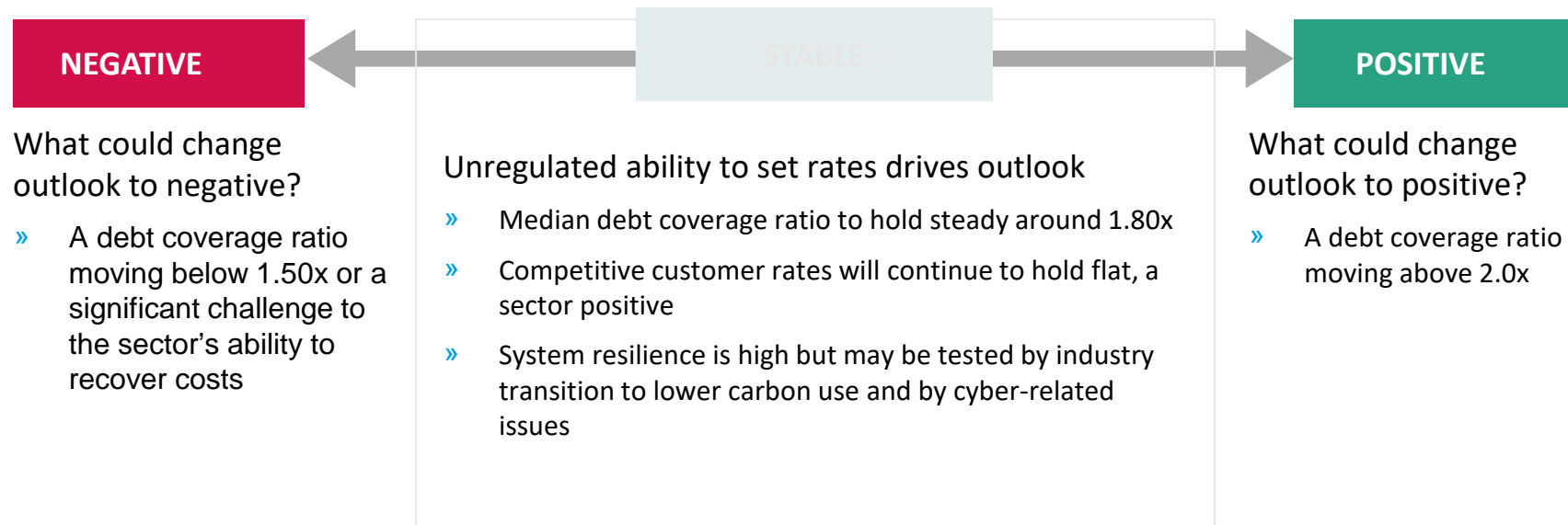
• September 17, 2018

# Agenda

- 1-US Public power electric utility credit outlook
- 2-Financial metrics driven by sound business model and stable business environment
- 3-Key credit challenges

# 1- 2018 US Public power electric utility outlook

- Outlook is stable
- Cost recovery ability continues as carbon transition looms





## 2-Financial metrics driven by sound business model and stable business environment

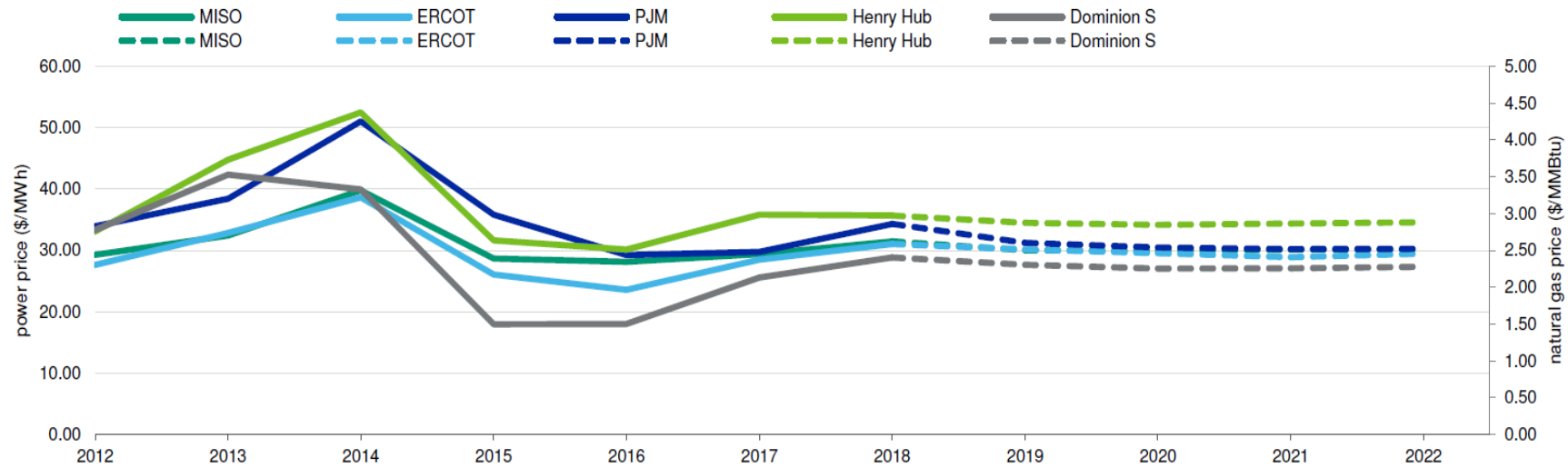
- \*Sound business model with self-regulation and local governance
- \*Low and stable natural gas prices and declining renewable energy PPAs
- \*Regional competitive markets providing some stability benefits

# Business environment inputs drive stability

- \*According to Moody's Macroeconomic Board, growth in US gross domestic product will be 2.9% and 2.3% during 2018 and 2019, respectively.
- \*The US Energy Information Administration forecasts that delivered coal prices will average \$2.10/MMBtu for 2018, and dip slightly to average \$2.09/MMBtu in 2019.
- \*Moody's forecasts that natural gas prices will be in the \$2.50-3.50 band per million British thermal unit (MMBtu) for Henry Hub between 2018-2019.

# Natural gas and power prices stable forecast through 2022

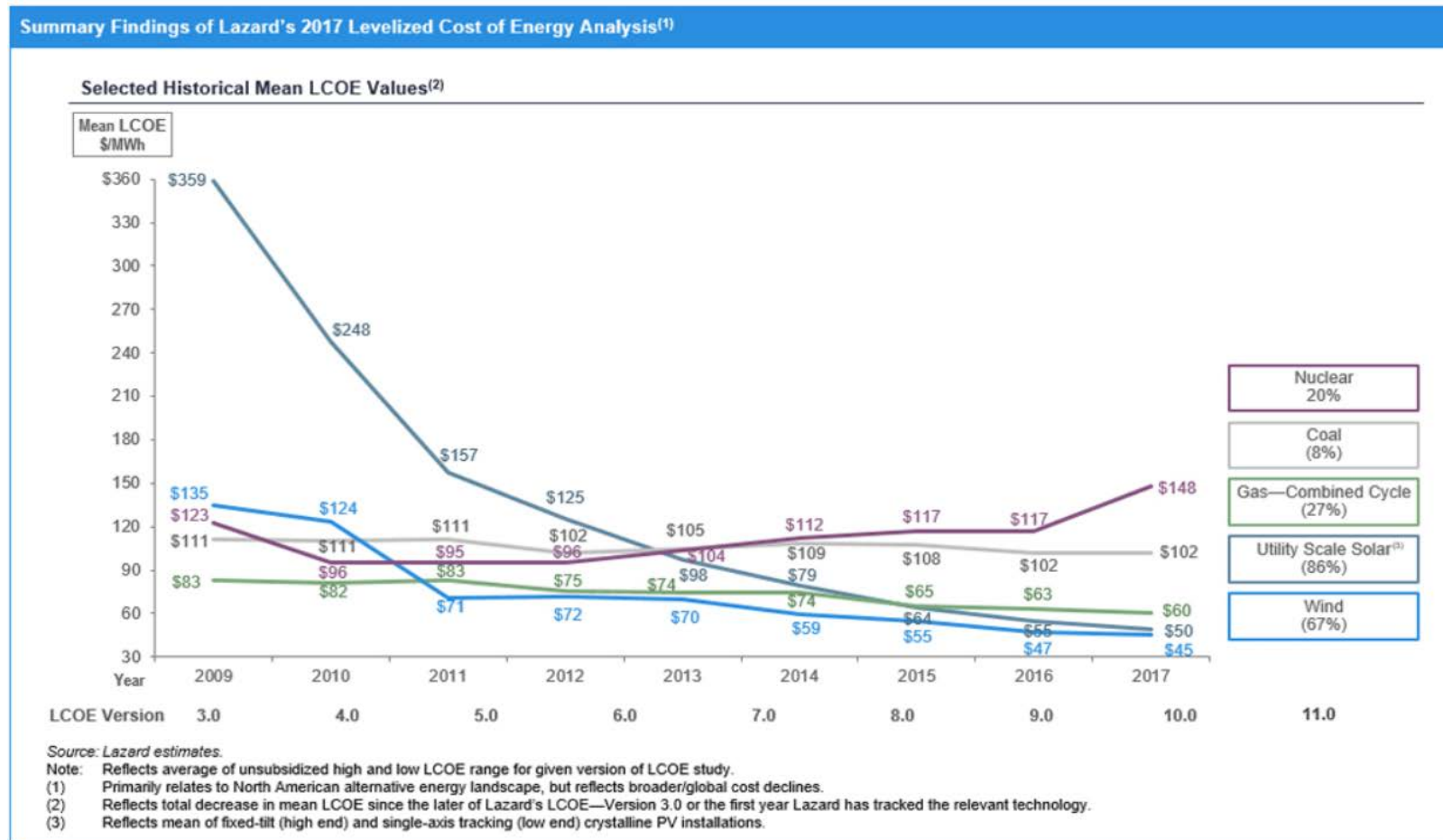
Power prices have fallen as natural gas prices have fallen



MISO Indiana hub ATC, ERCOT Houston ATC, and PJM Western hub ATC

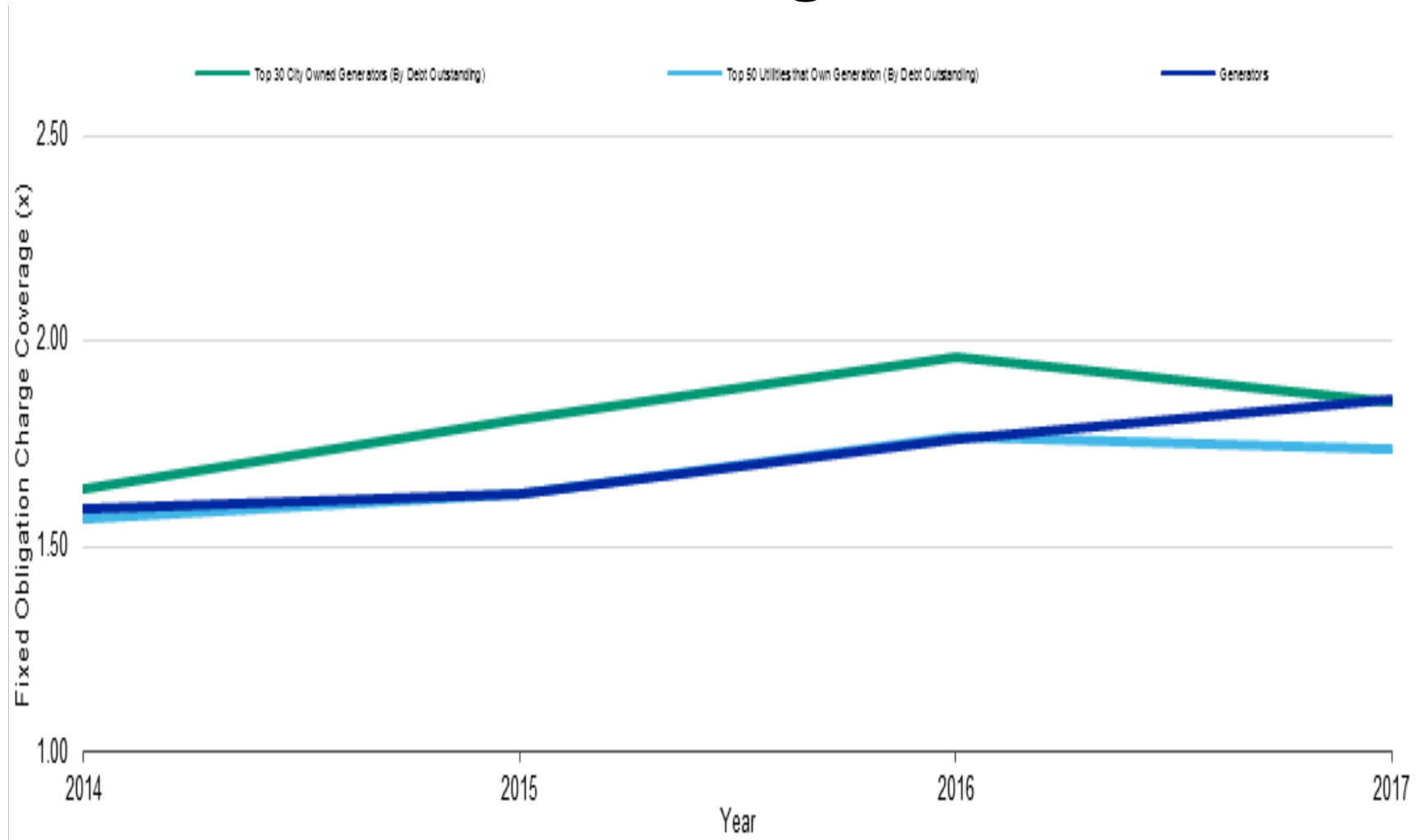
Source: SPGMI, OTC Global Holdings, Moody's Investors Service

# Solar and wind prices continue to drop

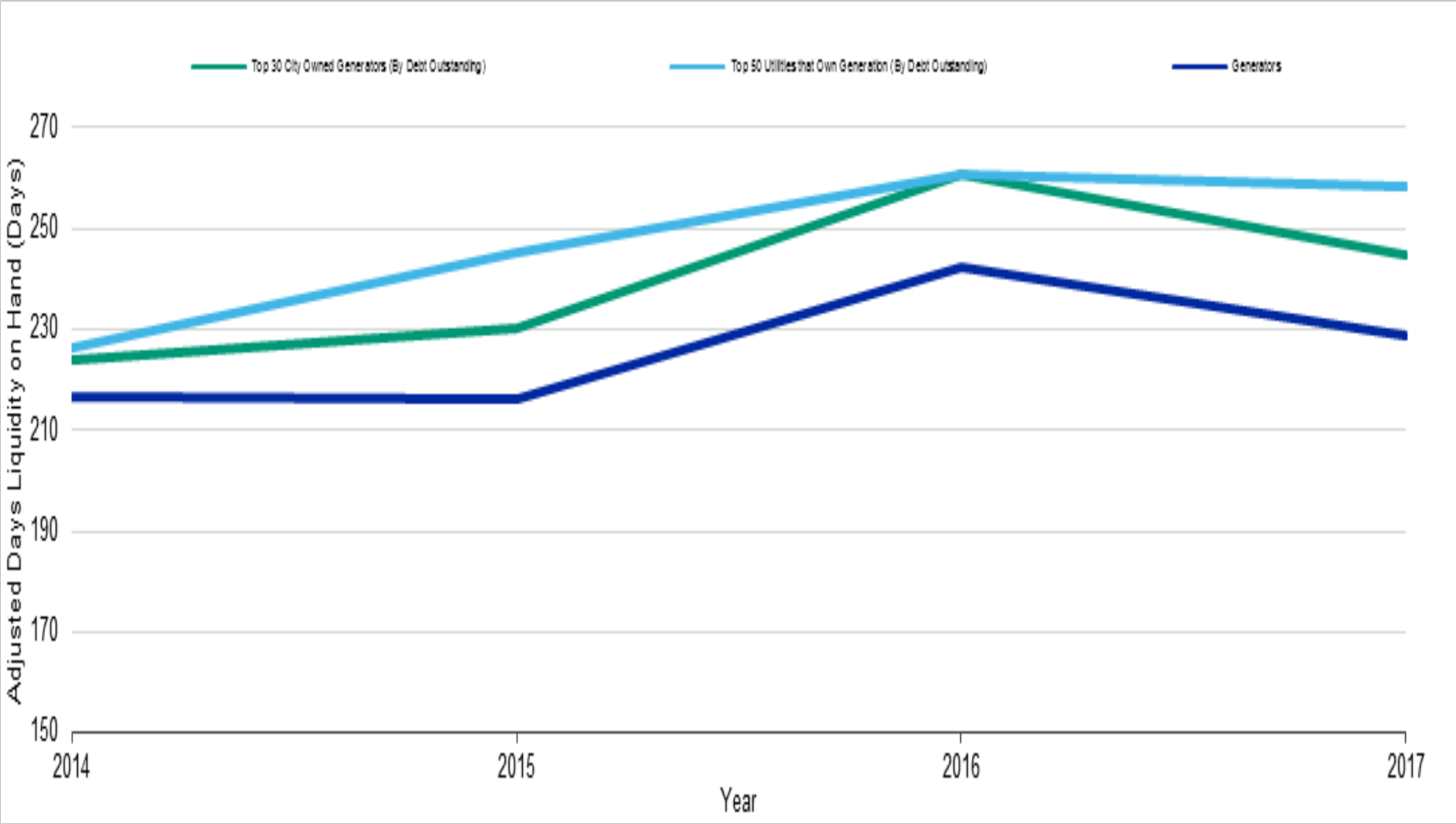




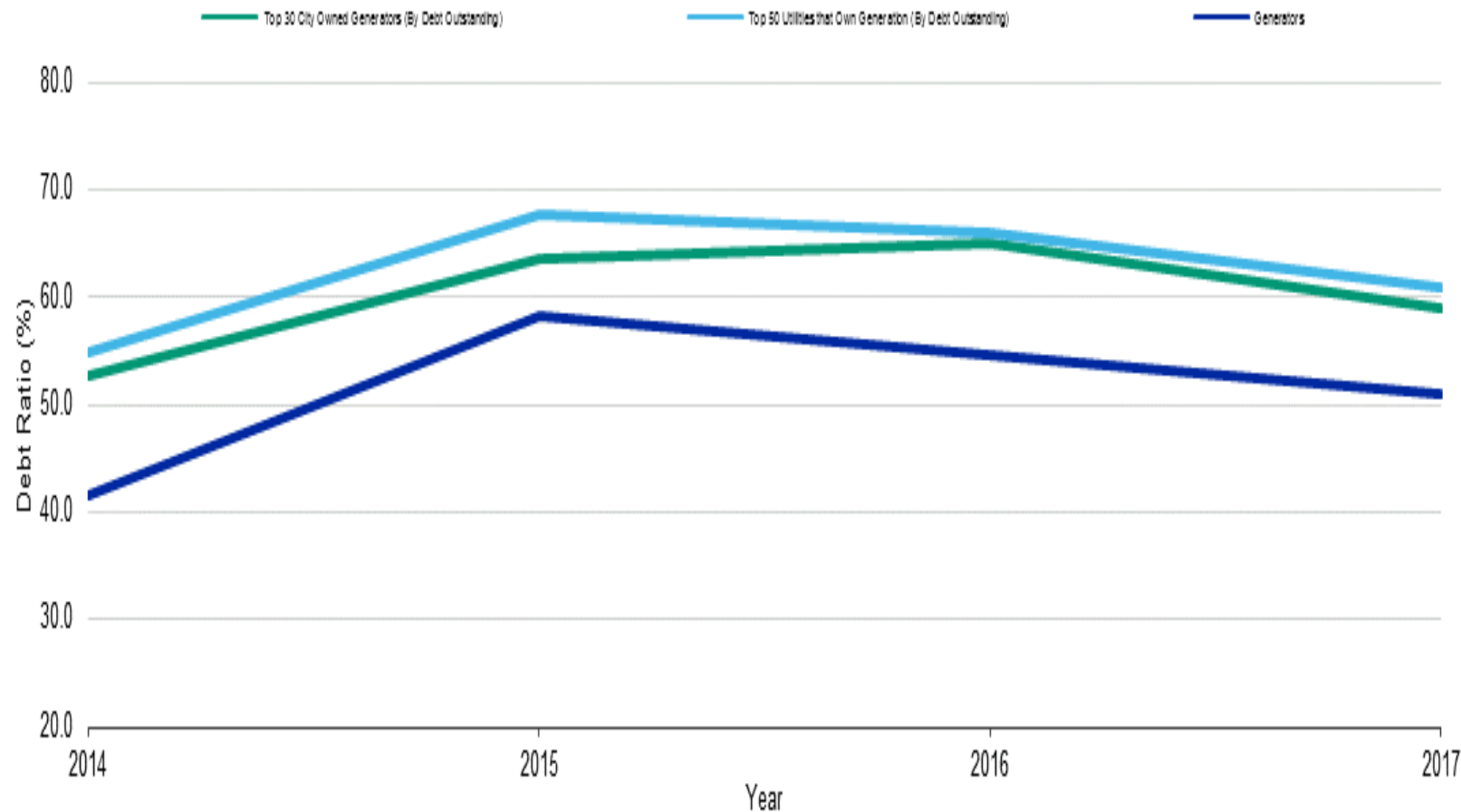
# Fixed obligation charge coverage continues to be strong



# Trend of sound liquidity continues in the public power sector



# Public power electric utilities debt ratios will continue to moderate



# 3-Key credit challenges

- \*Climate change risk and response
- \*Maintaining reliability and cost competitiveness
- \*Cybersecurity

# Risk in credit outlook: Climate change transition





## Carbon transition risk spectrum

### Vertically Integrated

- Utilities with substantial generation from coal, with ambitious emission reduction targets and uncertain recovery mechanisms
- Utilities facing industry restructuring (ex: Japan)

- Utilities with substantial generation from coal, with limited pace of emission reduction targets or with political support for coal
- Utilities with significant coal assets but which are highly depreciated

- Utilities with a diverse fuel mix

- Utilities with a low-carbon fuel mix



- Gas networks where country is moving toward electric heat

- T&D networks with rapid business model change

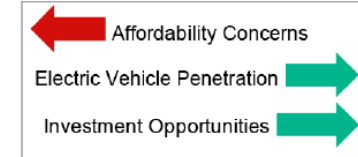
- T&D networks undergoing rapid change in power supply mix

- T&D networks with stable or slowly changing power supply mix

### Transmission & Distribution

Source: Moody's Investors Service

#### Risk Modifiers



# Carbon reduction strategy

- Carbon policy at the federal level has been slowed, but states and cities are continuing with existing renewable energy standards and carbon reduction plans, owing in part to the declining cost of renewables.

# Maintaining reliability and cost competitiveness



# Cybersecurity



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