



Great Decisions 2022 plans

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Government Intervention: What is National Security?

- Traditional Defense
 - Military personnel and operations
 - Hardware: Planes, boats etc.
 - Advanced R&D - DARPA
 - NSA & Cyber
 - Critical Supply Chains
 - Pandemic Preparedness
 - Climate Change
 - Infrastructure
- US Defense spending 2020: \$725B, or 11% budget. (China \$252B)
 - Science & Technology (\$14.7B) R&D, Test and Eval : \$112B. (NSF: \$8.5B)
 - 2020 Boeing revenue \$27B military, half of total revenue (Lockheed Martin \$47B)

China's Industrial Policy

A brief case study

- Selection process
- Putting it in action: an example
- The outcome



China's Investment in Developing Countries

A brief case study

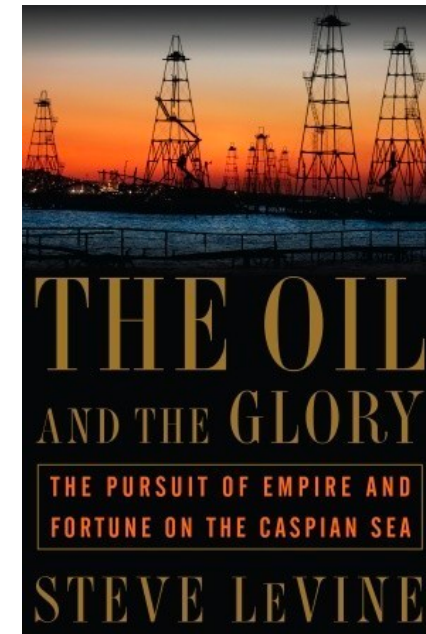
- The project, an airport
- The Chinese version of international loan assistance
- Details and Consequences



US and Resource Extraction

A brief case study

- Chevron and Kazakhstan
- US version of technology transfer
- Making amends



US Industrial Policy Today

A brief case study

- TechMet
 - Mission and core beliefs
 - Who are they and where did their money come from
 - What are they doing and how



Building Resilient Supply Chains

White House 100 day report

- “More secure and resilient supply chains are essential for our national security, our economic security, and our technological leadership.”
- “Decades of focusing on labor as a cost to be controlled—not an asset to be invested in—have depressed real wages and driven down union-density for workers, while also contributing to companies’ challenges finding and keeping skilled talent.”
- “The U.S. share of global semiconductor production has dropped from 37 percent in 1990 to 12 percent today”
- “Current U.S. market structures fail to reward firms for investing in quality, sustainability or long-term productivity.”

BUILDING RESILIENT SUPPLY CHAINS, REVITALIZING AMERICAN MANUFACTURING, AND FOSTERING BROAD-BASED GROWTH

100-Day Reviews under
Executive Order 14017

June 2021

A Report by
The White House

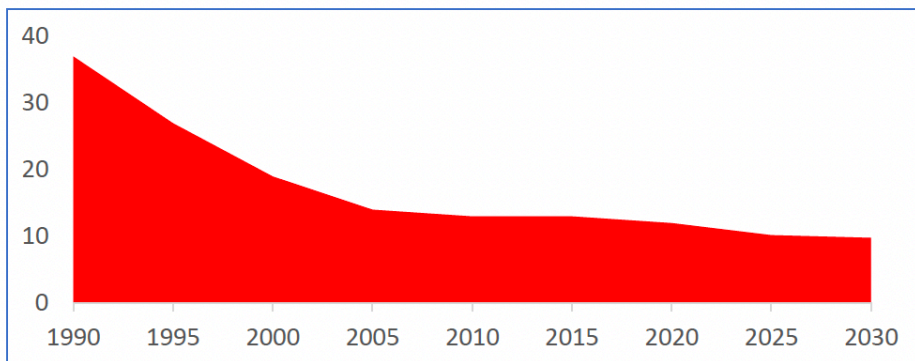
Including Reviews by
Department of Commerce
Department of Energy
Department of Defense
Department of Health and Human Services



Building Resilient Supply Chains

Critical Supply Chains Identified

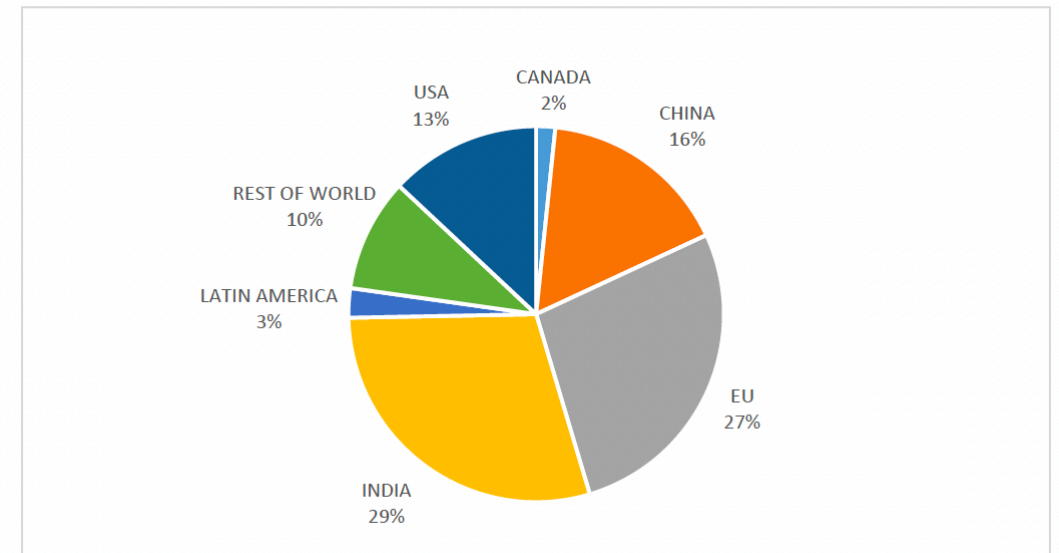
- Semiconductor Manufacturing & Packaging
 - Taiwan's TSMC controls 51% of global chip market, 92% of leading edge semiconductors, gets generous government subsidies (e.g. 50% land cost)
 - Security concerns around Huawei



Source: SEMI, VLSI and BCG⁶⁷

- Pharmaceuticals
 - Generics: 63% manufactured overseas, 87% active ingredients from overseas
 - India imports 70% of active pharmaceutical ingredients from China

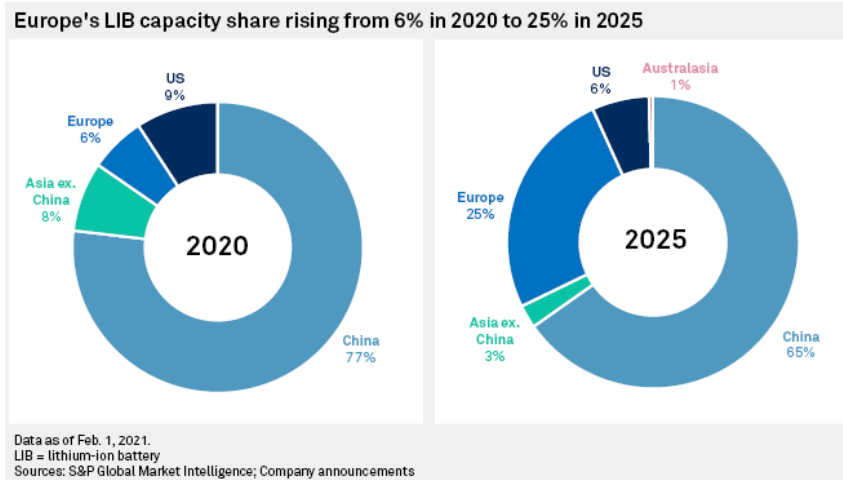
Figure 7: Percentage of API Manufacturing Facilities for Generic Drugs (Approved Under ANDAs) by Country or Region, March 2021



Building Resilient Supply Chains

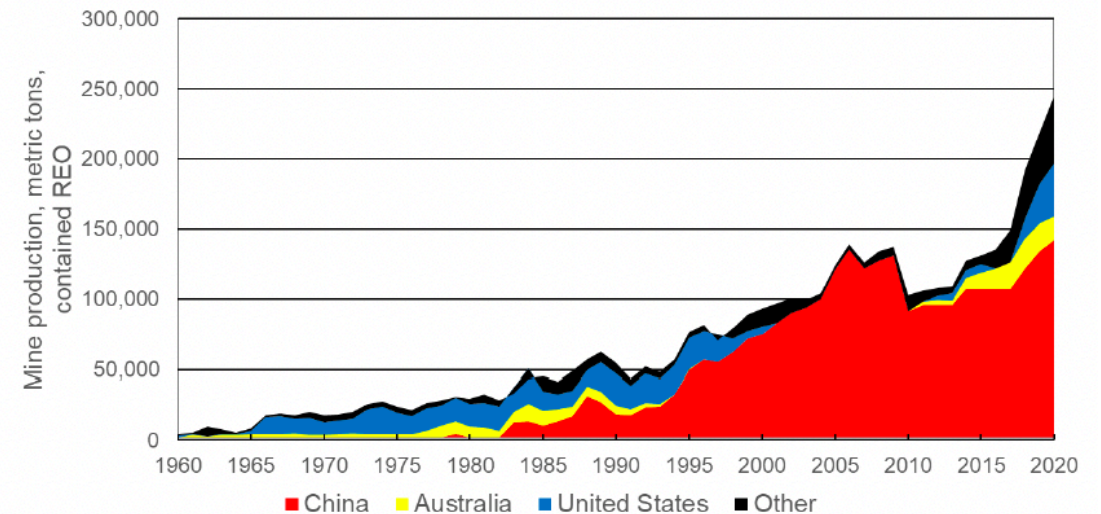
Critical Supply Chains Identified

- Large Capacity Batteries
 - Market expanding rapidly, 3x in 5 years
 - EU spending \$3.5B on battery R&D
 - China has 75% global fabrication capacity



- Critical Materials & Minerals
 - Rare Earths

Figure 13: Global Rare Earth Production (1960-2020)¹⁴



Building Resilient Supply Chains Recommendations

- Rebuild production and Innovation
- Support market development that invests in workers, value sustainability and quality
- Leverage Government Purchasing
- Strengthen International Trade Rules
- Work with Allies and Partners to Decrease Vulnerabilities
- Monitor near-term disruptions

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Question 1

“Industrial Policy” emphasizes substantial government intervention in a nation's economy. What are the benefits and consequences of this intervention?

Pros? Cons?

	Did the industry become more competitive?	Were jobs saved or created?	Did industry technology advance?
Trade measures			
Steel	D	D	D
Textiles & apparel	D	D	C
Automobile assembly	A	A	A
Automobile parts	B	C	A
Semiconductors (antidumping phase)	D	D	C
Semiconductors (foreign market opening phase)	B	A	A
Solar panels (tax credits)	D	A	A
Solar panels (trade protection)	D	B	D
Subsidies			
Synthetic Fuels Corporation	D	D	D
Solyndra Corporation	D	D	D
Crescent Dunes	D	D	D
Mercedes-Benz in Alabama	A	A	B
Chrysler bailout in 1980	A	A	A
Foxconn in Wisconsin	C	B	D
Research and development			
Defense Advanced Research Projects Agency (DARPA)	A+	A+	A+
Renewable energy	D	A	A
Sematech	C	B	A
Florida Biotech Center	A	D	A
Advanced Technology Vehicles Manufacturing Loan Program	A	B	A
Operation Warp Speed	A	A	A
North Carolina Research Triangle Park	A	A	A

Question 2

How would increased government intervention in the economy affect US relations with allies and other countries?

- Boeing-Airbus WTO dispute
 - 17 year dispute including wine, cheese & tractors
 - 5 year truce
- NAFTA & Car industry
- China & Taiwan

Question 3

Which US industries, if any, are most suitable for industrial policy?

- Semi-conductor
- Batteries
- Critical Materials & Minerals
- Pharmaceuticals
- ...

Question 4

Neoliberal economic theory has been prominent in several US administrations. President Biden's push for "industrial policy" represents a stark break from this theory. What factors have caused this change? Is it warranted?

Can we, or do we, want to go forwards or backwards?

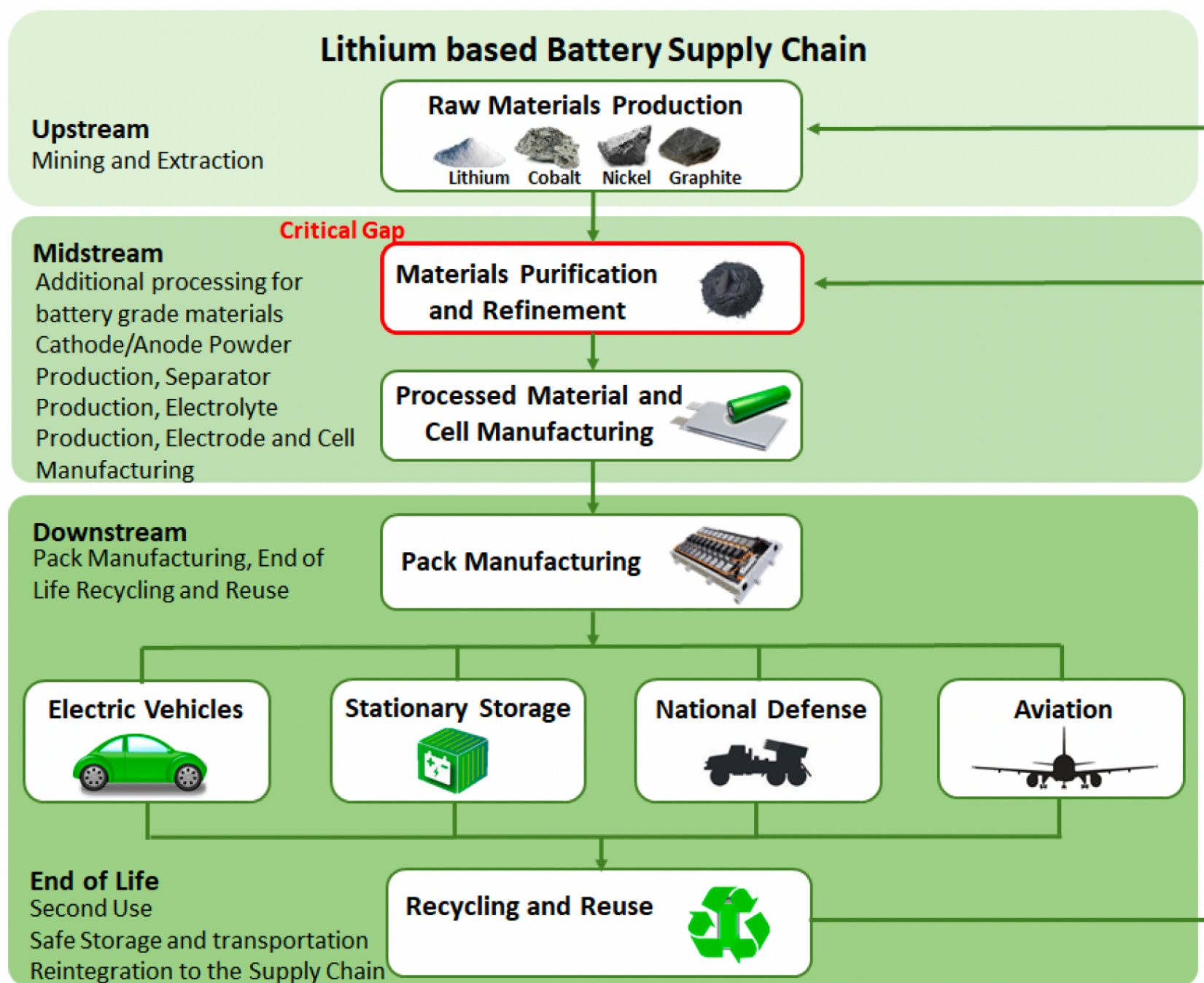
What does that look like?



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Source: DOE Vehicle Technologies Office (VTO)