The Future of Nuclear Energy; Chemistry is the Problem, Accelerators the Solution

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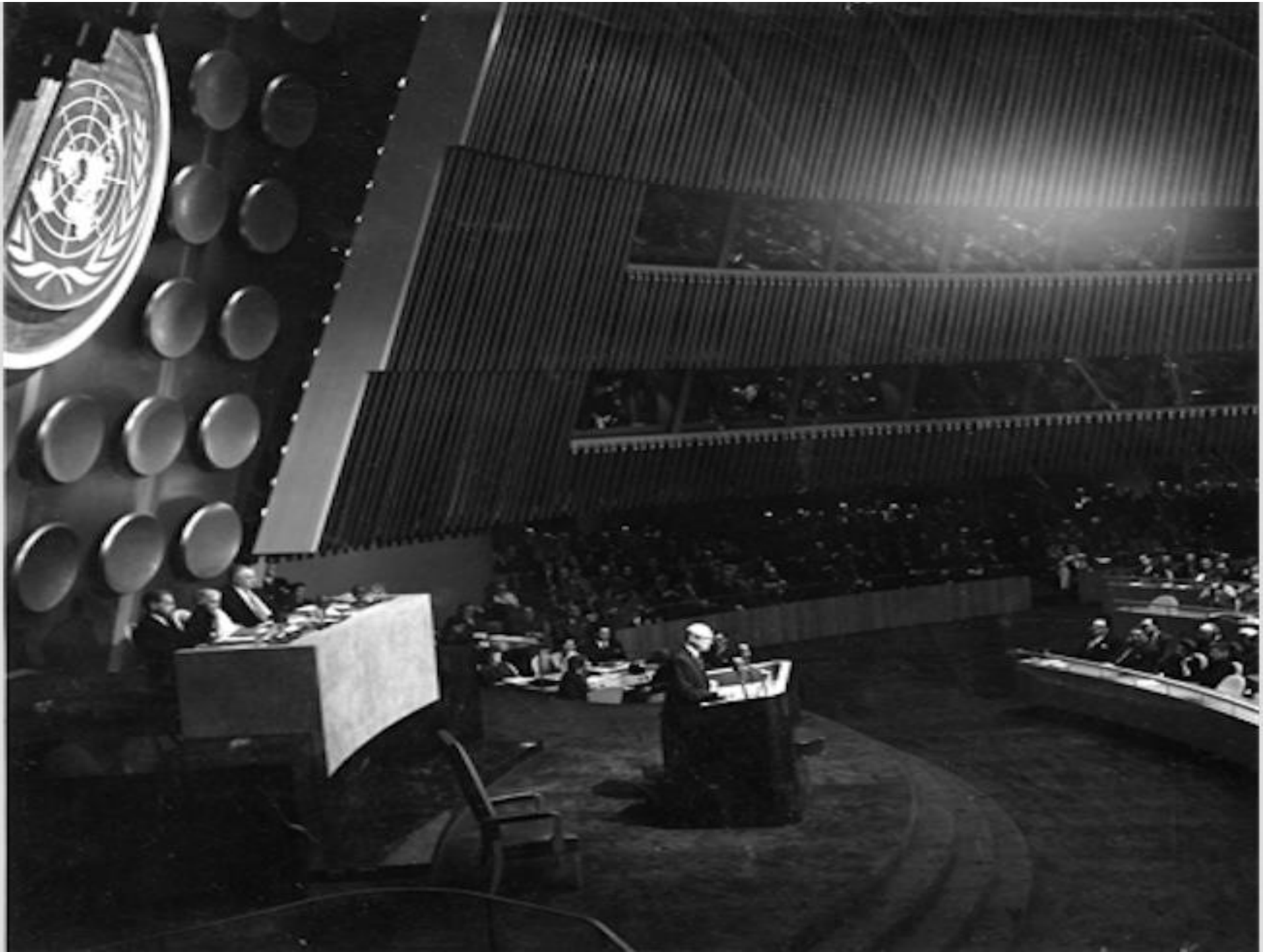
Outline

* USA Atoms for Peace Initiative – 1953 – D. D. Eisenhower and its derailment (nuclear proliferation and safeguards concerns)

* ADS history and ADNA's vision

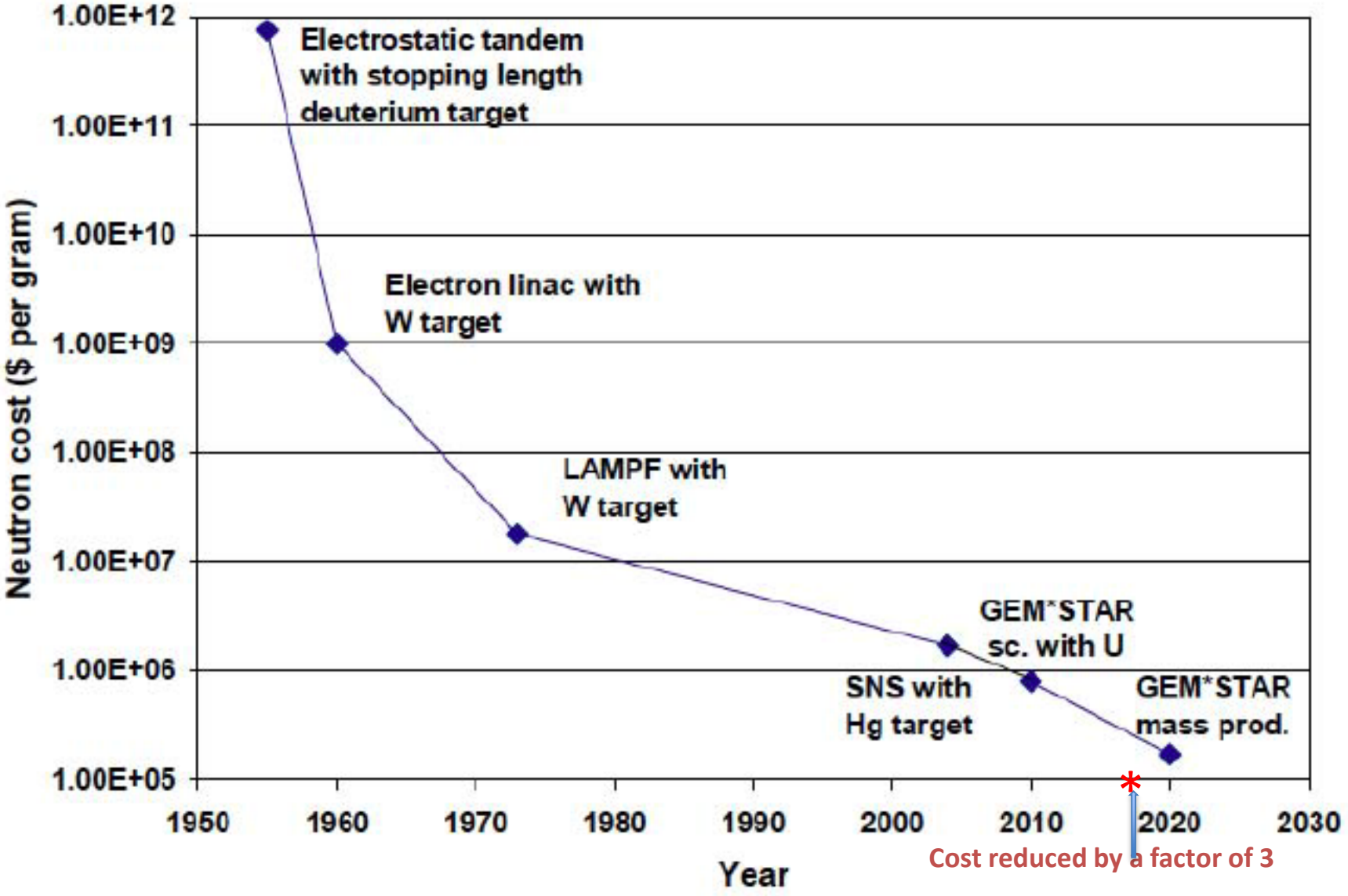
* Summary



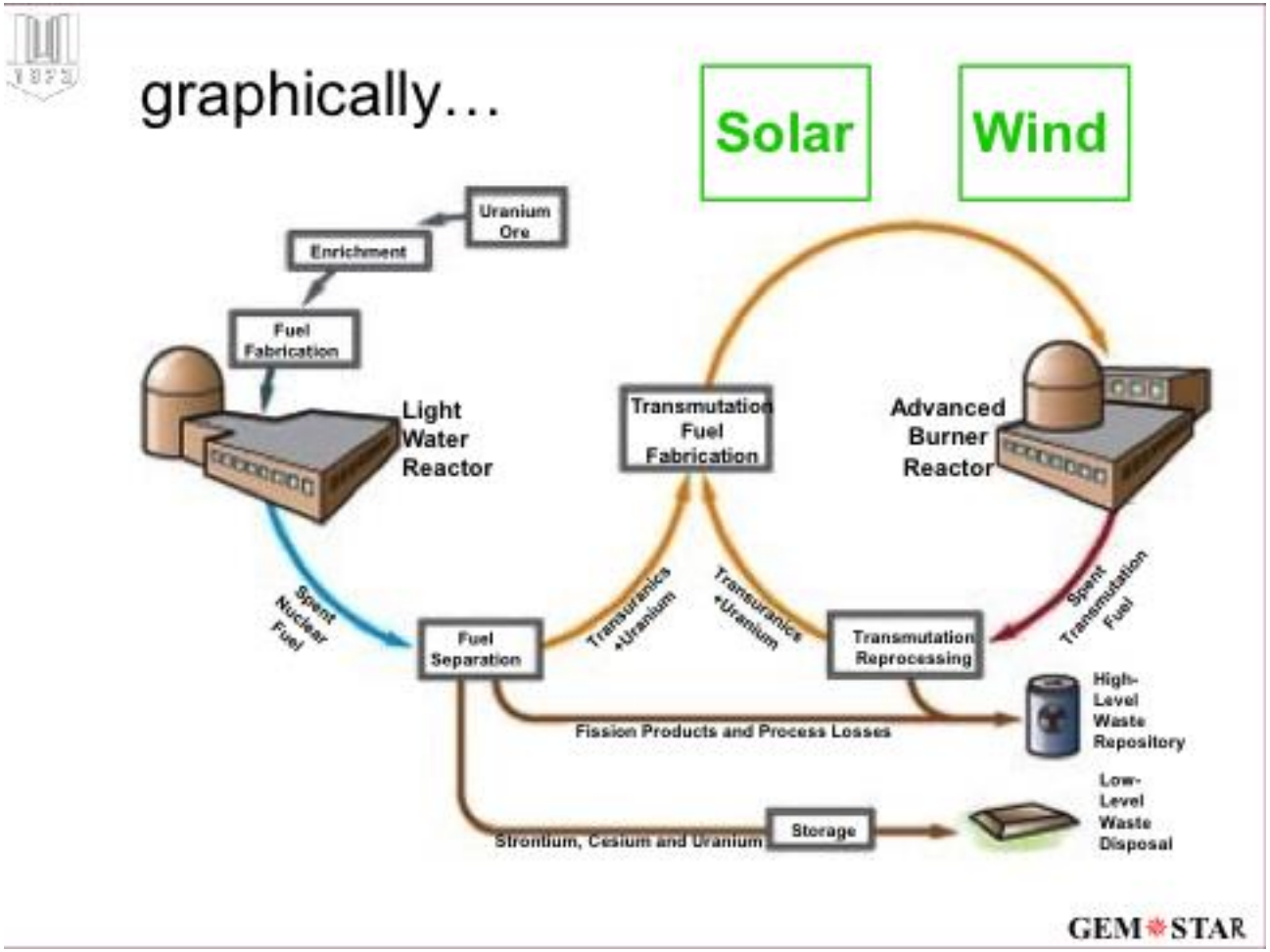
Brief Early History of ADS

- 1950 – U. E. O. Lawrence, high power accelerators for producing fissile materials
- 1952 – W. B. Lewis, proposed use of thorium with intense neutron generators
- 1992 – C. D. Bowman, energy generation with ATW (thermal neutrons)
- 1993 – C. Rubbia, energy amplifier (fast neutrons)

Charlie Bowman's Neutron Cost Estimates



U. S. DOE's fuel cycle for nuclear compared with solar and wind in green



ADNA Corporations Advances 2007 -2016

- Continuous flow
- Vector graphite
- Cellulosic biomass to diesel
- Viability of ocean uranium
- Much higher accelerator performance with superconductivity
- Doubling the efficiency of rf power generation

Deep burning of excess weapons plutonium using GEM*STAR's patented continuous flow system

GEM*STAR Burns W-Pu Without U or Th

34 Tons in 30 Years

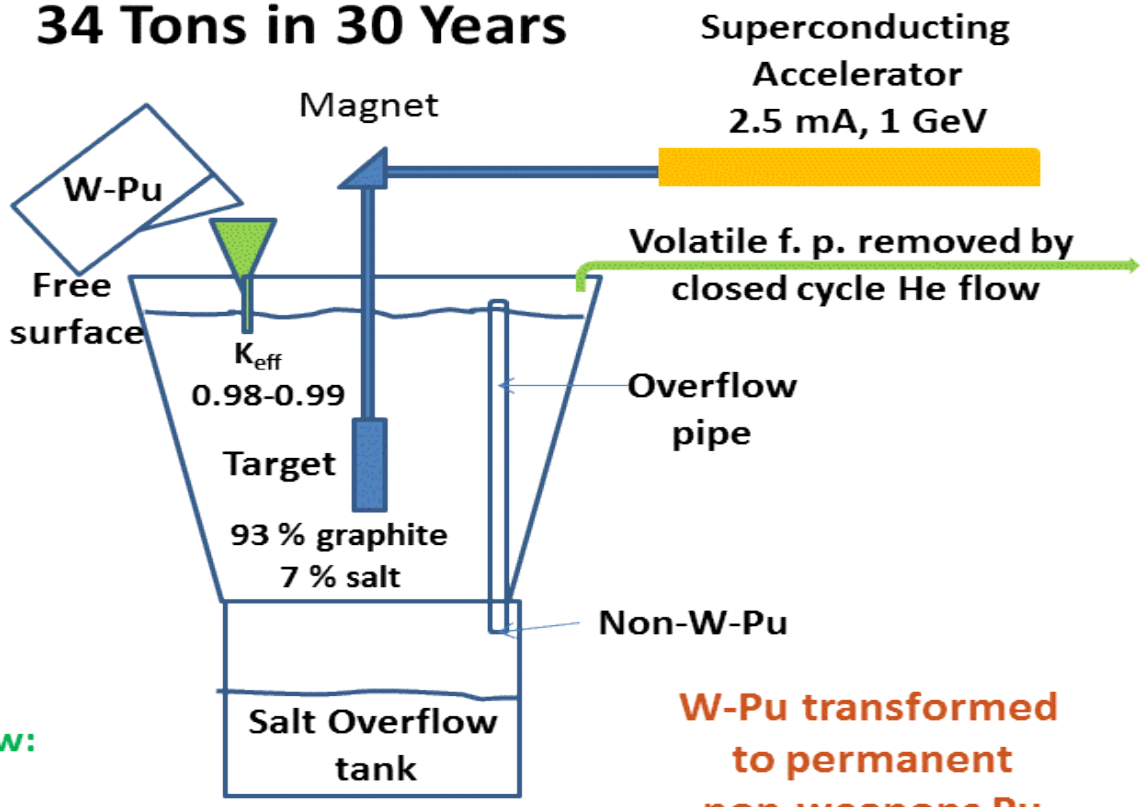
Hourly fill:

30 g W-Pu as PuF_3 + carrier salt

Inflow W-Pu:

93 % ^{239}Pu

7 % ^{240}Pu



Hourly overflow:

7.5 g as PuF_3 + carrier salt +

22.5 g of fission product

Non-weapons Pu Outflow:

52.4 % ^{239}Pu

25.4 % ^{240}Pu

10.6 % ^{241}Pu

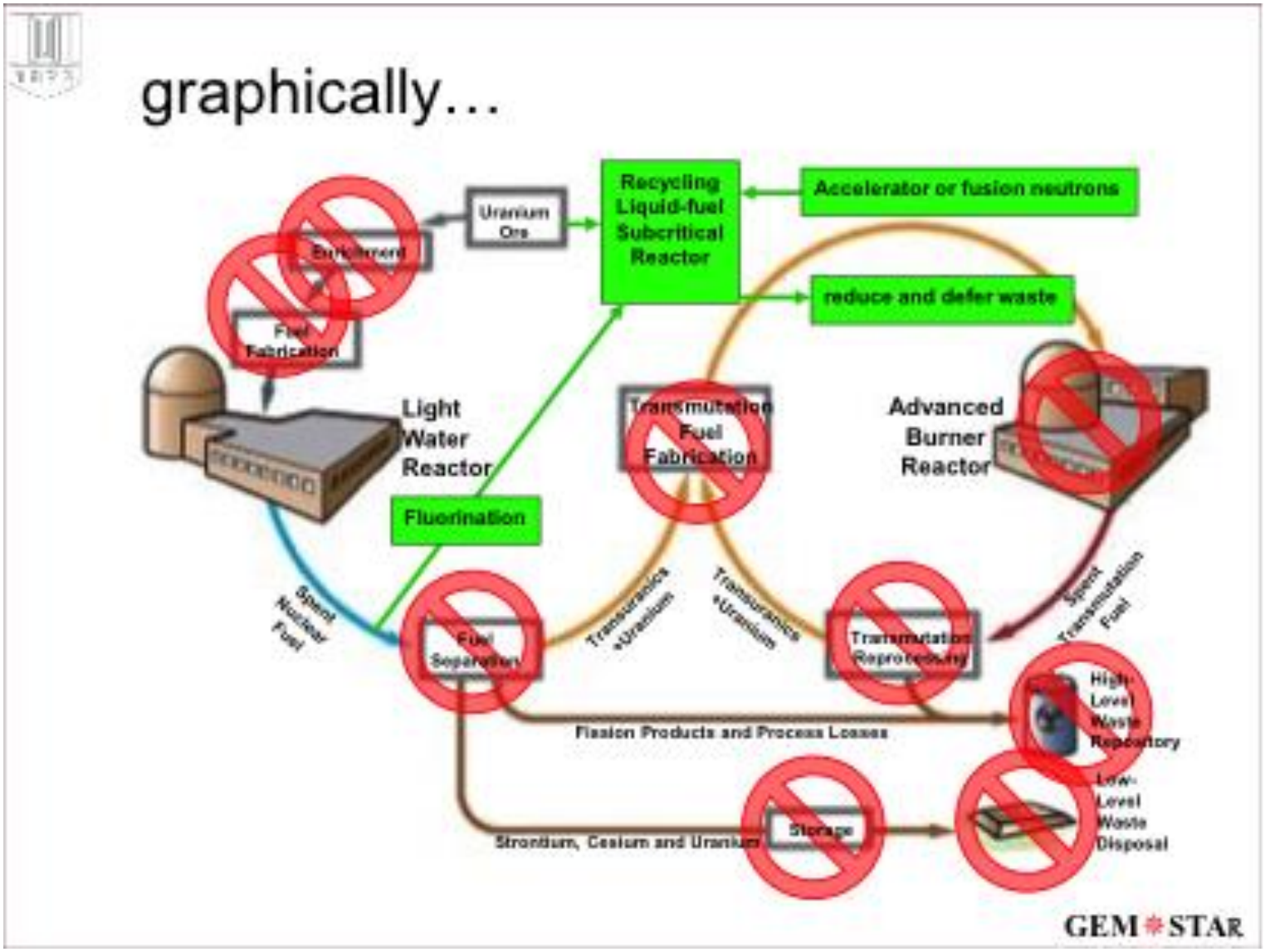
11.7 % ^{242}Pu

Fission power 500 MWt

Requires four units like this driven by one 10 mA accelerator

W-Pu transformed to permanent non-weapons Pu immediately upon adding and mixing

ADNA's Vision



Summary

The time for new nuclear energy with ADS arrived in the US - worlds humanity needs it for healthy & happy living with out concern of harmful pollution from fossil fuels and free from nuclear catastrophic events