Pathway to Decarbonization for the Power Sector
How can the power sector reach a carbon-neutral future?

**ROADBLOCKS**

- **Carbon Capture & Storage (CCS)**
  - Infrastructure upgrades
  - Finding suitable geologic storage
  - Some energy loss during capture

- **Renewable Energy**
  - Intermittent generation
  - Grid stability/energy storage
  - Land/permitting issues

- **Nuclear Energy**
  - Substantial capital investment
  - Public perception/permitting issues
  - Waste disposal
  - Safety

- **Fuel Switching**
  - Limited availability of green hydrogen
  - Substantial infrastructure upgrades

- **Efficiency Improvements**
  - Diminishing returns over time

- **Carbon Offsets/Trading**
  - Power plant emissions not actually reduced
  - Market/regulatory environment
  - "Greenwashing" perception

**TIMELINE**

- **SHORT TO MEDIUM** ( MOST OR ALL THE WAY )
- **LONG TO VERY LONG** ( MOST OR ALL THE WAY )
- **LONG TO VERY LONG** ( MOST OF THE WAY )
- **MEDIUM TO LONG** ( COAL TO GAS: ONLY A SHORT DISTANCE ) ( HYDROGEN FUEL: MOST OF THE WAY ) (but only if sustainably produced)
- **SHORT** ( ONLY A SHORT DISTANCE )
- **SHORT** ( ONLY A SHORT DISTANCE (if any at all) )

**HOW FAR IT GETS US**

- **SHORT TO MEDIUM**
- **LONG TO VERY LONG**
- **LONG TO VERY LONG**
- **MEDIUM TO LONG** ( HYDROGEN FUEL: MOST OF THE WAY )
- **SHORT**
- **SHORT** ( ONLY A SHORT DISTANCE (if any at all) )