ENERGY TECHNOLOGY 2030

ONE POSSIBLE SET OF OUTCOMES

“THE FUTURE IS UNWRITTEN” JOE STRUMMER

- The ideas and suggestions provided in this presentation are from the author only and are not any official position of Duke Energy. No strategy or position on any technology is intended but just a suggested extrapolation of known trends and published information.

SOME LESSONS IN GUESSING ON TECHNOLOGY

- Flying Cars (1982 to 2020) : no but self driving
- Colonies on the Moon (1950-2020) : no but unmanned to Mars
- Infinite information at your fingertips
- Scale of technology change: vehicles and energy delivery : What slows adaption? Affordable access and the daily need to use that technology

RENEWABLE ENERGY IN THE STATE(S)

- Perhaps 10-12% of energy from renewables
- Significant retirements of coal plants and some coal left but low operation
- Grid stability done with new technologies
- Batteries (probably Li Ion of some sort) are filling some of the gap on stability but new energy storage will compete with batteries (perhaps gravity, flow batteries, thermal)
- TOU rates for all customers if they want it (aids battery + storage)
- Nuclear Renaissance ? Only if Federal & State Policy supports it

NEXT LEVEL DOWN

- Power Electronics in the grid allow for flow control on transmission/distribution systems making the grid more flexible to sudden changes from renewable intermittency
- DC grids become options for the high tech home
- Floating solar in Florida will be a norm. Large business and developers
- Transfer of energy will be complicated by small scale generation and owners
- All new homes constructed will be very low net energy consumption / DC wiring
- Smart homes integrated into rate optimization, grid needs and home power usage

ELECTRIC VEHICLES

- In US: 1 in 4 cars are EV's
- Self driving EV fleet trucks
- Self driving features for all new cars (another 15-20 years to EV majority)
- EV to grid / house will be another distributed resource