

The logo consists of two curved lines, one blue and one green, arching over the text.

ENERGY *SOLUTIONS*



GNEP
Transportation
Observations



Perspective on Transportation of Spent Nuclear Fuel

- Safety by design – regulations assure robust cask designs
- Secure
- 16 million miles, no accidents resulting in a release of radioactive material






ENERGYSOLUTIONS



GNEP

- Envisions significant increase in nuclear power worldwide
 - Energy usage doubling worldwide by 2030
- Supply and return of fuel to supplier nations
- What do we do with the products of recycling?
 - New LWR fuel
 - New ABR fuel to destroy Pu
 - Vit HLW

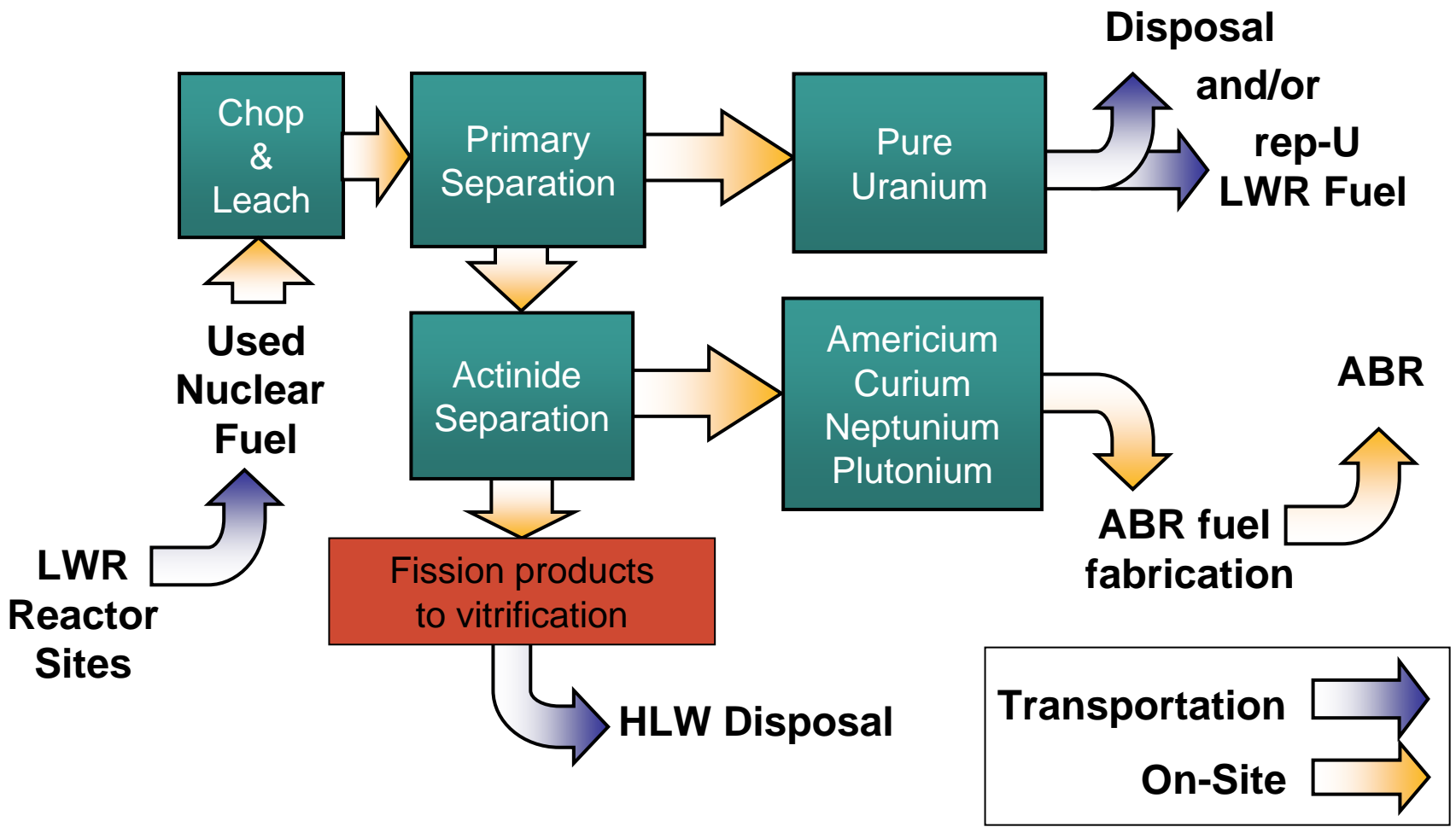


Transportation for GNEP

- In addition to used LWR fuel, what will be transported is a function of the products from GNEP recycling processes
- Different scenarios are foreseeable
 - Near term – MOX LWR fuel, vit HLW
 - Longer term – ABR fuel, vit HLW, and:
 - rep-U LWR fuel; and/or
 - rep-U for disposal



Sample Separation Processes





Transportation for GNEP

- Used nuclear fuel – already being done
- Vit HLW → already being done
- Recycled fuel
 - MOX fuel → already being done on a limited scale
 - rep-U fuel – similar to MOX fuel shipping?
- rep-U – shipment for disposal





Global Perspective

- For most of the transportation required for GNEP, it will be “more of the same”
- Shipments of MOX or rep-U fuel will increase substantially
- Currently most used fuel shipped to 2 commercial recycling sites
 - Under GNEP this could be multiple sites in 6 (or more) “supplier nations”



Global Perspective (continued)

- Currently 435 nuclear power plants in 31 countries
 - Annual discharge ~8,500 MTU
- Current reprocessing sites in France, UK, Japan and Russia
 - Capacity ~5,300 MTU

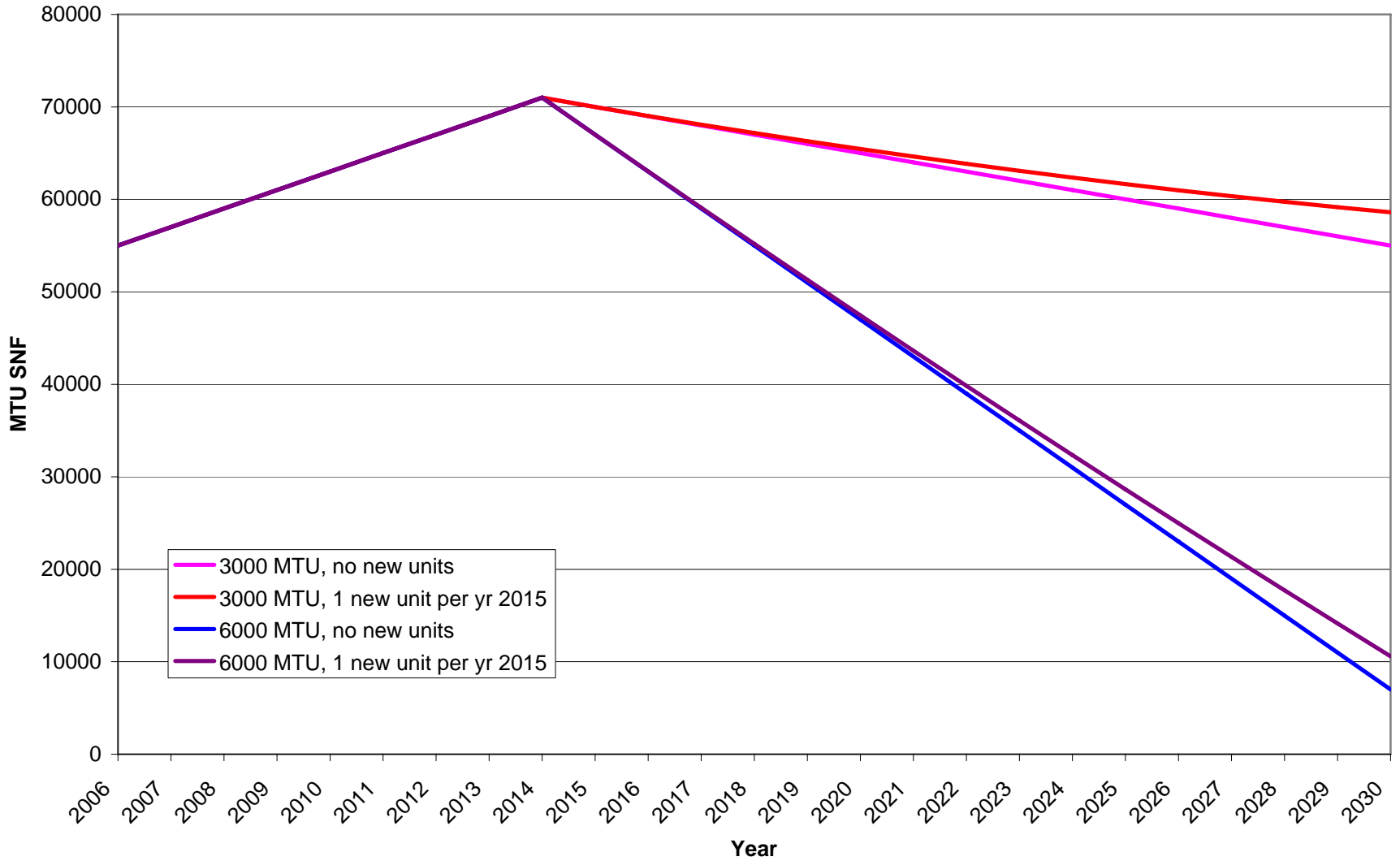


U.S. Domestic Perspective

- Current U.S. recycling capacity essentially nonexistent
- Development of multiple U.S. sites would still require decades just to process U.S. LWR backlog
(currently ~55,000 MTU + 2,000 MTU/yr)
- Is it feasible that the U.S. will be in a position to import LWR fuel for recycling in the foreseeable future?



SNF Inventory Scenarios





U.S. Domestic Perspective (continued)

- GNEP recycling vs. YM
 - Implications on transportation
 - Implications for TAD
 - Not so much a question of “how much,” but rather of “when” and “where”



Summary

- Transportation implications of GNEP are driven by:
 - Increased quantities of used LWR fuel
 - Products and processes
 - Implementation of program vision
 - International and domestic considerations
- U.S. – how fast can we recycle the backlog?
- More nuclear power = more transportation