The Market For Uranium

NMA/NRC

May 25, 2011

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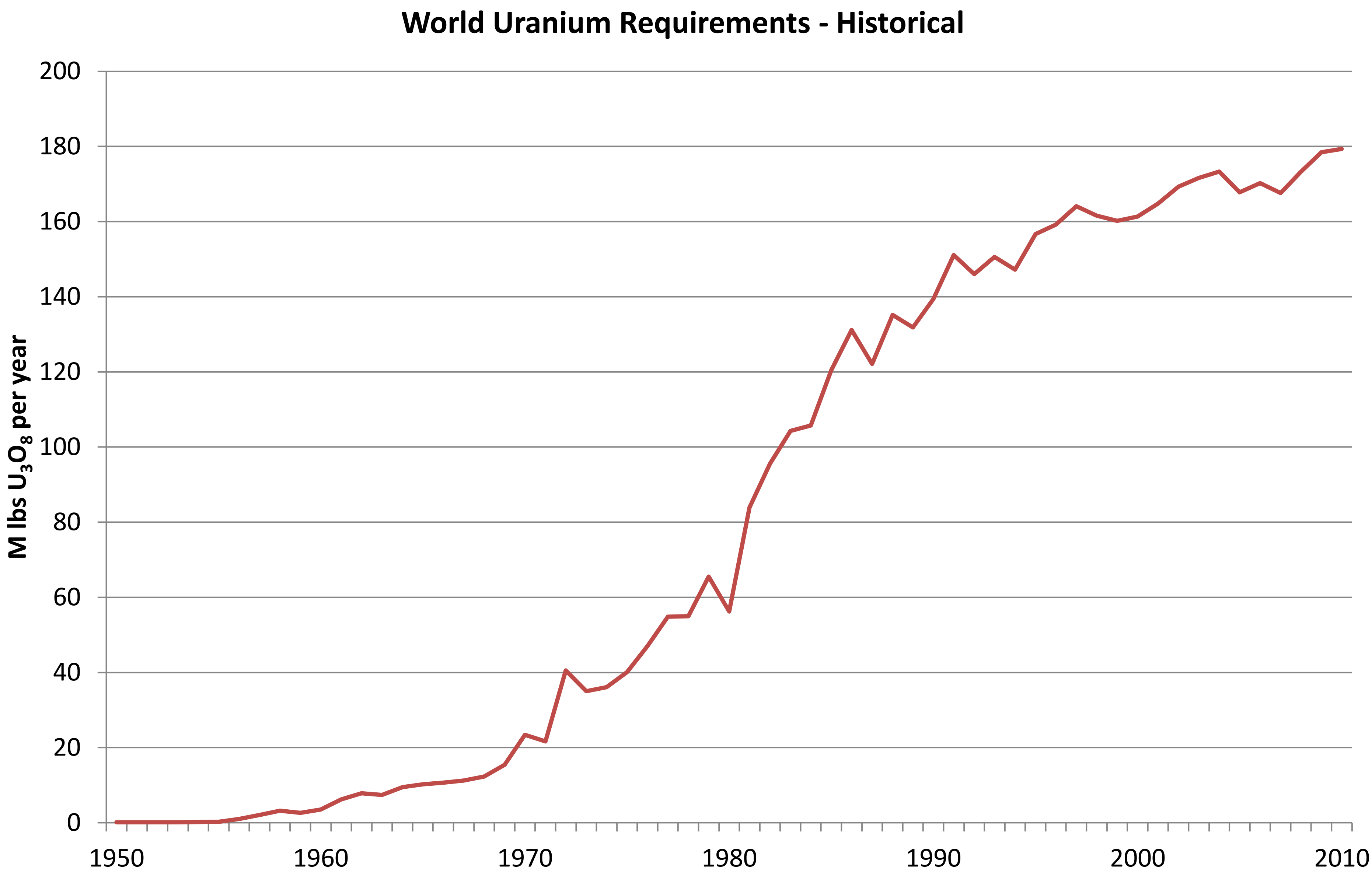
The Market For Uranium

- Demand
- Supply
- Prices
- Fukushima Effect



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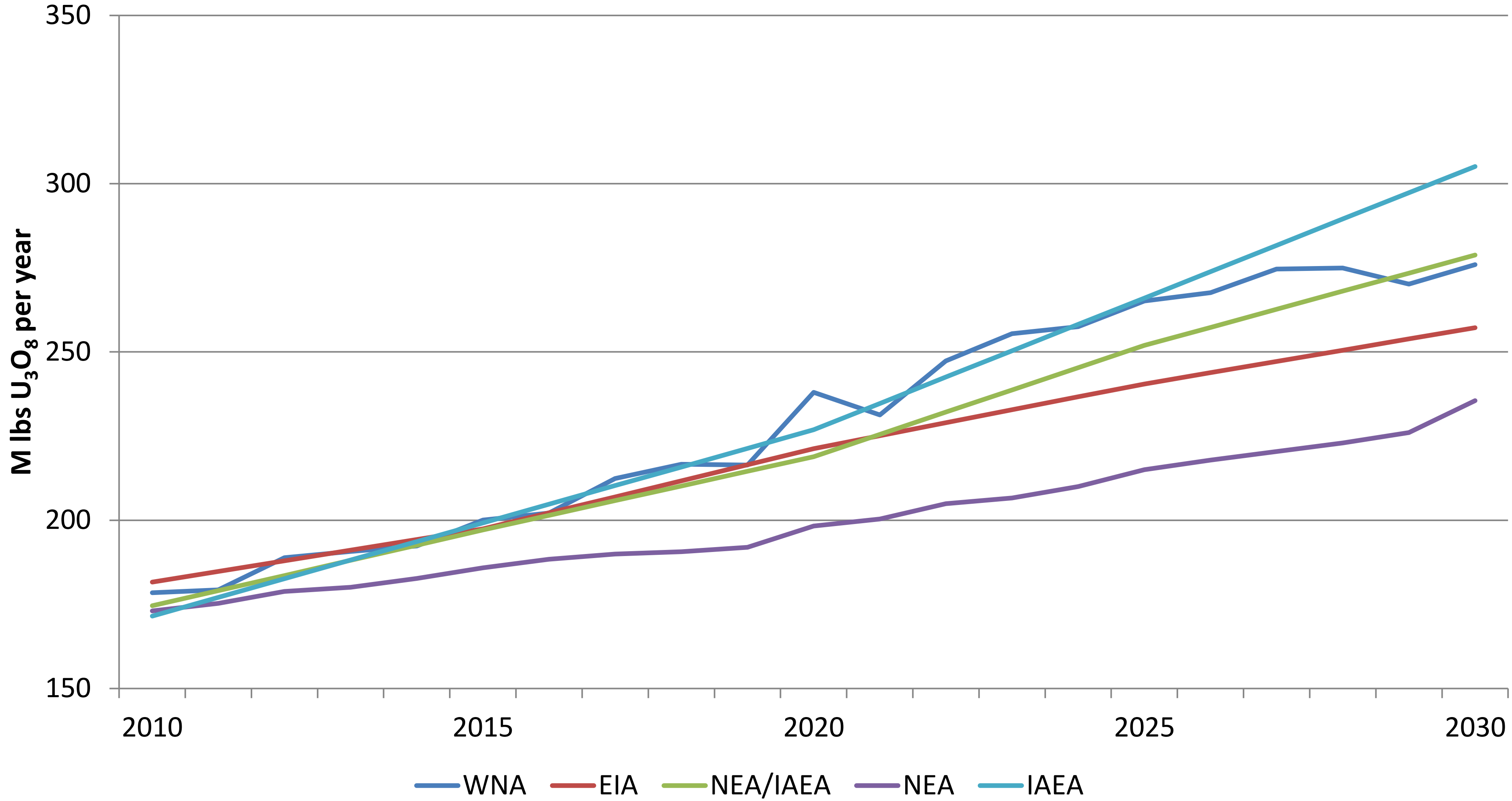
Uranium Demand

- Existing reactors: 440 in the world, 104 in US
  - Retirements: Minimal
  - Life Extensions
    - US 66 20-year Extensions Granted
    - US 16 Applications Filed
    - US 20 Applications Expected
  - Uprates
    - US 7,500 MWe 1977 - 2015
  - Outages
    - Refueling – Decreasing Duration
    - Unplanned – Declining pre-Fukushima
    - Capacity Factor
      - US topping out at 90% +
- New Reactors: 61 under construction
  - Initial Cores
  - Periodic Refuelings

Uranium Requirements Projections – World – Near Term
Reference Case



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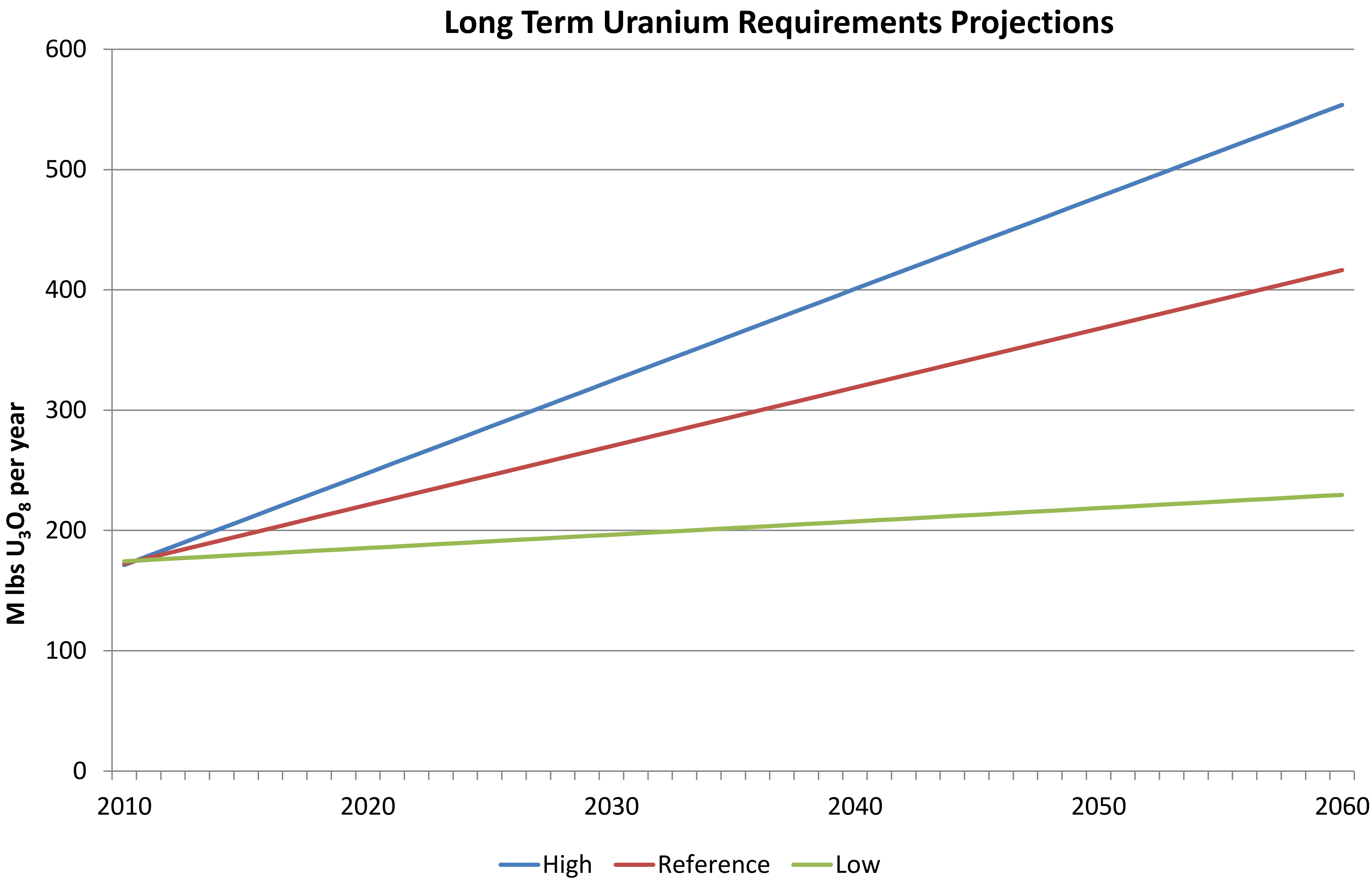

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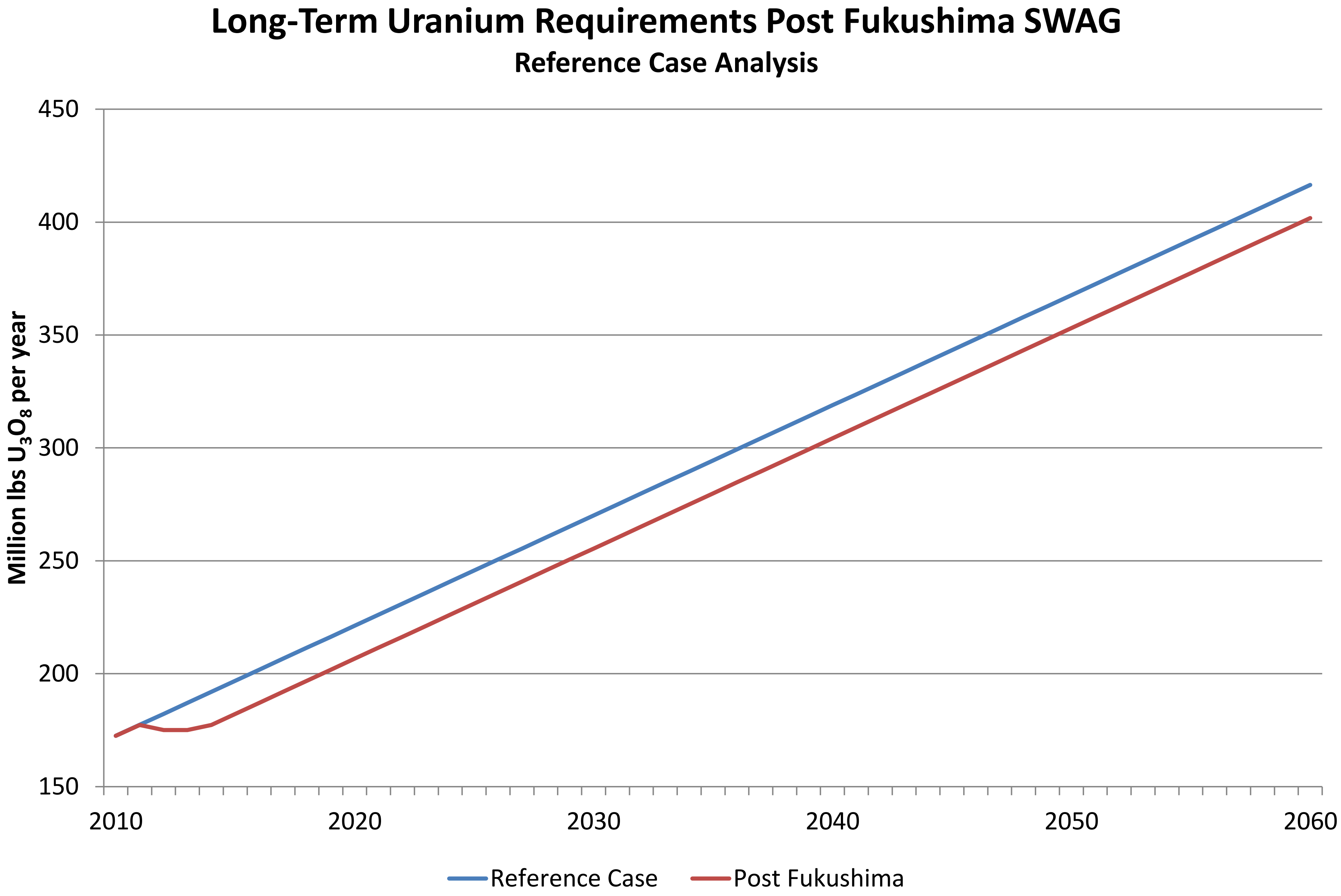
Long-Term Uranium Requirements Cumulative 2010 to 2060

- Low Case: 10.3 billion pounds U_3O_8
- Reference Case: 15.0 billion pounds U_3O_8
- High Case: 18.5 billion pounds U_3O_8



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Long-Term Uranium Requirements Post Fukushima Outlook

- Pre-Fukushima Requirements Projection
  - 15.0 billion pounds U_3O_8
- Post-Fukushima SWAG
  - 14.3 billion pounds U_3O_8
- Thus, the Fukushima incident is projected to have cost the uranium industry some 700 million pounds during period 2011 – 2060.
  - At current prices of about $55 per pound , the revenue loss to the uranium industry is likely to be on the order of $38.5 billion!

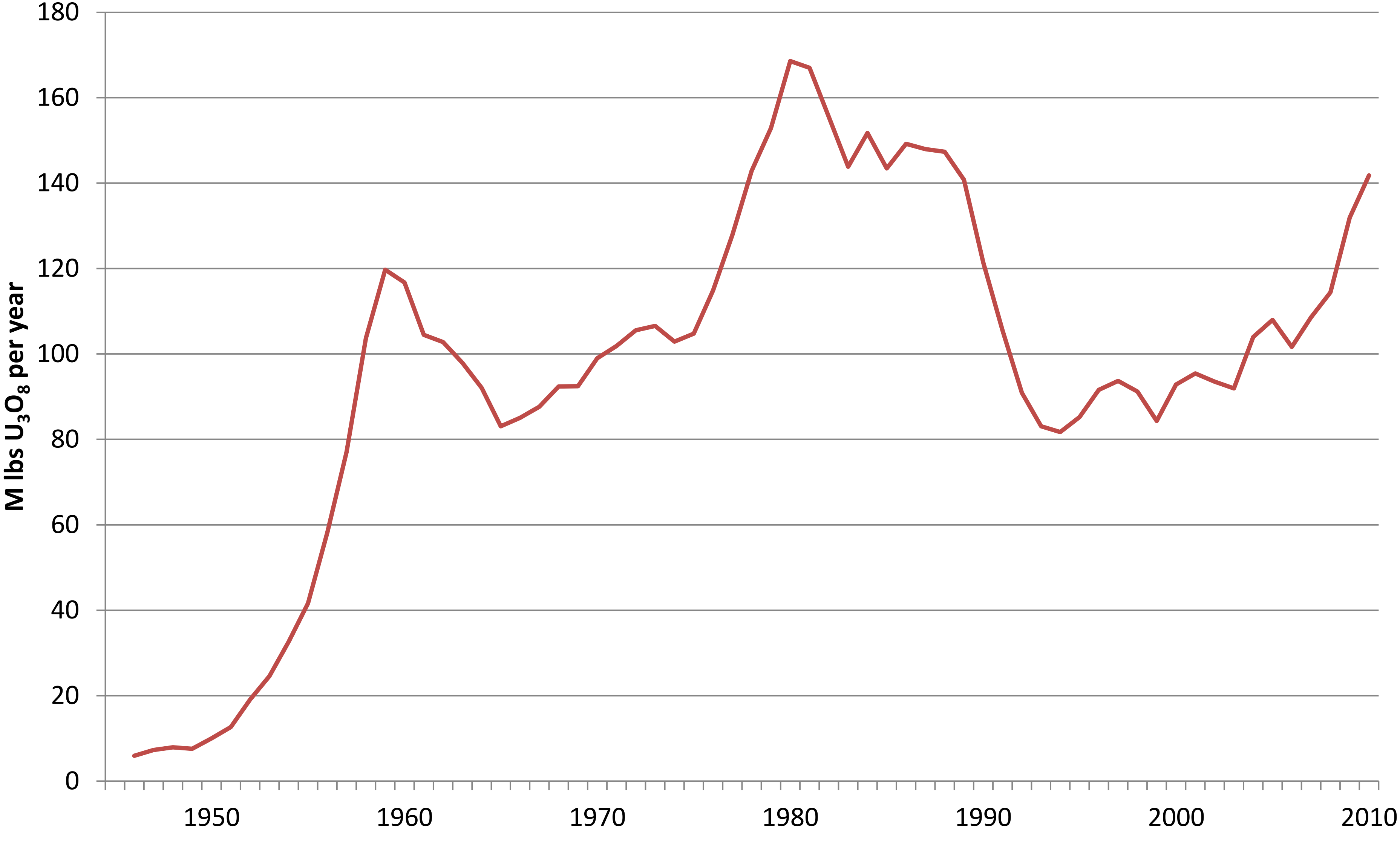
Uranium Supply

- Resources
- Primary Supply
  - Mines
  - By-Product
- Secondary Supply
  - Inventory
  - Spent Fuel – Reprocessing
  - Government/Military – HEU – Plutonium – MOX
  - Depleted Uranium

Uranium Resources - IAEA

- 373 Deposits
- ~40 Billion Pounds U_3O_8 (222 years at the current rate of consumption)
  - Includes some deposits currently politically inaccessible
  - Includes substantial phosphate by-product: 7 Billion Pounds U_3O_8
  - Includes some black shale: 500 Million Pounds U_3O_8
  - Does not include seawater: ~100 Billion Pounds U_3O_8

World Uranium Production - Historical



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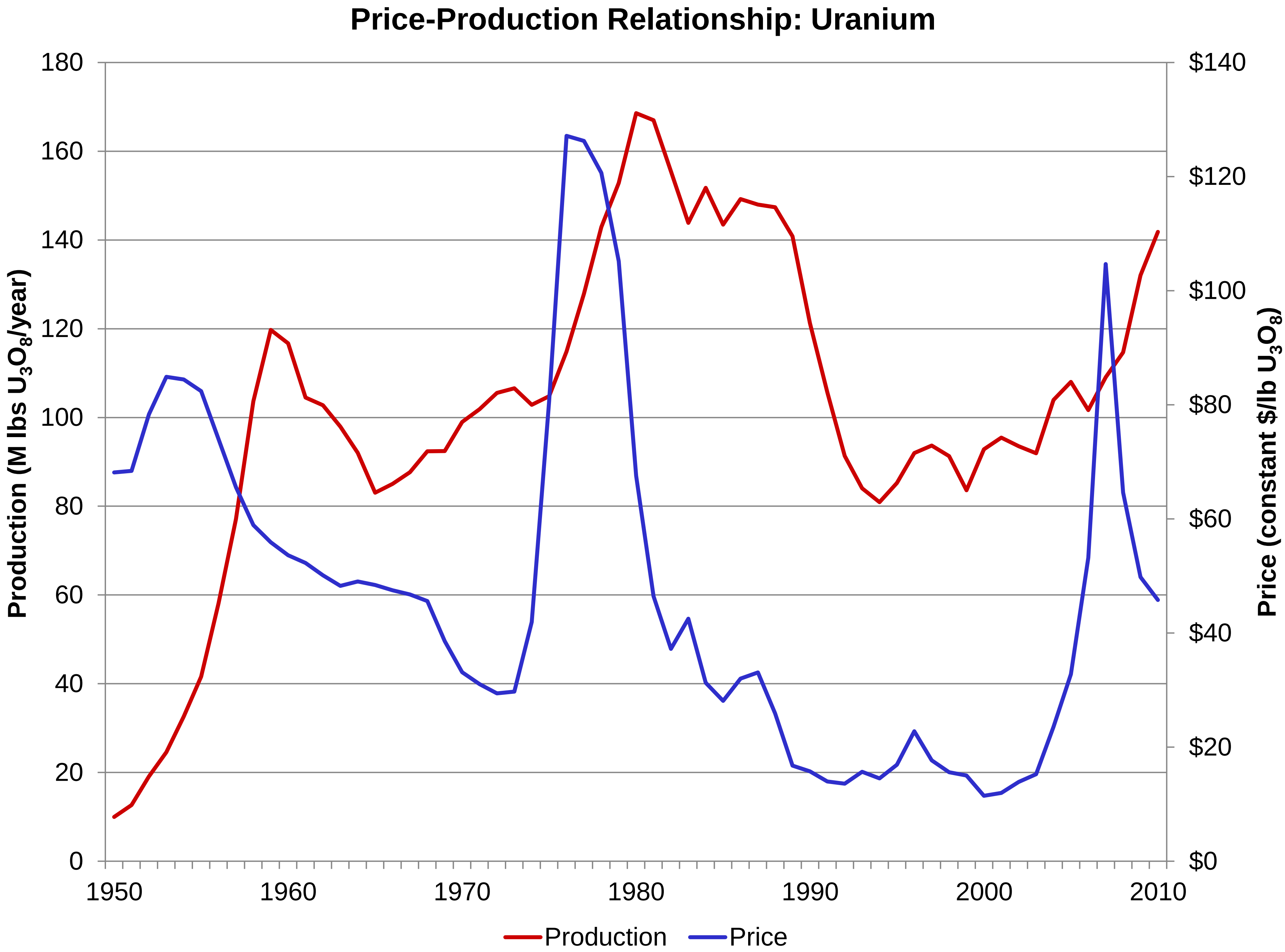
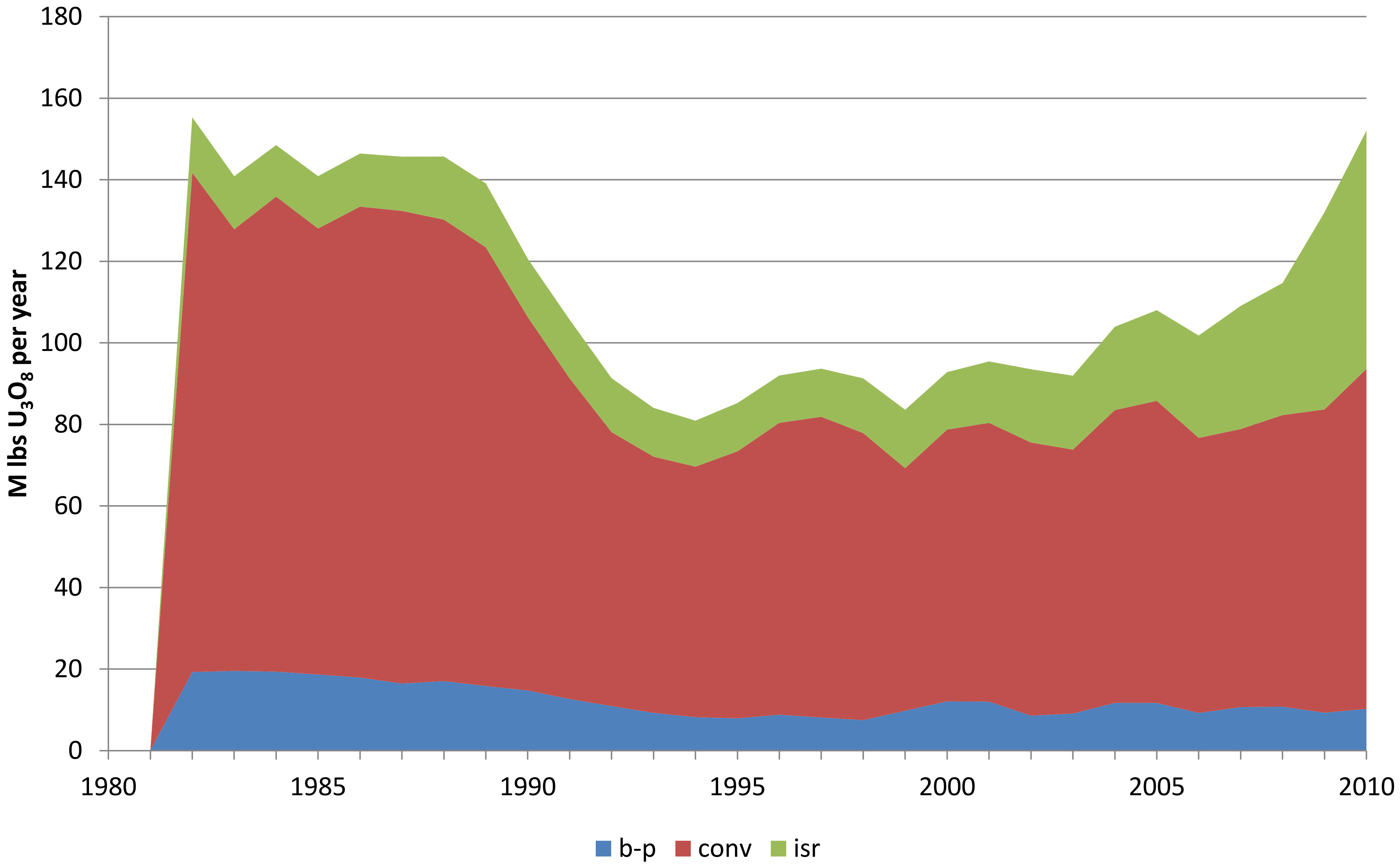


Price-Production Relationship: Uranium
Production (M lbs U_3O_8/year)
Price (constant $/lb U_3O_8)
180
160
140
120
100
80
60
40
20
0
$140
$120
$100
$80
$60
$40
$20
$0
1950
1960
1970
1980
1990
2000
2010
Production
Price

World Uranium Production By Method - Historical



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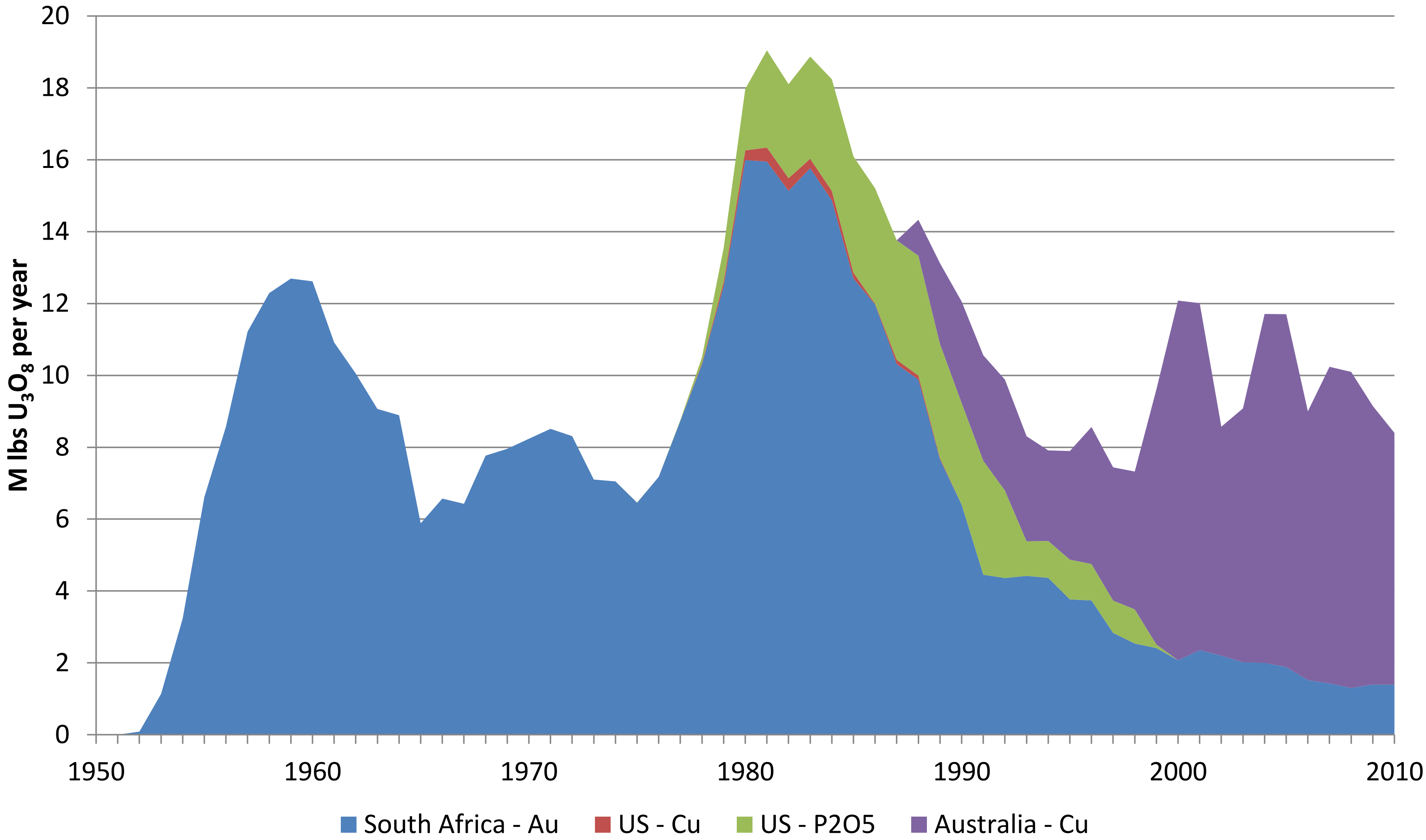
By-Product Uranium Output - World



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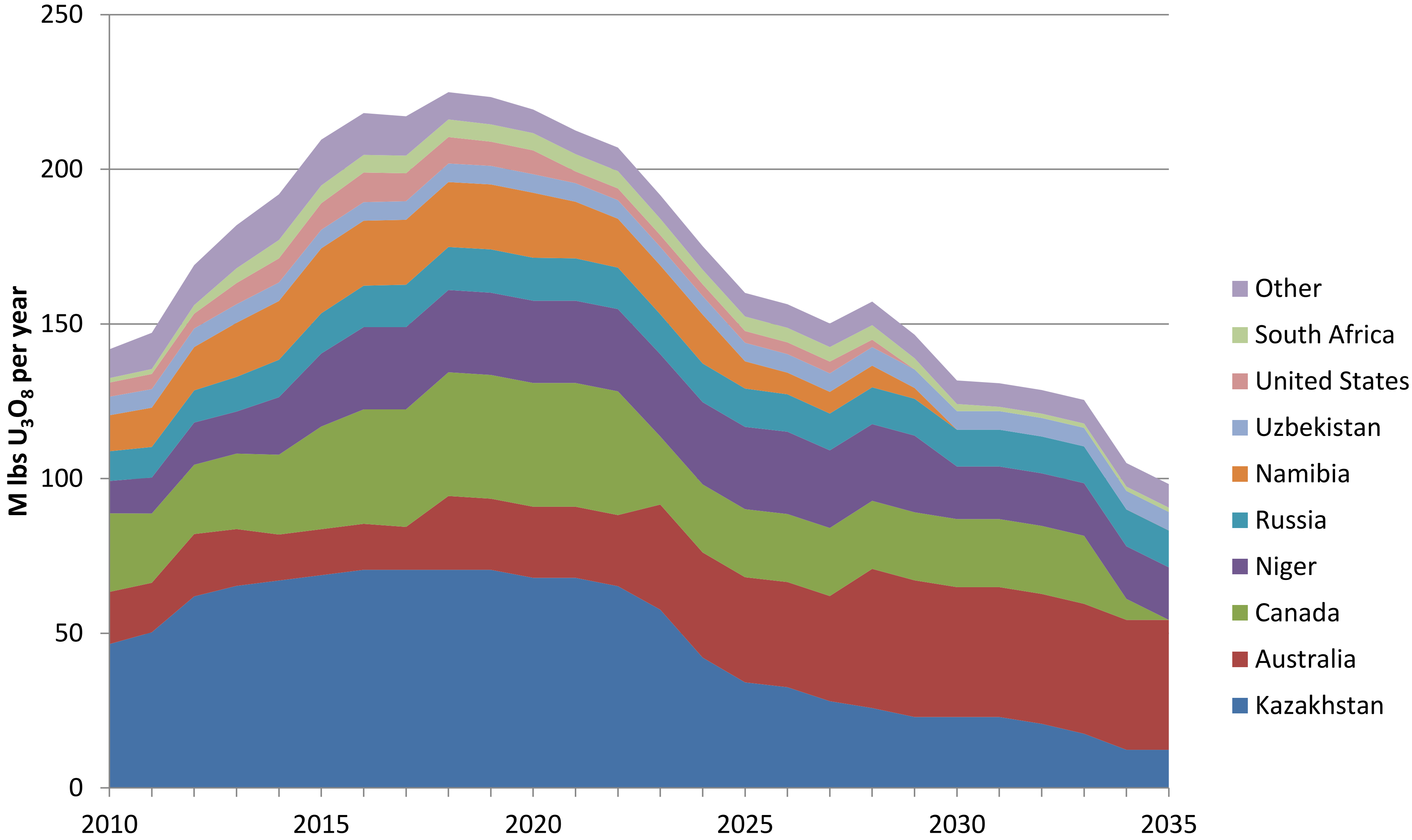
Scheduled Uranium Production Forecast



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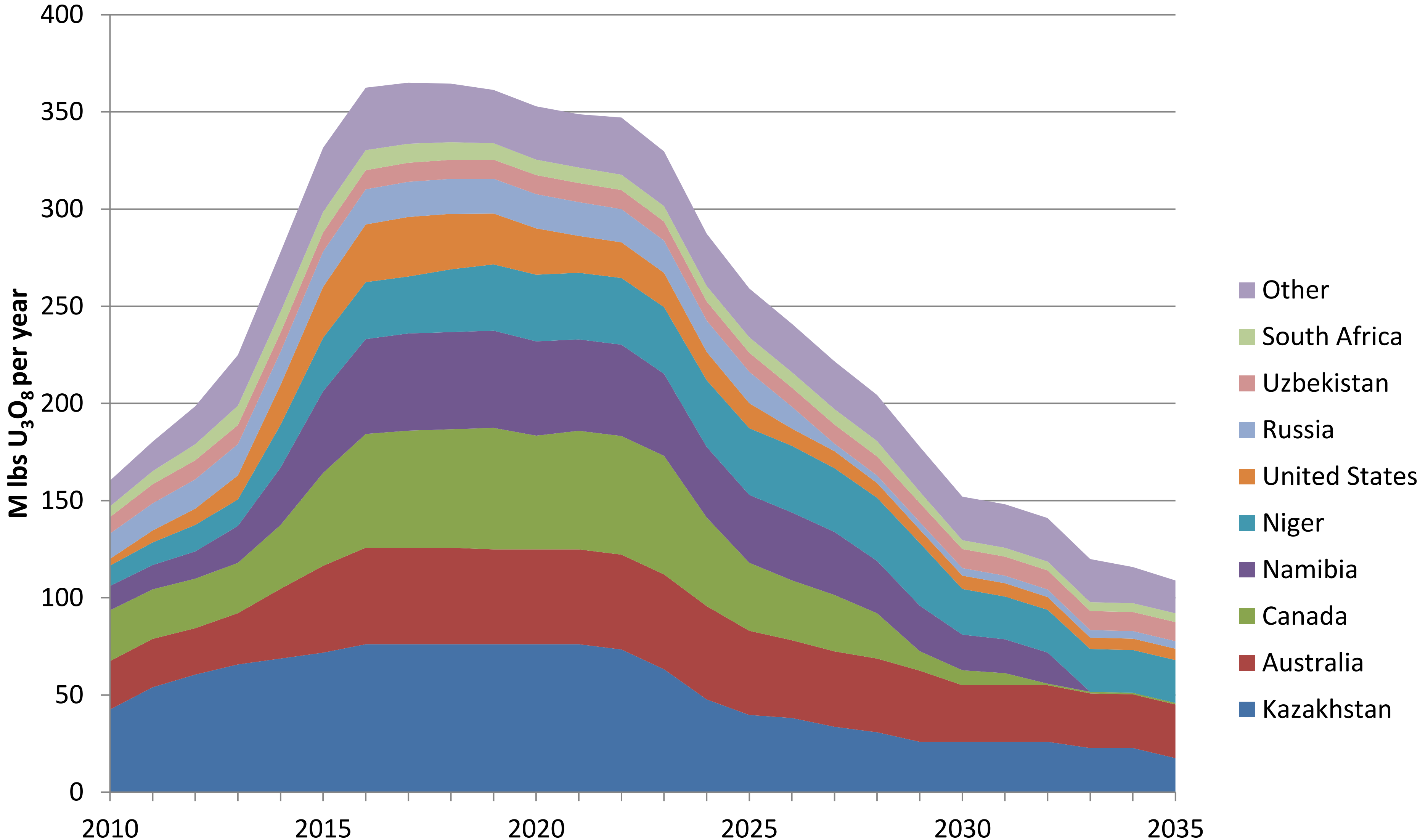
Uranium Production Capability Forecast



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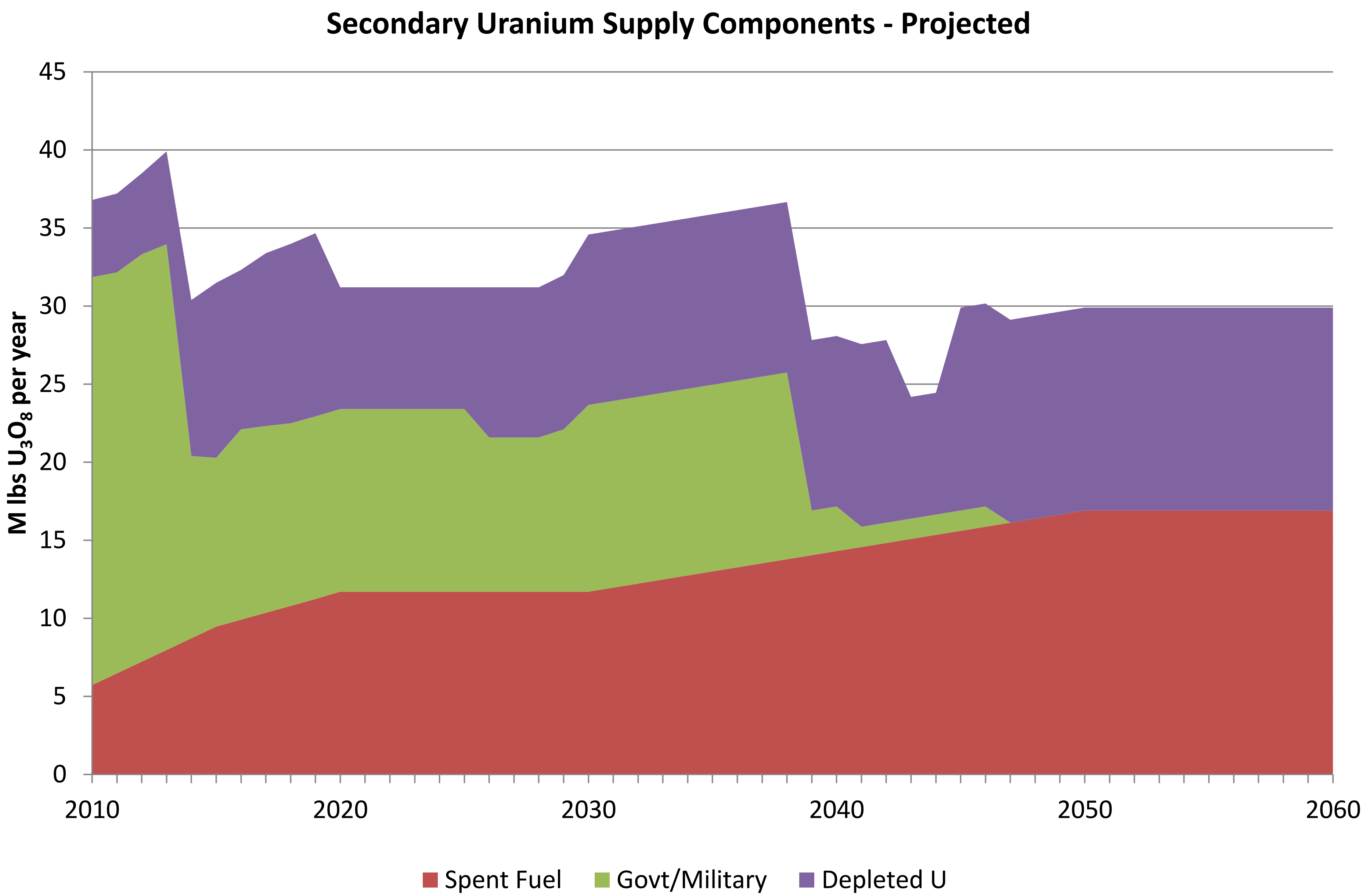
A Sampling of Status of Major Permits - USA

Project	Acquired	Submitted	Future
Peninsula/Strata - Lance	WDEQ - DDW	WDEQ & NRC	
Powertech – Dewey Burdock		NRC	
Titan – Sheep Mountain	WDEQ	WDEQ & NRC	NRC Mid-2011
Uranerz – Nichols Ranch	WDEQ	NRC	
Uranium One – Ludeman Moore Ranch	- NRC	WDEQ & NRC -	
Ur Energy – Lost Creek		NRC & WDEQ	
URI - Churchrock	NRC & NMUIC		
Virginia Uranium	Pending cancellation of moratorium		

Secondary Supply

- Inventory (Natural): Net Increase
  - Government: Almost Gone
  - Producers: Need to accumulate as production increases
  - Consumers: Need to accumulate as consumption increases
  - Hedge Funds/Speculators: Accumulating as in almost all commodities and adding volatility
- Spent Fuel Reprocessing: Increasing
- Government/Military – HEU – Plutonium – MOX: Declining
- Depleted Uranium: Increasing
- Price Sensitivity: Relatively Low (Politically driven)



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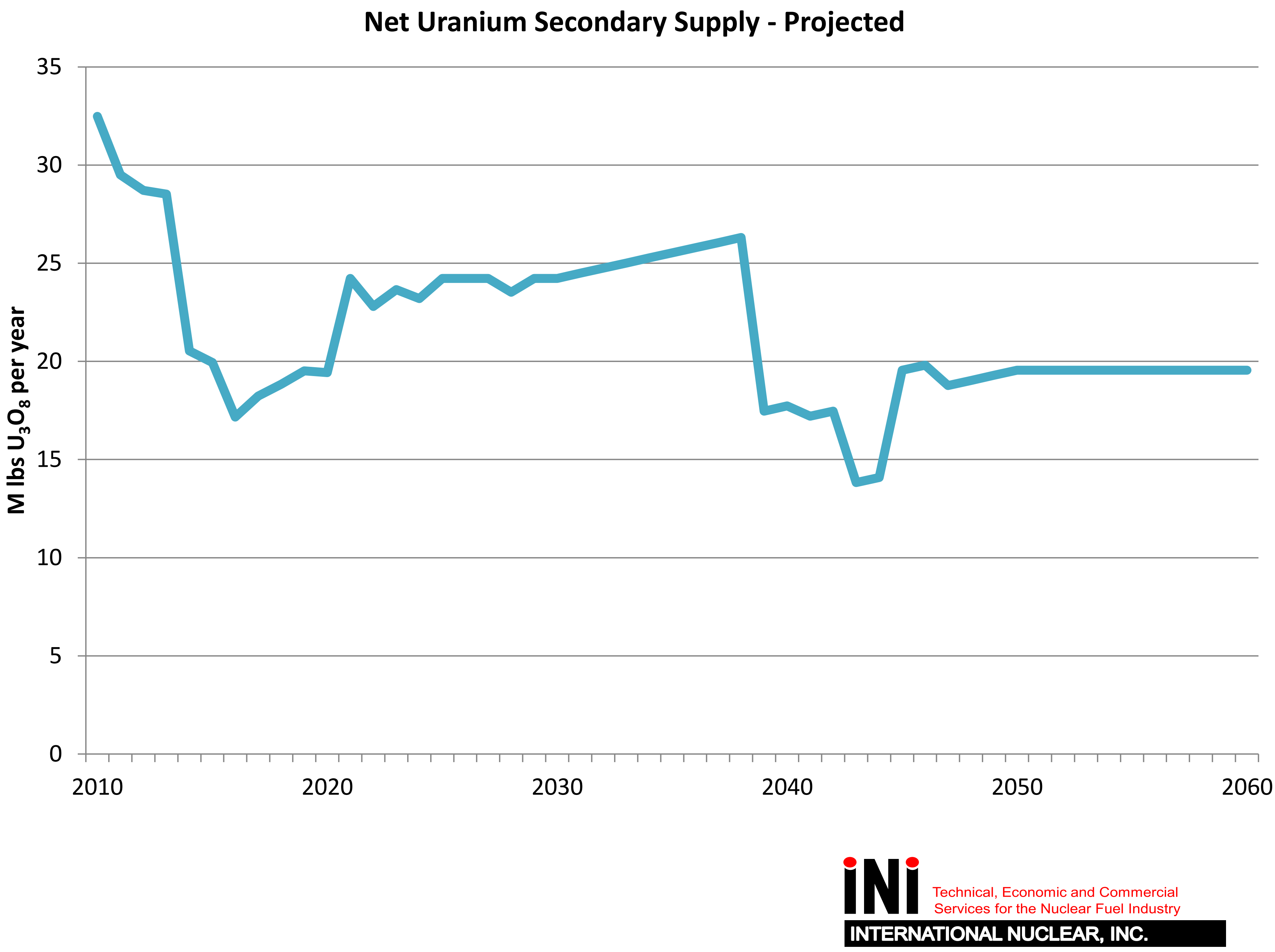
Net Uranium Secondary Supply - Projected
M lbs U_3O_8 per year
35
30
25
20
15
10
5
0
2010
2020
2030
2040
2050
2060
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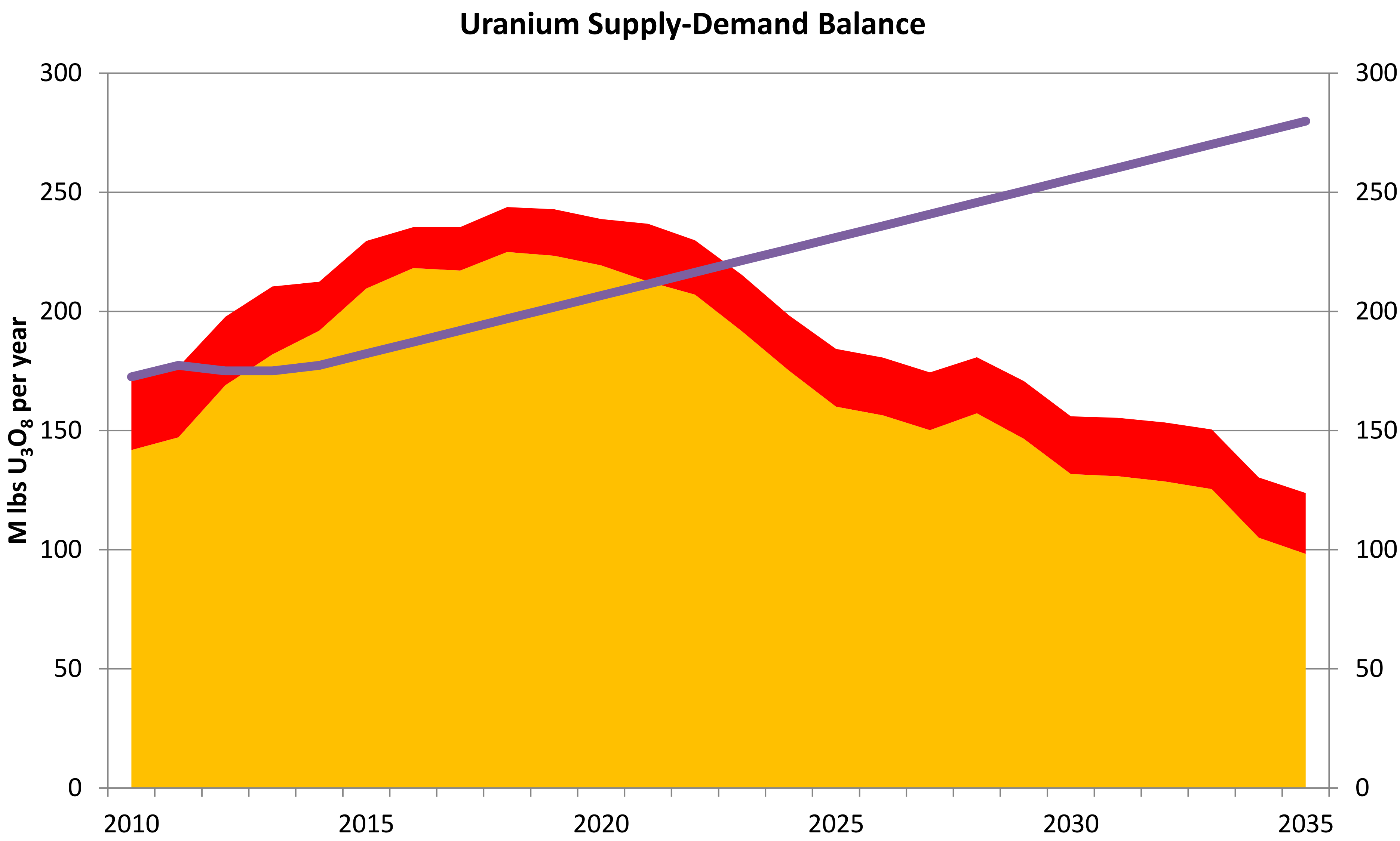
Supply – Demand Balance

- Demand
  - Post Fukushima Dip/Pause
  - Long-term growth at 2% per year
- Supply
  - Oversupply in the near-term
  - Project cancellations & deferments
  - Increased competition for sales



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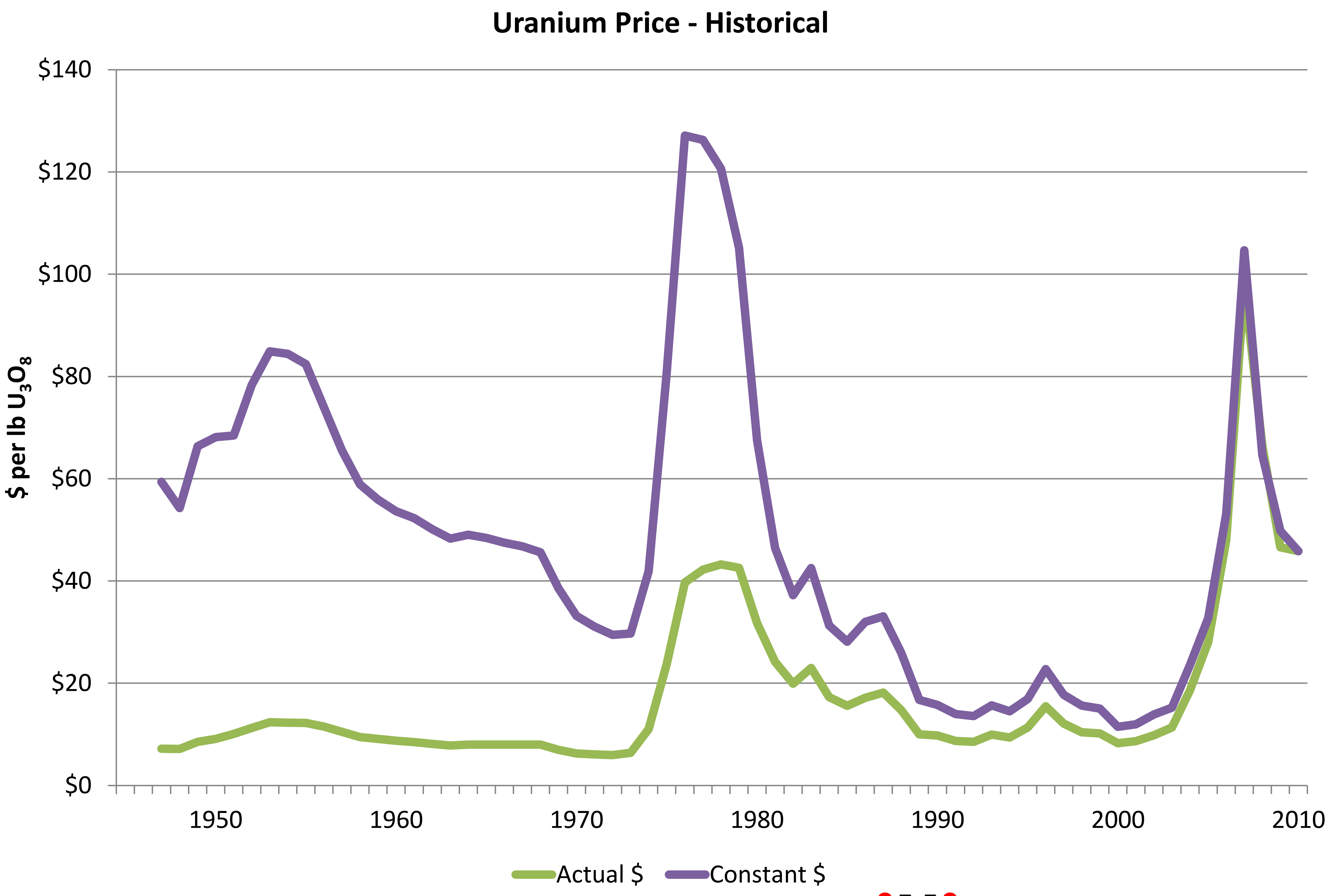

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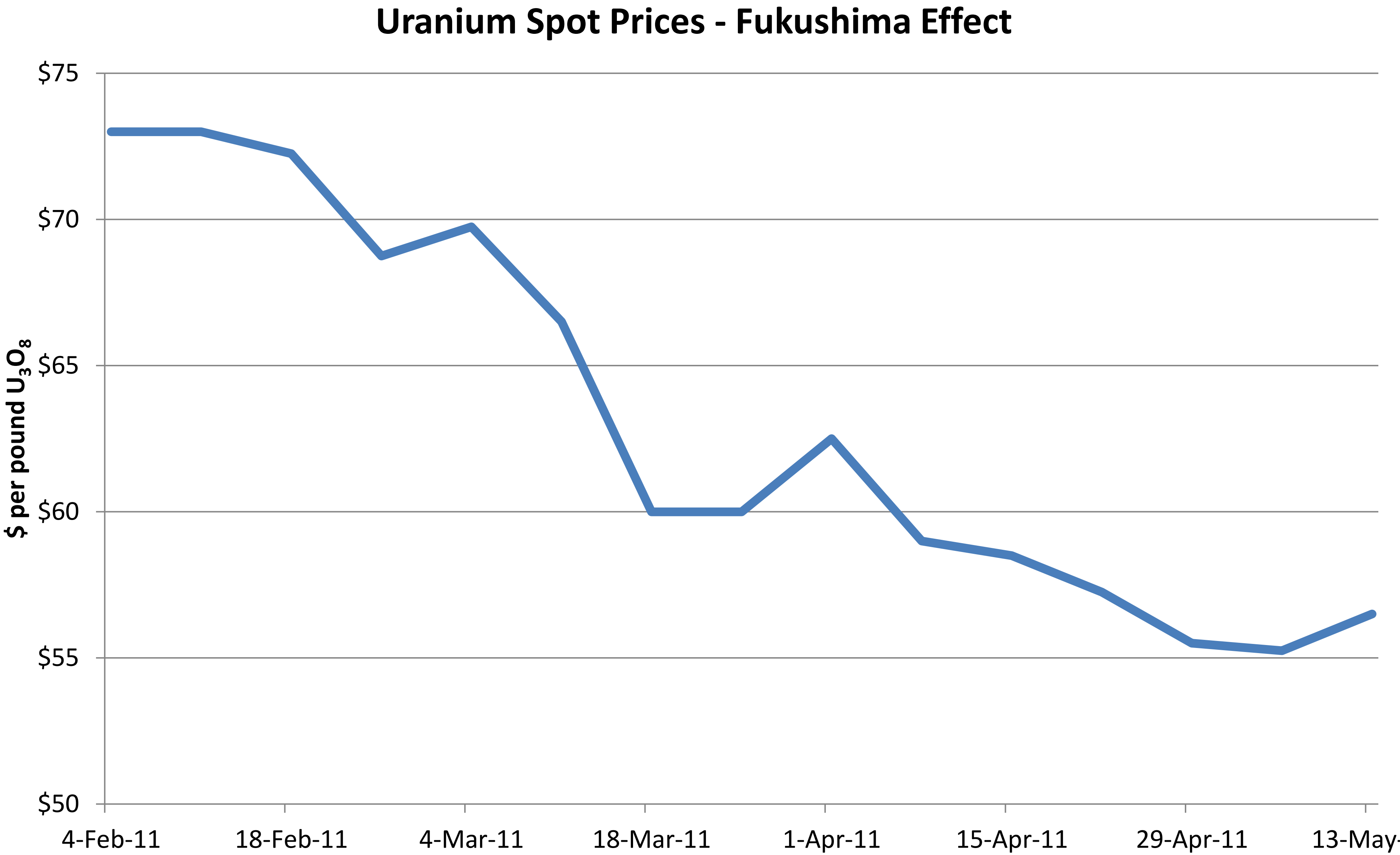
Prices

- The 2007 price bubble was driven by speculation and manipulation.
  - Uranium spot price is very easy to manipulate because the market is so thin
  - Hedge fund buying has taken over 10 M lbs out of the market
- The 2007 price bubble dislocated production costs
  - Producers had very high expectations for future prices
    - Lowered cut-off grades
    - Increased wages
    - Catch-up on maintenance
    - New equipment
    - Overall: A higher standard of living

Fukushima Effect – Uranium Stock Prices

Company	8-Mar	15-Mar	Loss
Cameco	$38.16	$29.30	23%
Paladin	$5.00	$3.26	35%
Uranium One	$6.02	$3.55	41%
Tournigan	$0.30	$0.17	43%
Ur-Energy	$2.57	$1.49	42%
Uranium Energy	$5.63	$3.36	40%



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Prices

- Prices and costs are related
  - Ranger 2005: $16.66 per pound U_3O_8
  - Ranger 2010: $66.74 per pound U_3O_8
  - Rossing 2005: $16.07 per pound U_3O_8
  - Rossing 2010: $62.63 per pound U_3O_8
- Higher prices mean higher costs
  - Decrease in cut-off grade
  - Higher standard of living

Prices - Future

- Volatility due to speculation and manipulation
- Oversupply in the near- to mid-term
- Producer difficulty in lowering costs and, hence, sales prices
- Increasing regulation and NGO intervention increases costs and, hence, prices
- Overall: Conflicting pressures, but weakness likely in the near-term and gains in the mid-term as the Fukushima effect fades

Conclusions

- Demand – Stagnating
- Supply – Abundant resources, increasing competition
- Prices – Weakening in near term
- Companies – Difficulties raising financing
- Fukushima Effect – Revitalization of NGOs throughout the world and a 2 to 3 year setback for the nuclear industry