Trends in the Energy Sector!

Michael J. Pardo, PCS, MBA
Engineering Manager



Let’s talk about what is going on in our world!

1. Electricity Demands
2. Grid Modernization
3. Green Renewables
4. Energy Storage
5. Data Centers
6. Nuclear Power Revival



Electricity Demands

- Electricity consumption is rising sharply due to **electrification of transport, heating, and industry**, plus **data center growth** projected to exceed 2,000 TWh by 2035

- Data centers are using close to 40 GW of electricity
  - Some say it is not sustainable unless they build their own power sources

- AI workloads and EV adoption are:
  - Accelerating peak demand
  - Stressing grids
  - Prompting new generation and transmission builds

Grid Modernization

- Utilities are committing **hundreds of billions annually** to modernize infrastructure.
  - Smart grids
  - Bidirectional flows
  - Virtual power plants
  - These are replacing centralized, one-way systems
  - Fractionators
  - Liquid Natural Gas Facilities BOOM

Green Renewables

- Types of renewables being brought to the forefront
  - Global green hydrogen electrolysis capacity is targeted at **200+ GW by 2030**
  - Hydrogen plants
  - Methanol plants
  - Ethanol plants
  - Propane plants
  - Butane plants
  - Natural gas plants

Energy Storage

- Battery storage facilities
- Carbon capture facilities
- Storage tank farms
- Import/export facilities

Data Centers

- Companies such as Tesla, SpaceX, Facebook, Amazon, Google, Microsoft, etc.m are building rapidly around the United States
  - Commercial side for these buildings is growing

- These companies are targeting as much renewable resources as possible for operation
  - Solar, wind, hydrogen, etc.
  - Cut emissions
  - Stabilize costs

- On-Site Generation
  - Hydrogen
  - Small modular reactors
  - Battery storage

Nuclear

- Nuclear is regaining strategic relevance, with global generation expected to hit record highs.

- It’s viewed as a low-carbon, baseload option alongside renewables.

- Small Modular Reactors are being built in the Tennessee Valley as well as other locations around United States to see its viability.
  - Companies such as NuScale, GE, TerraPower, Westinghouse, General Atomics, all of the National Labs (Idaho, Oak Ridge, Amarillo, Pueblo)

- Southern Company investing in more nuclear power plants.

Finality

- The U.S. energy sector is in a transition phase—maintaining robust fossil fuel production while embedding renewables and electrification into the core.

- The next decade will be defined by the pace of clean energy deployment, grid modernization, and the interplay between market forces and policy mandates.

- These trends will impact all areas of our thermal insulation market from commercial to industrial.

- It’s going to need a diverse group of workers that can walk both lines and dabble in both areas for successful projects to be executed.

Thank You!

Let’s Get to Questions!

