NUWASTE Results
Scenario 2.5
Impacts of Reprocessing Combined With Repository Disposal

Presented to: **NWTRB Workshop on Evaluation of Waste Streams Associated with LWR Fuel Cycle Options**

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NUWASTE Results – Scenario 2.5

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Scenario 2.5

- Total mass of PWR and BWR spent fuel disposed of in the repository, Output Measure 2.5.2.1) and 2.5.2.2).
- Mass of fission products and minor actinides, either total or by isotope, disposed of in the repository, Output Measure 2.5.2.3).
- Total mass of PWR spent fuel reprocessed, Output Measure 2.5.2.4).
- Percent reduction in total natural uranium demand, Output Measure 2.5.2.5).

Reprocessing Capacity	Disposal Capacity	Assemblies Disposed					Mass FP & Minor Actinides Disposed (MT)	PWR Reprocessed		% Reduction Natural Uranium
		PWR		BWR		Total Mass (MT)				
		Number	Mass (MT)	Number	Mass (MT)			Number	Mass (MT)	
1,500	1,500	43,482	18,697	403,260	72,587	91,284	5,182	247,648	106,489	13.1%
3,000	1,500	56,595	24,336	371,756	66,916	91,252	5,809	293,013	125,996	15.6%

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- Either total number or mass, and isotopic composition, of assemblies fabricated, Output Measure 2.5.2.6).

Reprocessing Capacity	Disposal Capacity	Assemblies Fabricated (After 2009)								
		Natural Uranium				Separated Mass				
		PWR UOX		BWR UOX		PWR UOX		PWR MOX		
		Number	Average Enrichment	Number	Average Enrichment	Number	Average Enrichment	Number	% Pu	Pu Quality
1,500	1,500	220,520	4.40%	355,437	4.35%	28,645	4.97%	26,828	10.35%	61.45%
3,000	1,500	209,884	4.40%	355,437	4.35%	35,087	4.92%	31,022	10.26%	61.81%

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- Mass of uranium tails generated, Output Measure 2.5.2.7).

Reprocessing Capacity	Disposal Capacity	Tails Mass (MT)	
		Fresh	Recycled
1,500	1,500	1,106,111	85,469
3,000	1,500	1,072,082	101,541

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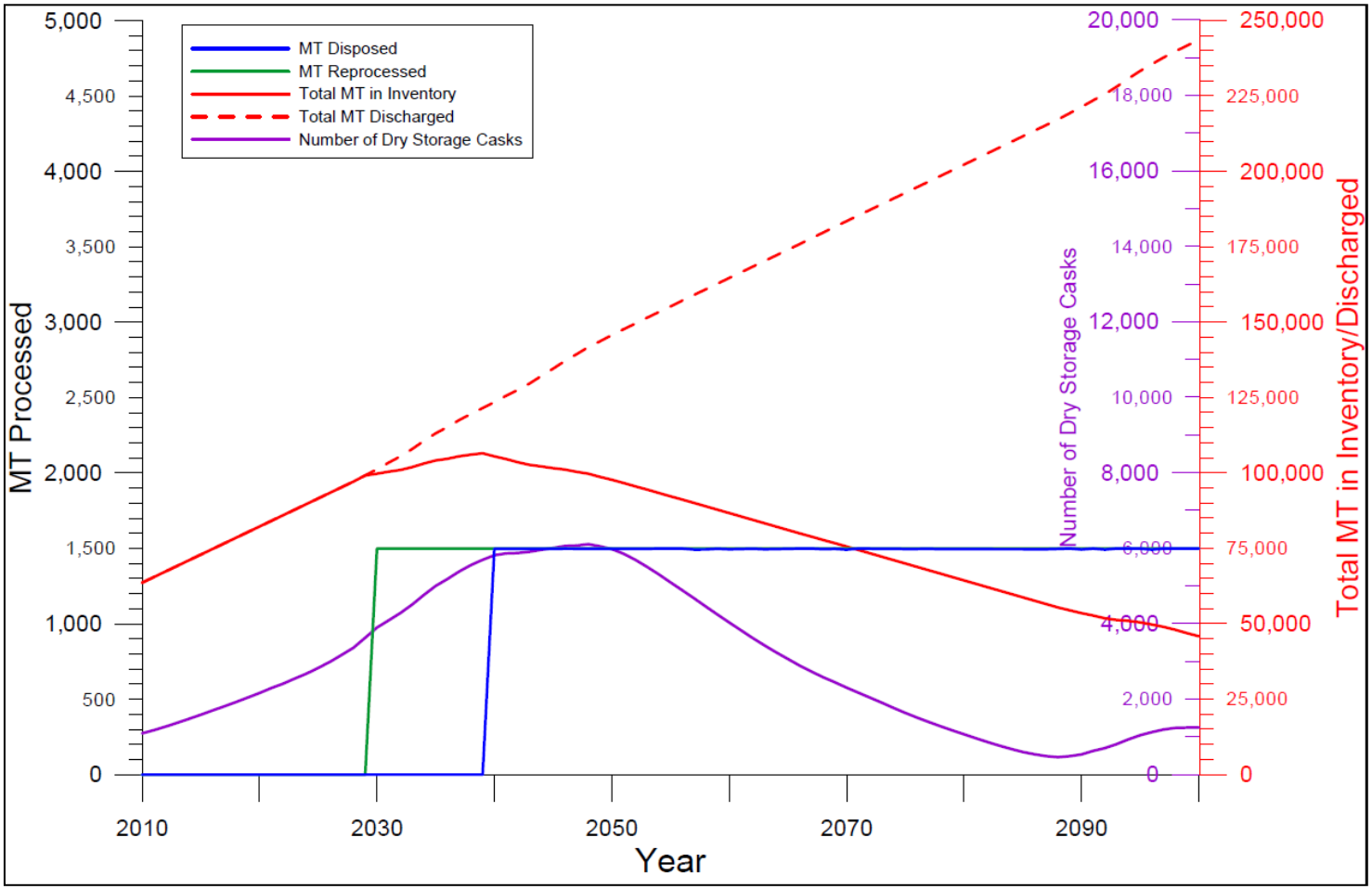
Impacts of Reprocessing Combined With Repository Disposal

Reprocessing Capacity of 1,500 MTU



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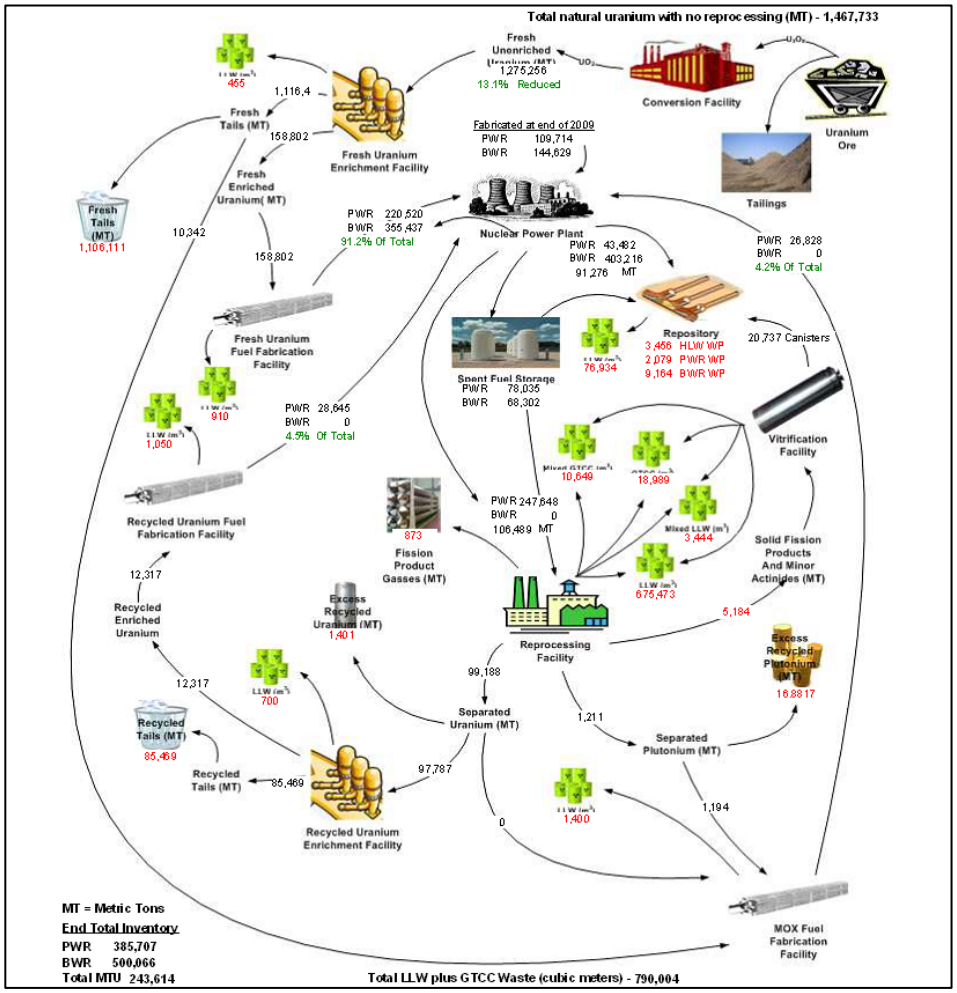
Reprocessing Capacity of 1,500 MTU

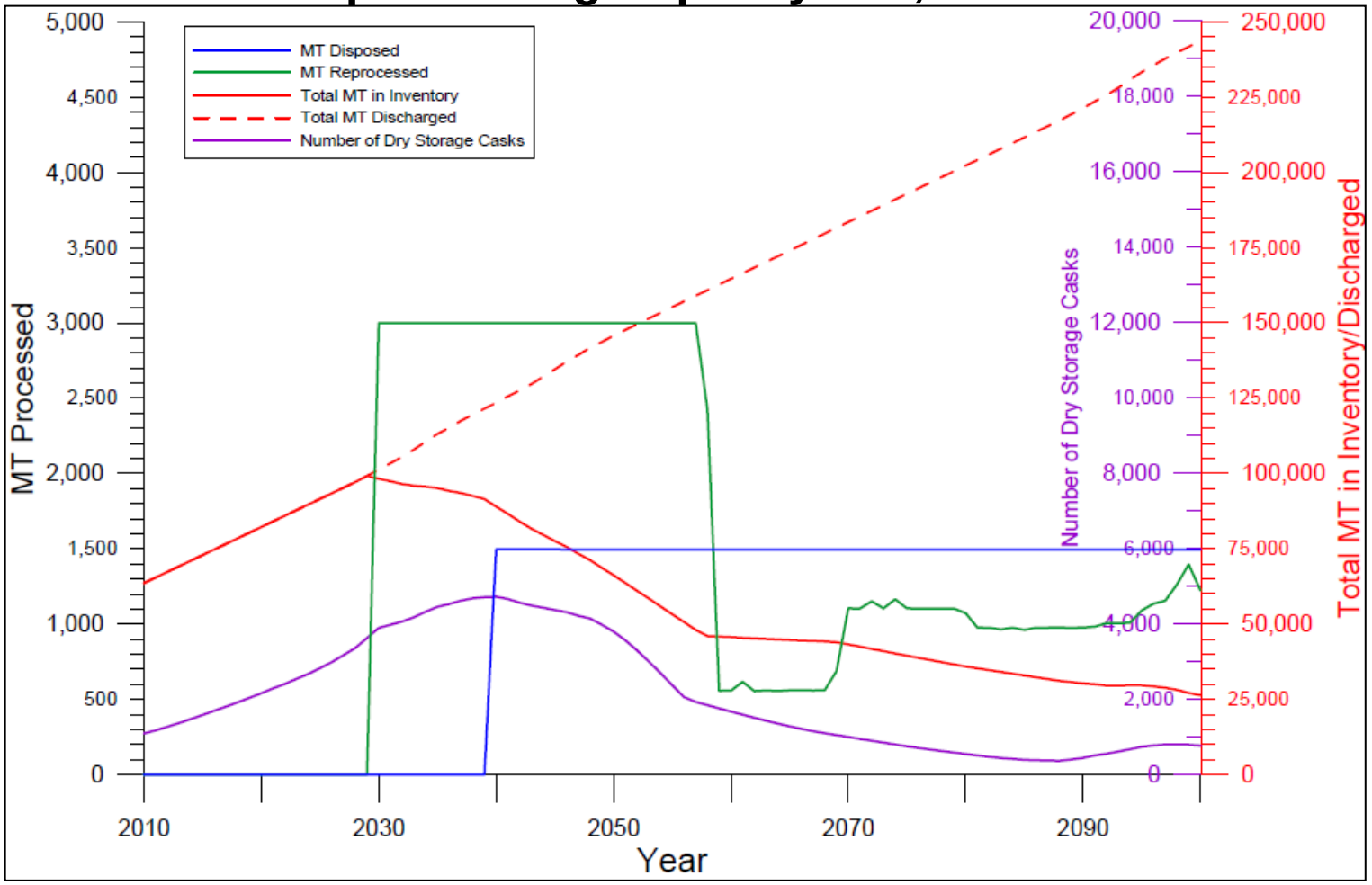


Material Balance

NUWASTE Results – Scenario 2.5

Impacts of Reprocessing Combined With Repository Disposal

Reprocessing Capacity of 3,000 MTU



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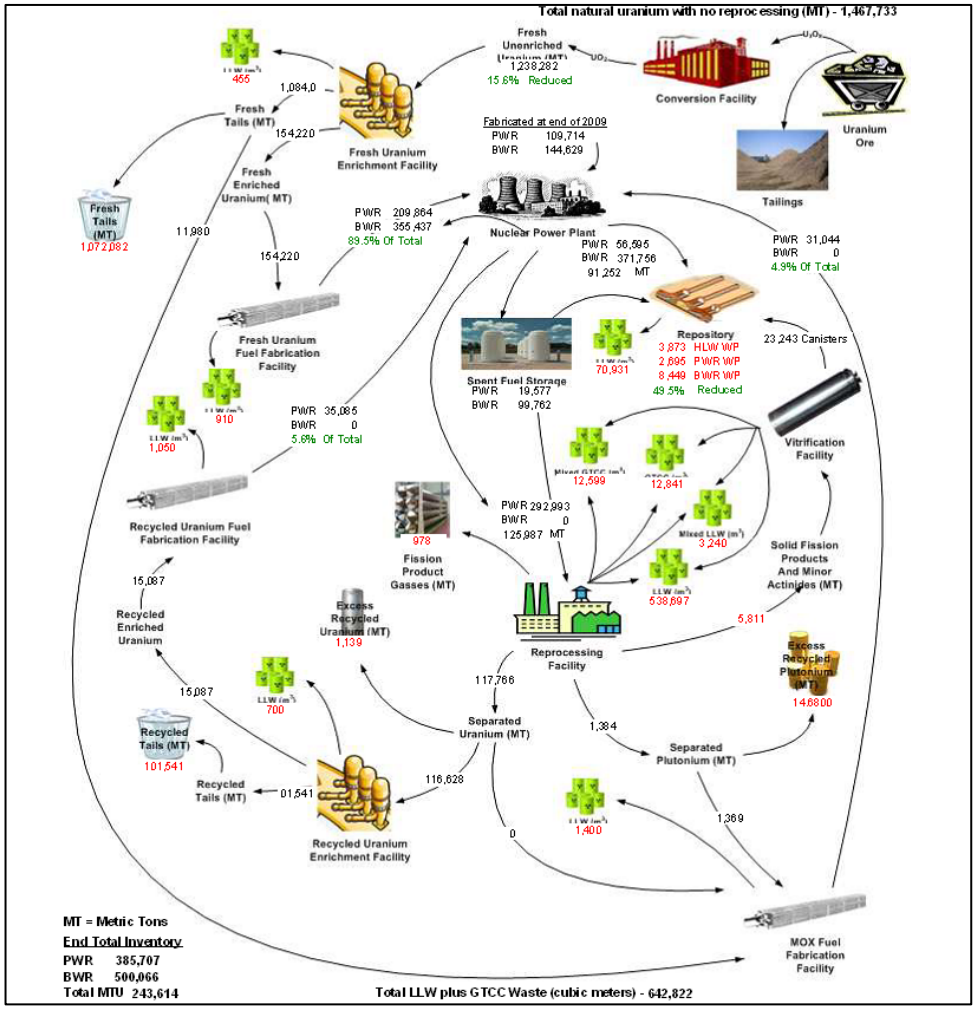
Impacts of Reprocessing Combined With Repository Disposal

Reprocessing Capacity of 3,000 MTU



Material Balance