### Where are we going? Why does it matter? What will you do about it?

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#### Problem #1: uncertain demand which makes for uncertain supply



Projection by ruler no longer works. Demand for electricity uncouples from economy

#### Problem #1 (continued): Plausible range of outcomes too wide for prudent long term investors



Electrification and decarbonization will change the picture but when?

## Problem #2: Unknown technology for both consumer and utility



Timing key Who pays Who benefits Government role



Problem # 2 (cont.): Let me count the ways...



Central station or decentralized Microgrid or network Command and control or customer control Renewable, fossil or nuclear Storage or generation Decarbonization at source, consuming less or environmental engineering New uses False starts **Problem #3** : Overriding importance of partially unrecognized (by politicians) environmental issues Utility operations Recurring violent storms and recovery Service territory viability **Electricity demand** "Economics" vs environment Who pays Moral hazard or buyout





### Problem #4: regulatory hazard is a two way street



Depending on regulator for bail out Regulatory decisions that inhibit ability to adjust

# The future of the electric utility, then, is...



### ...somewhere between



and



# Thank you