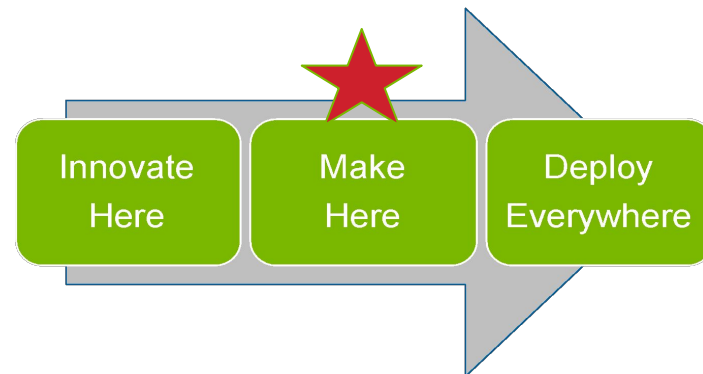
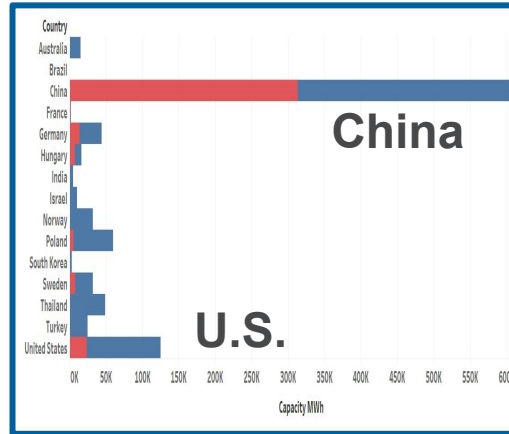
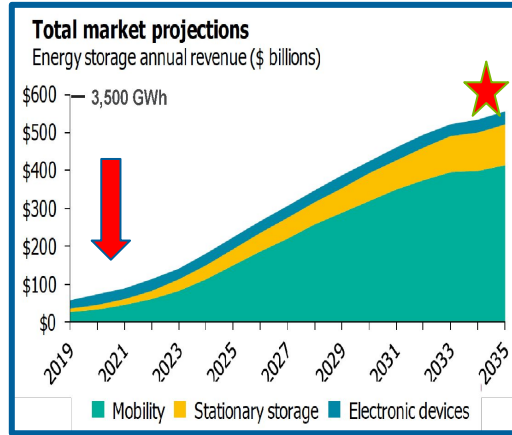


AN ENERGY STORAGE CHALLENGE FOR A CARBON-FREE GRID



Sue Babinec: Program Lead – Stationary Storage
Argonne National Lab

Reaching net zero GHG emissions in 2050 requires massive renewable energy: 70 - 90% solar & wind. **Large amounts of diverse energy storage are needed** to balance supply & demand:



★ **US = 25% Global = ~900 GWh** Planned : **Under Construction**

Developed in the US
Not made in the US
Not exported outside the US

Present approach:
Capital Expense = Liability
Off-shore GDP growth

Alternative approach:
“Investment”
Midwest Manufacturing Ecosystem

Reaching net zero GHG emissions in 2050 requires massive renewable energy: 80 - 90% solar & wind. **Large amounts of diverse energy storage are needed to balance supply & demand:**



Tremendous Regional Benefits with Investment Approach



- Robust Midwest High Tech Ecosystem
- More manufacturing jobs = middle class
- More students
- Economic resilience
- Supply chain stability
- Regional wealth creation



Reaching net zero GHG emissions in 2050 requires massive renewable energy: 80 - 90% solar & wind. **Large amounts of diverse energy storage are needed** to balance supply & demand:



Lost window-of-opportunity with Liability Approach



- Lost jobs & talent in sector critical to Chicago
- Slow & at-risk achievement of Green Goals
- Greater vulnerabilities & costs with foreign manufactured battery storage
- Another U.S. region secures the Grand Challenge Opportunity



*Regarding IoT, Technology and Innovation, to achieve Chicago's 2050 Carbon & Equity goals, **the most critical obstacle to overcome is the lack of a Chicagoland Manufacturing Innovation Hub for energy storage.***

Big Tech & Powerful Finance Need a Sustainable Shared "Win"

