

China's Uranium Procurement Strategies

Jeffrey R. Faul, President and CEO
NUKEM, Inc.
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News From the Front

- “China Plans to Spend Big on Nuclear Power, High Speed Rail”
--\$1.5 Trillion for infrastructure touted
(Reuters, Feb. 8, 2011)
 - “Fukushima Nuclear Plant Under State of Emergency”
(UK Guardian, March 11, 2011)
 - “China Suspends Nuclear Building Plans”
(BBC, March 17, 2011)
 - “New Nuclear Plants ‘Set to be approved’”
(China Daily, April 22, 2011)
 - “Detailed Plan to Adjust Industry Structures”-- Nuclear Supported
(Beijing Today, April 27, 2011)
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- A large-scale construction site for a nuclear power plant. The image shows multiple tall yellow cranes, concrete structures under construction, and various pieces of heavy machinery. The scene is somewhat hazy, suggesting an industrial or outdoor setting.

China Uranium Supply: National Policy Considerations

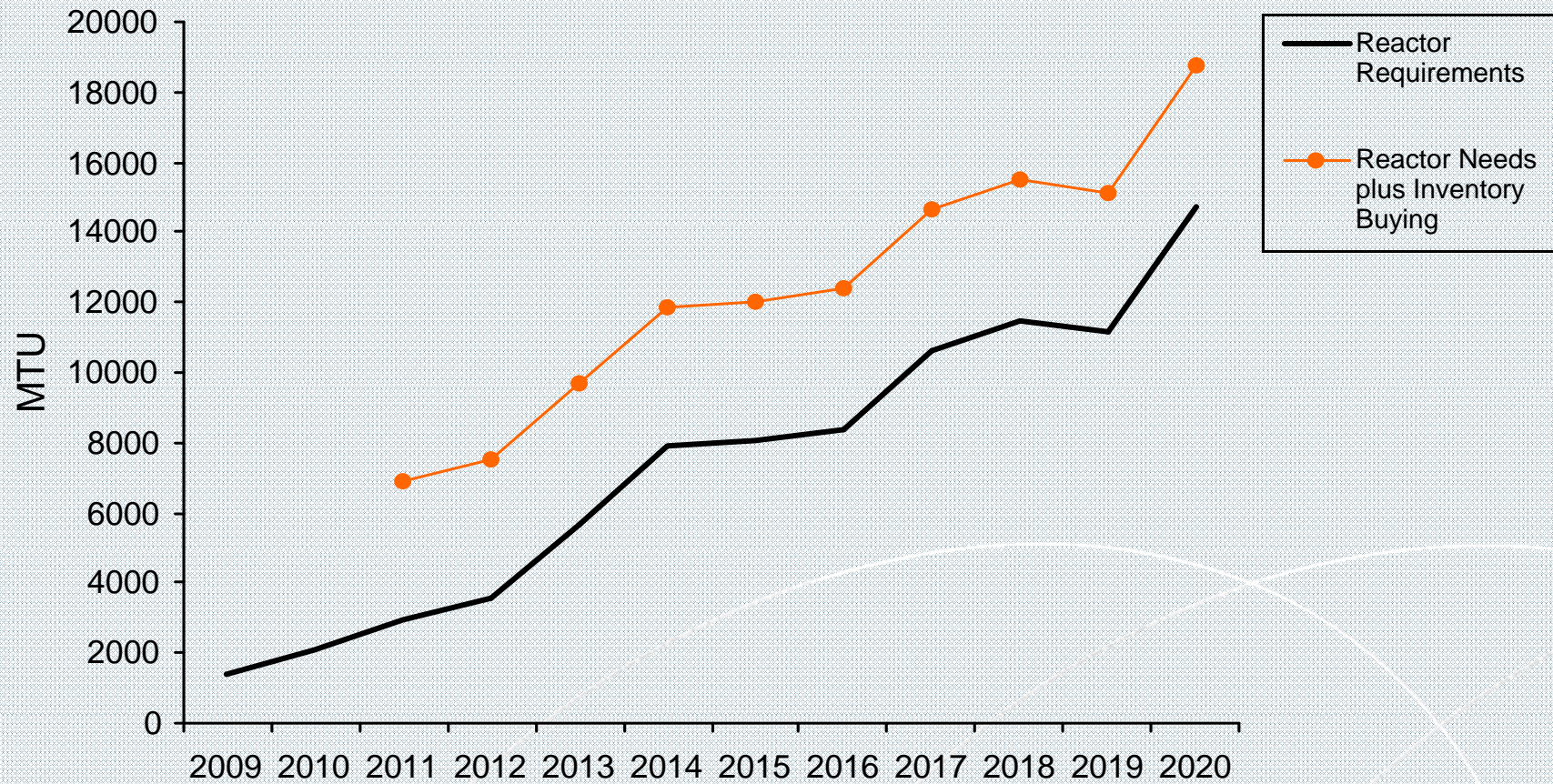
“Three One Thirds” Procurement Policy

- One Third Domestic Production
 - One Third Overseas Production (JVs)
 - One Third Market Purchases
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- A large-scale construction site for a nuclear power plant. The image shows several tall yellow cranes, a large cylindrical containment structure under construction, and various pieces of industrial equipment and scaffolding. The scene is brightly lit, suggesting a clear day.

China Uranium Demand to 2020

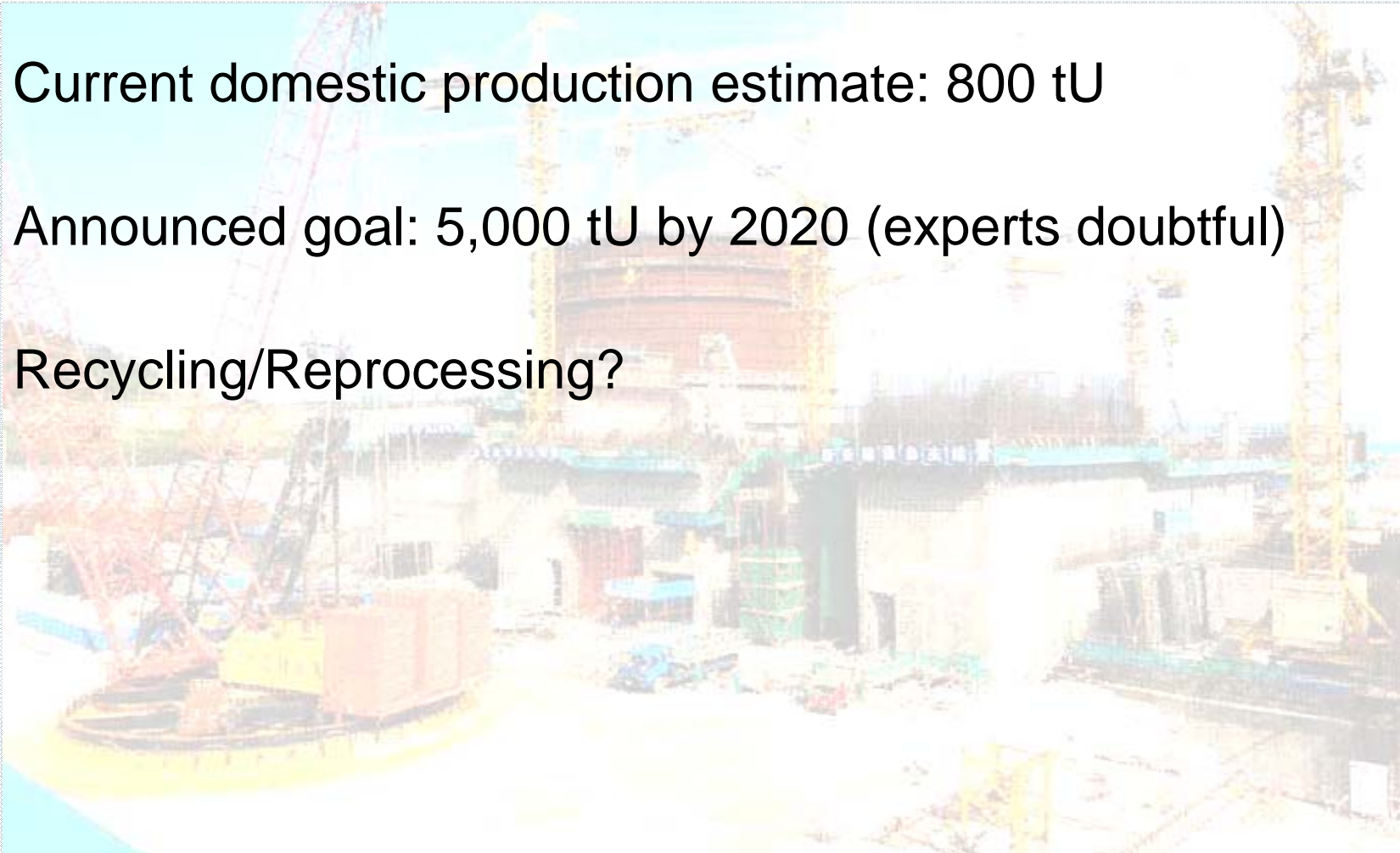
- Annual Reactor Requirements Rising sharply
 - 2011: 3,000 tU (7.6 MM lbs U₃O₈)
 - 2020: 14, 800 tU (38 MM lbs U₃O₈)
 - Cumulative Requirements 2011-2020:
 - 84,500 tU (NAC 4/2011 Projection: 74 GWe by 2020)
 - Strategic Inventory: “Rule of Thumb” 200 tU per MWe for one year.
Three-year inventory by 2020: 44,400 tU
 - Cumulative Reactor Requirements plus Inventory Purchasing by 2020:
129,000 tU (335 MM lbs U₃O_{8e})
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- A background image showing a large-scale construction site for a nuclear reactor. The scene is filled with complex metal structures, scaffolding, and several tall yellow cranes. The sky is overcast, and the overall atmosphere is industrial and busy.

China's Uranium Requirements

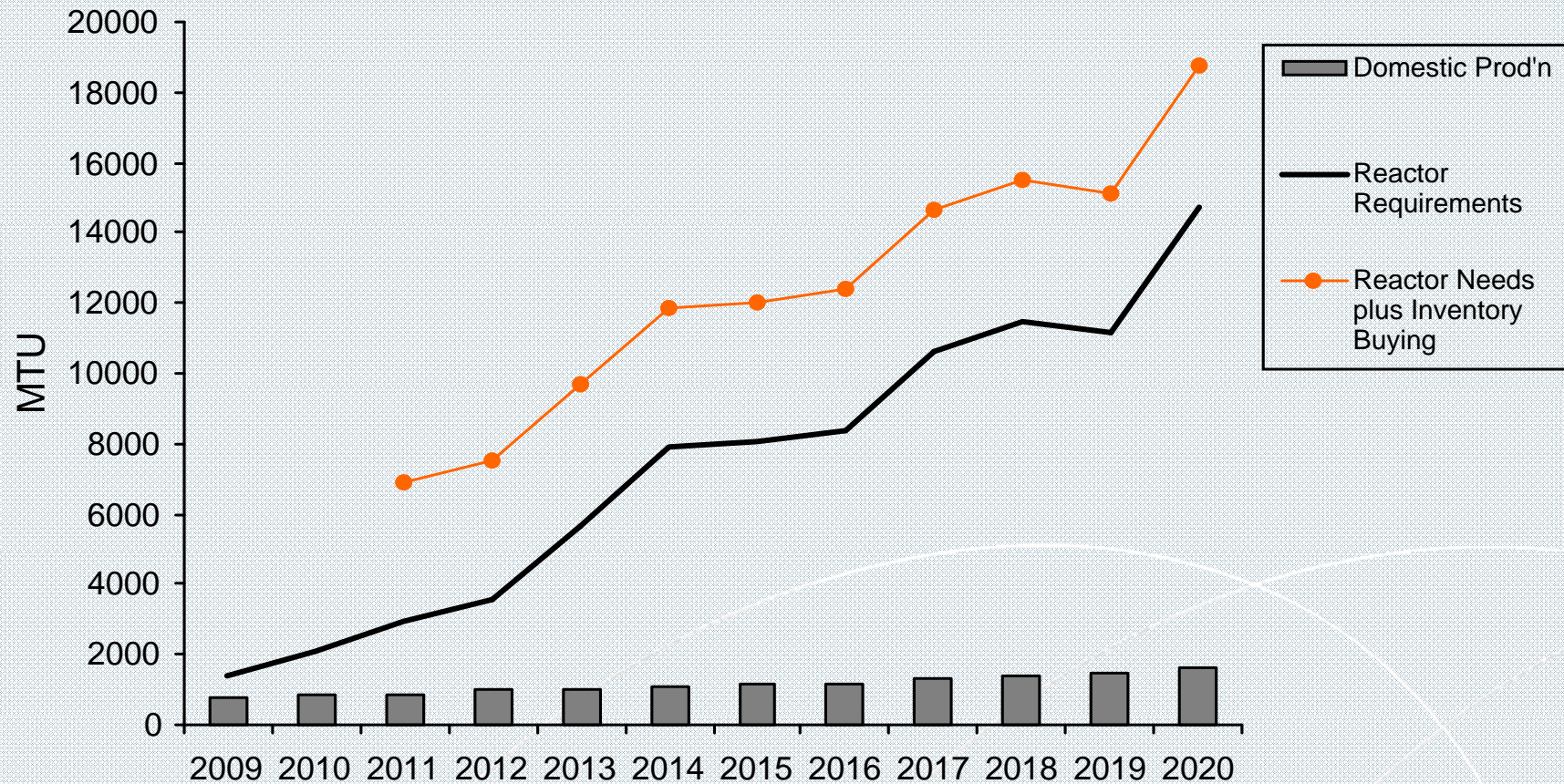


China Supply: Domestic Production

- Current domestic production estimate: 800 tU
- Announced goal: 5,000 tU by 2020 (experts doubtful)
- Recycling/Reprocessing?



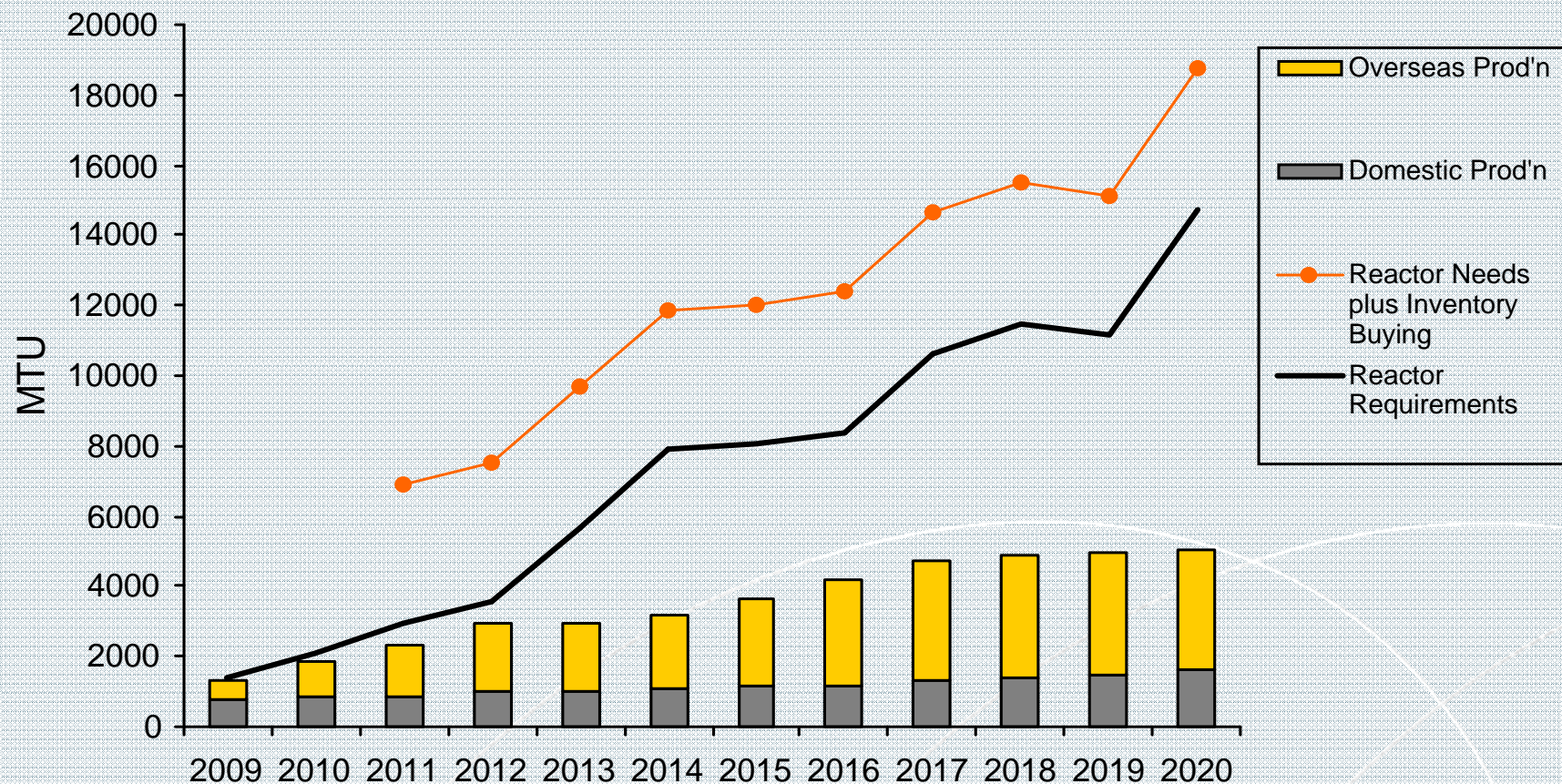
Supply Demand Graph Including Domestic Production



China Supply: Overseas Production

- Kazakhstan: Semizbai and Irkol (1,250 tU/year)
 - Niger (Azelik, 700 tU/year target)
 - Namibia (43% of Husab, 2,500 tU target)?
 - Others
 - ❖ Australia
 - ❖ Botswana
 - ❖ Jordan
 - ❖ Kyrgyzstan
 - ❖ Mongolia
- 
- A large-scale industrial construction site, likely a uranium enrichment plant. The image shows several tall yellow tower cranes, various industrial buildings, and a complex network of pipes and structures. The scene is set in an open area with some greenery in the background.

China Supply/Demand (Domestic Production Plus Overseas JVs)

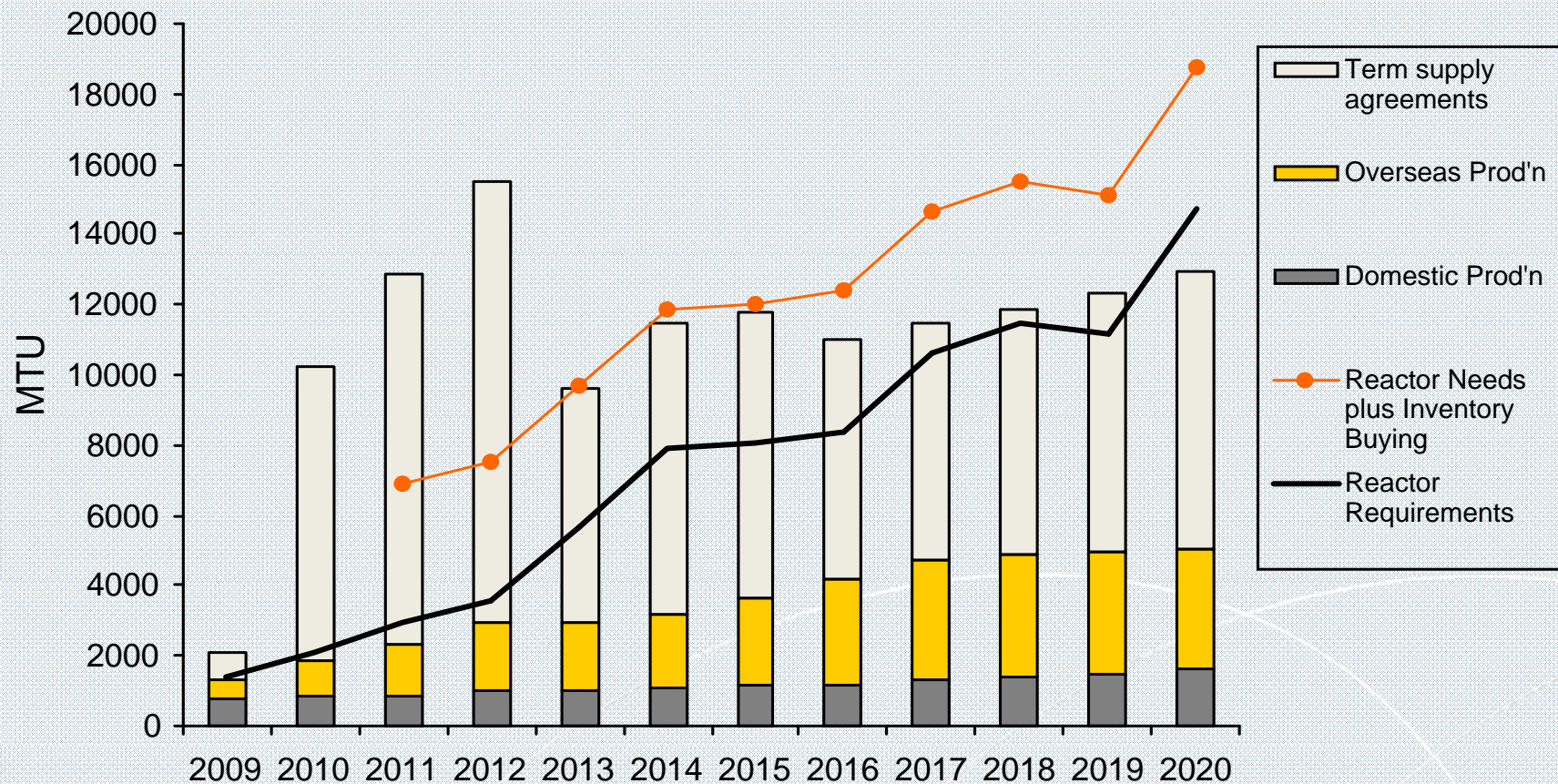


China Supply: Term Purchasing and Equivalent

- Largest supplier is Kazakhstan, both term deals and JVs
- Other major suppliers: AREVA (term supplies plus fuel for AREVA reactors); Tenex/TVEL (similar to AREVA); Cameco; Rio Tinto
- Others (current or in advanced negotiation): Paladin, Urenco, BHP

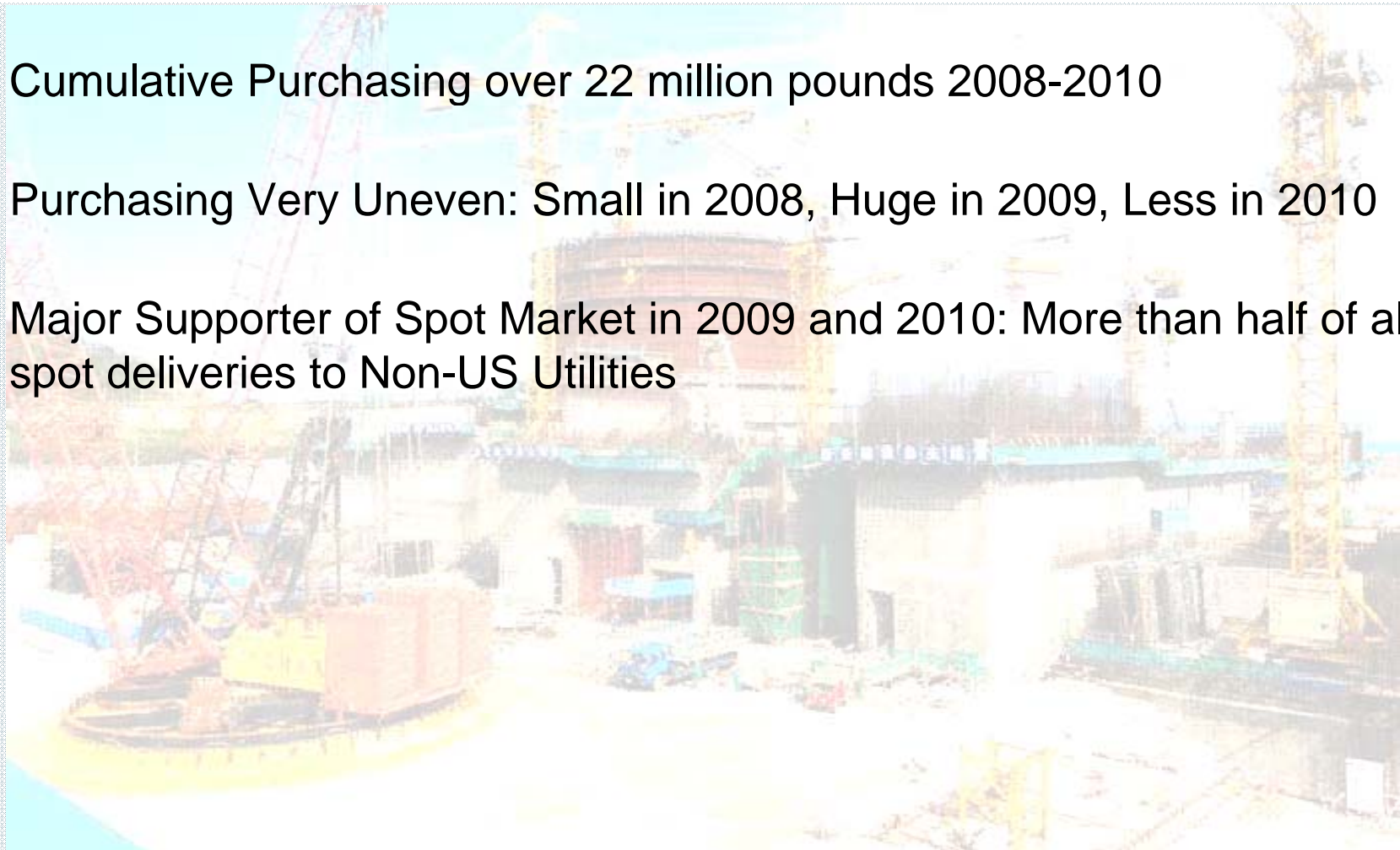


China Supply/Demand (Domestic Production + Overseas JVs + Term Deals and Equivalent)



China in the Spot Market

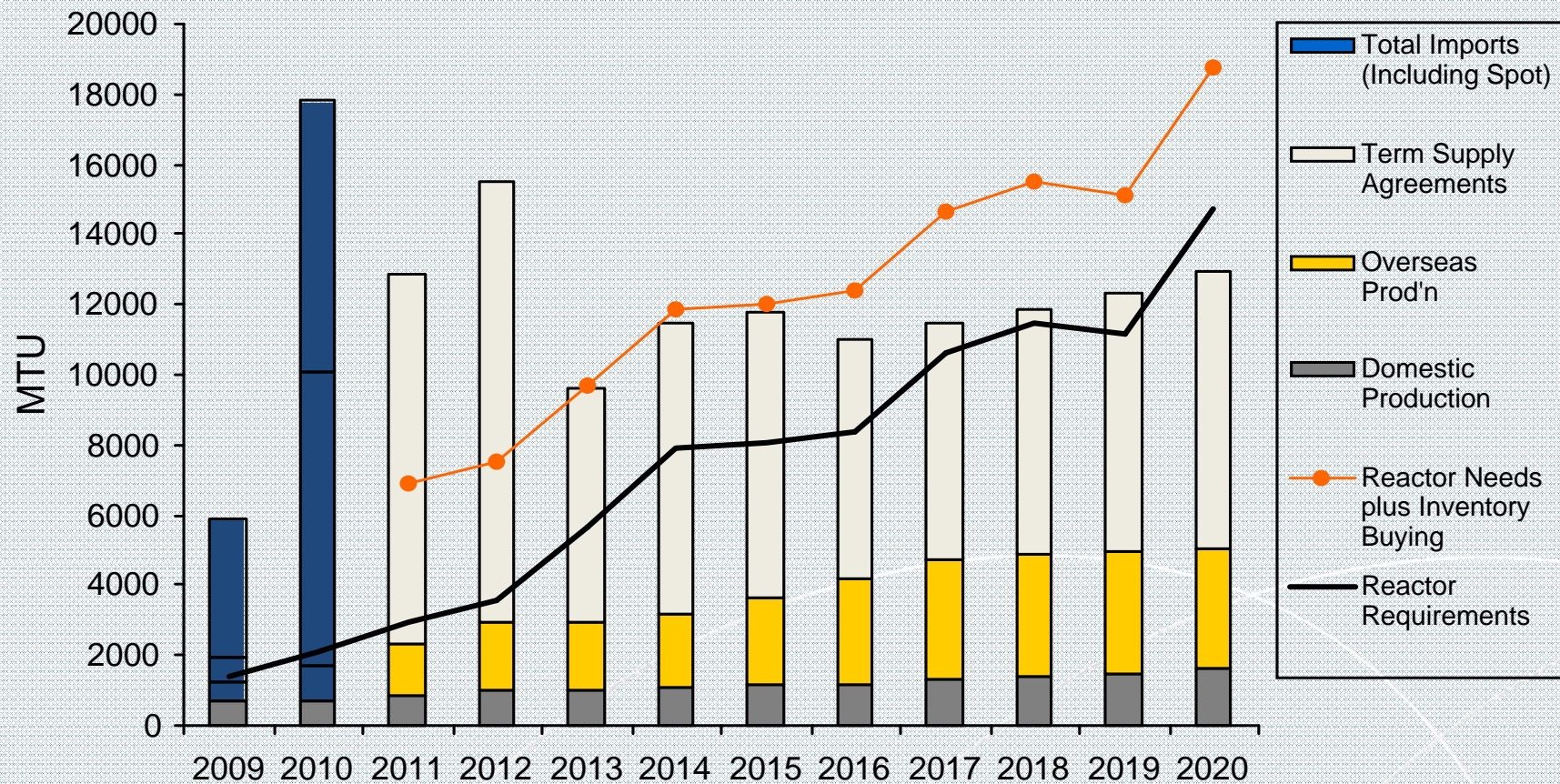
- Cumulative Purchasing over 22 million pounds 2008-2010
- Purchasing Very Uneven: Small in 2008, Huge in 2009, Less in 2010
- Major Supporter of Spot Market in 2009 and 2010: More than half of all spot deliveries to Non-US Utilities



China in the Spot Market *(cont'd)*

- Behavior not “Monolithic”
 - Different Purchasing Entities Involved
 - Longer Term Strategy: Build Comfortable Inventory
 - Near Term Strategy: Strategic Buying and Selling
 - NB: Single Sale Shook Market in Feb 2011
 - Expect more sales?
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- A faded background image of a large-scale industrial construction site. Several tall yellow tower cranes are visible against a bright sky. In the foreground, there are various pieces of machinery, including what appears to be a large yellow excavator or loader. The ground is a mix of dirt and concrete, with some structural elements of a building under construction visible in the mid-ground.

Supply/Demand Including Recent Spot Activity



Conclusions

- Little discernible impact on Chinese demand from Fukushima incident
- Inventory-building may off-set some of the demand loss from Fukushima
- China comfortably supplied for years to come
- Incremental purchases essentially discretionary from here on
- Can not rely on China to absorb large inventories coming into spot market

