



Nuclear Science & Technology for Society's Grand Challenges

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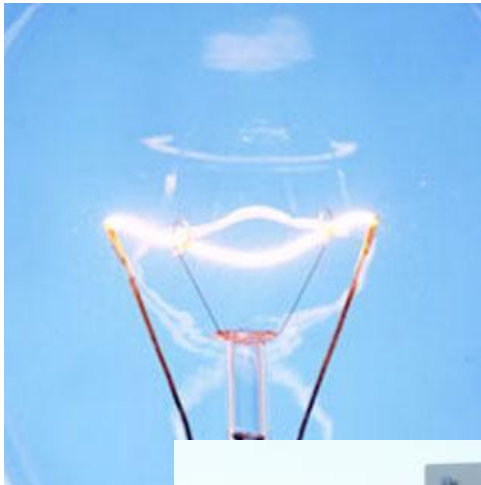
Produced by University Communications



About me...

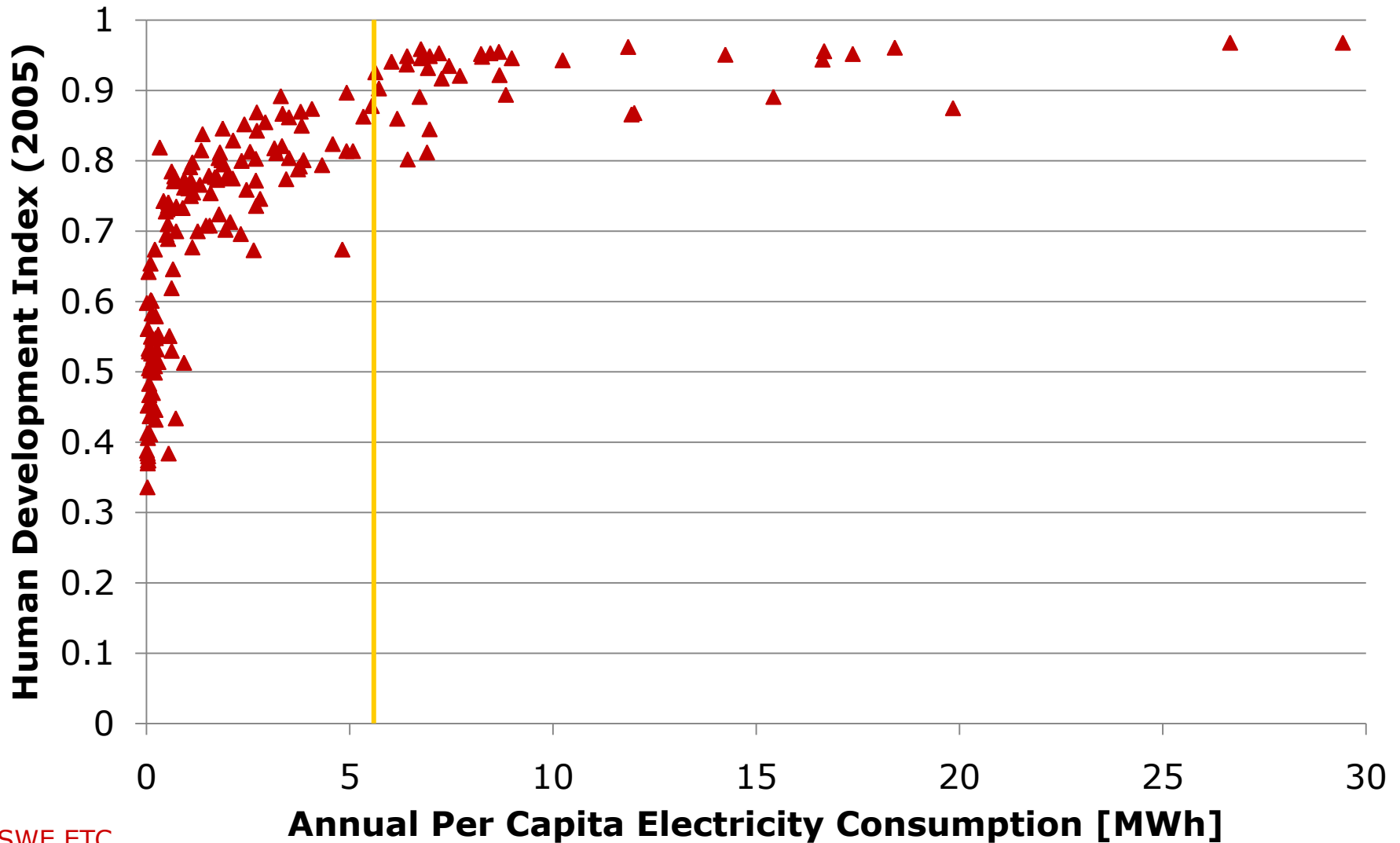


Some Grand Challenges

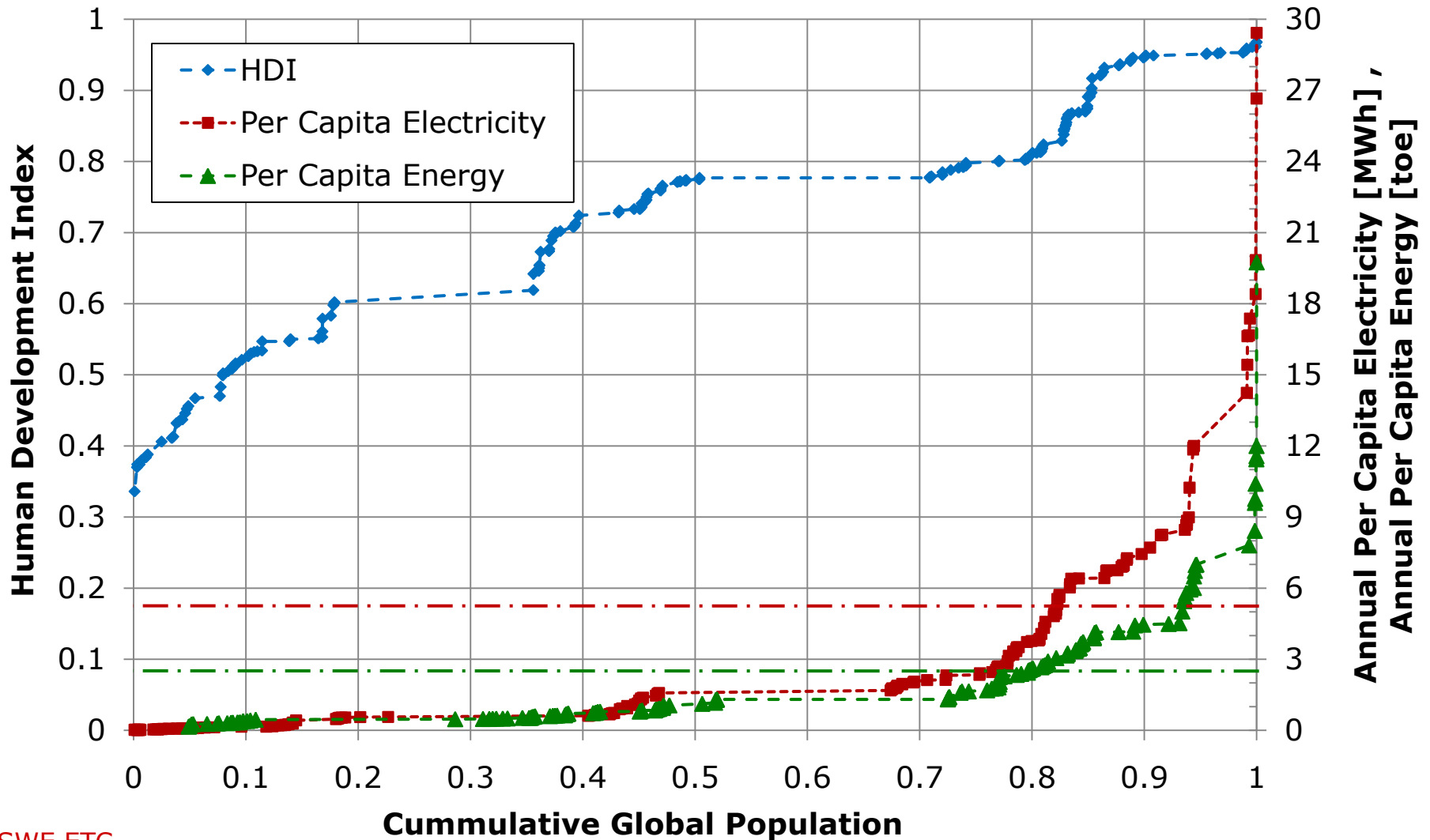




Human Development Index & Access to Energy



Global Statistics



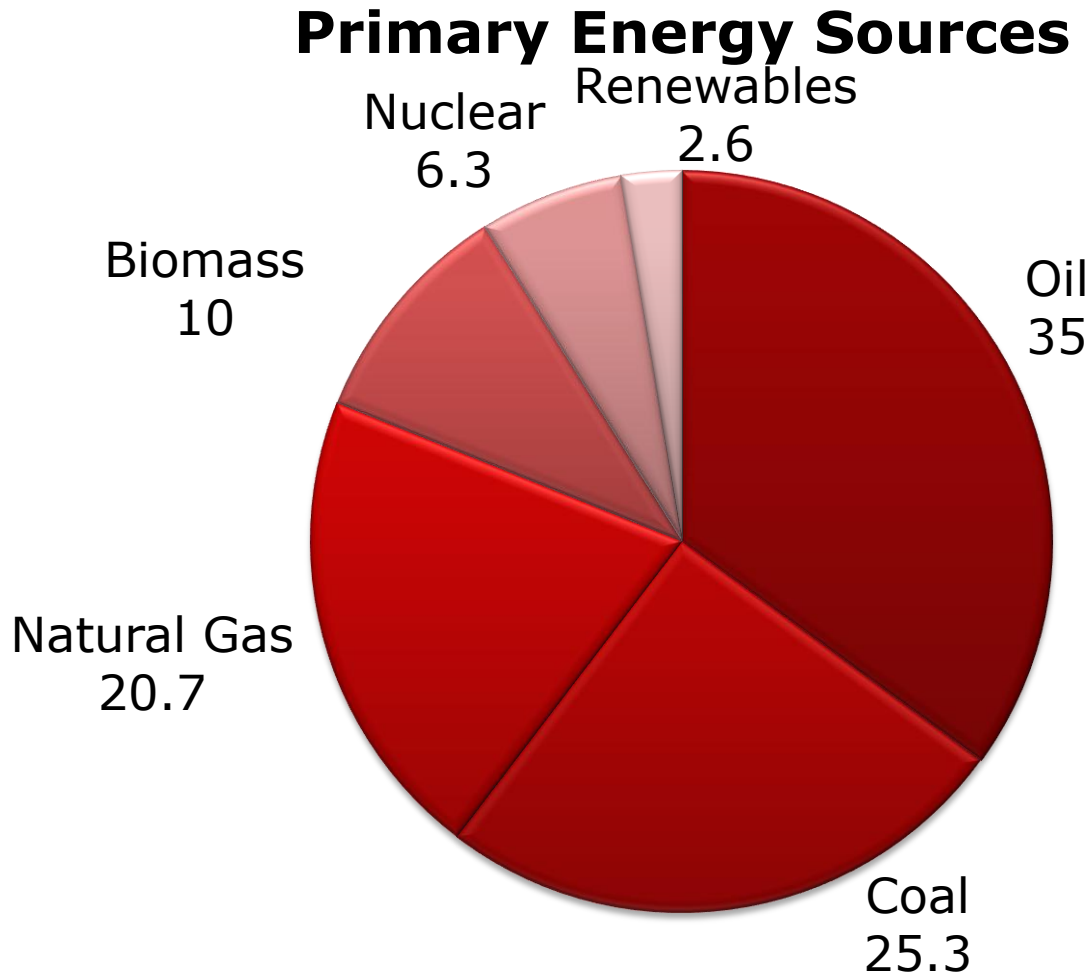
Energy Deficits

- Electricity: 5.6 MWh/y/capita
 - 18% of population: 11.0 million MWh/y
 - 82% of population: 6.4 million MWh/y
 - Electricity deficit: 23.6 million MWh/y

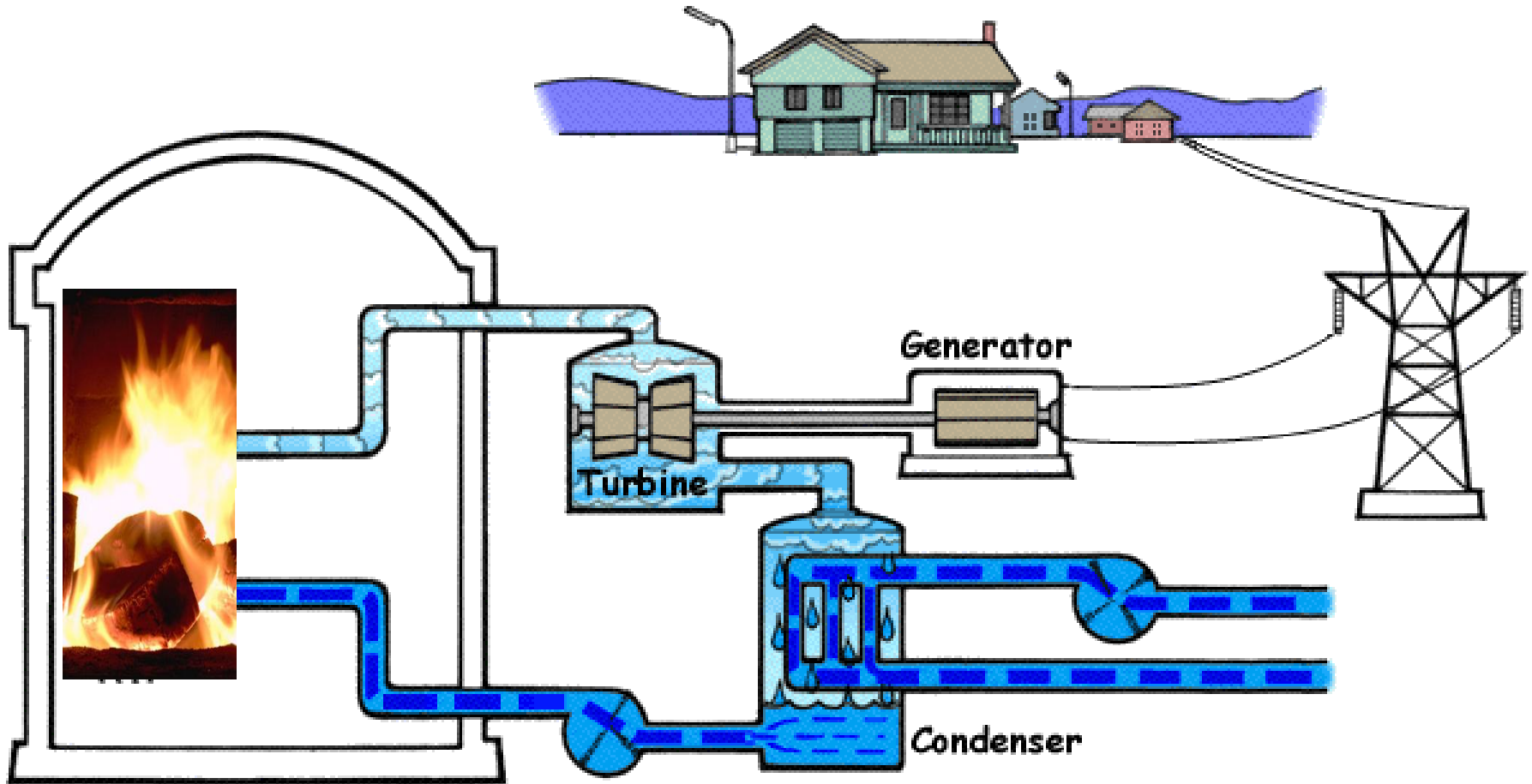
- Energy: 2.55 toe/y/capita
 - 20% of population: 6.5 Btoe/y
 - 80% of population: 11.0 Btoe/y
 - Energy deficit: 8.6 Btoe/y



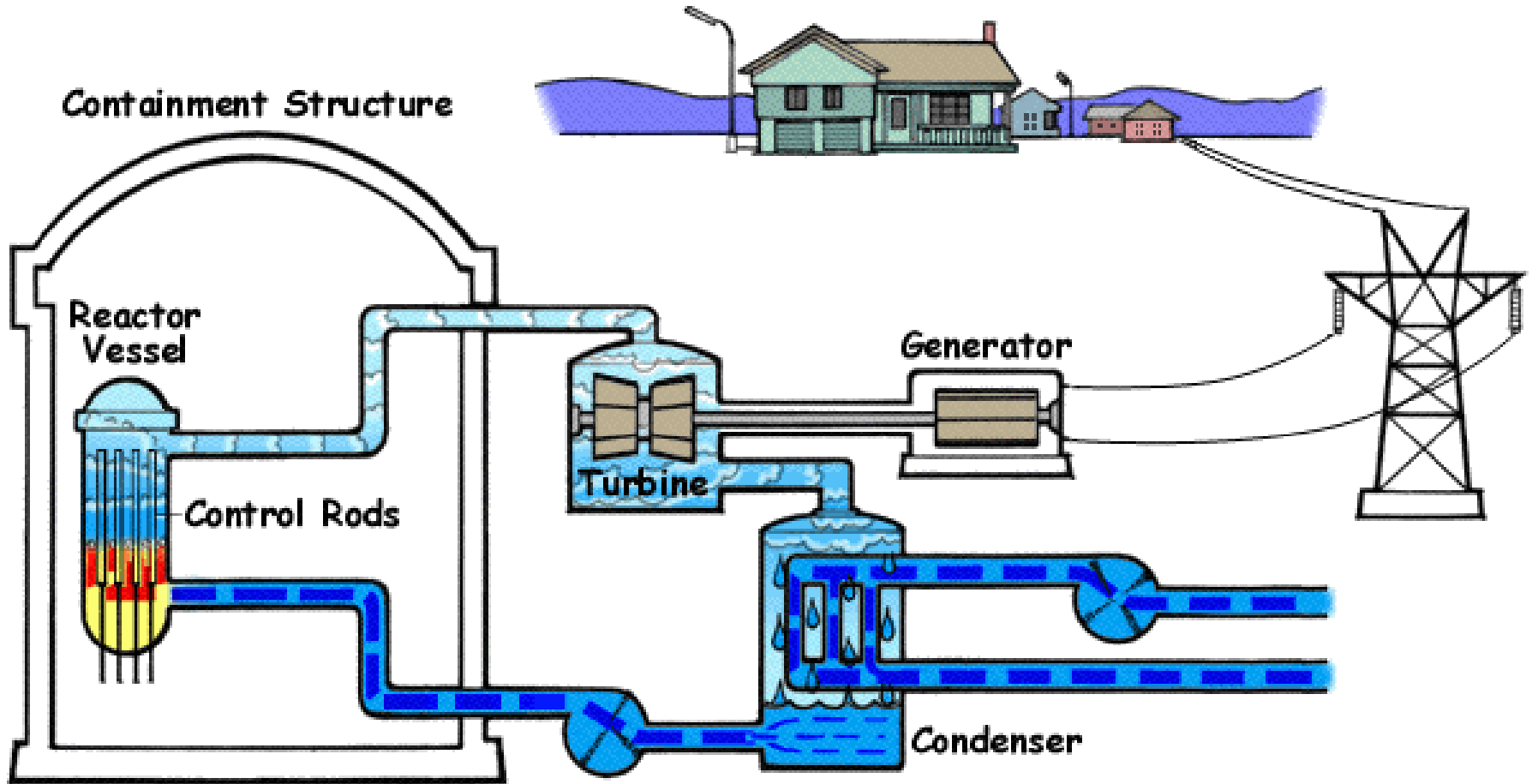
Major Sources of Primary Energy



Baseload electricity: Coal

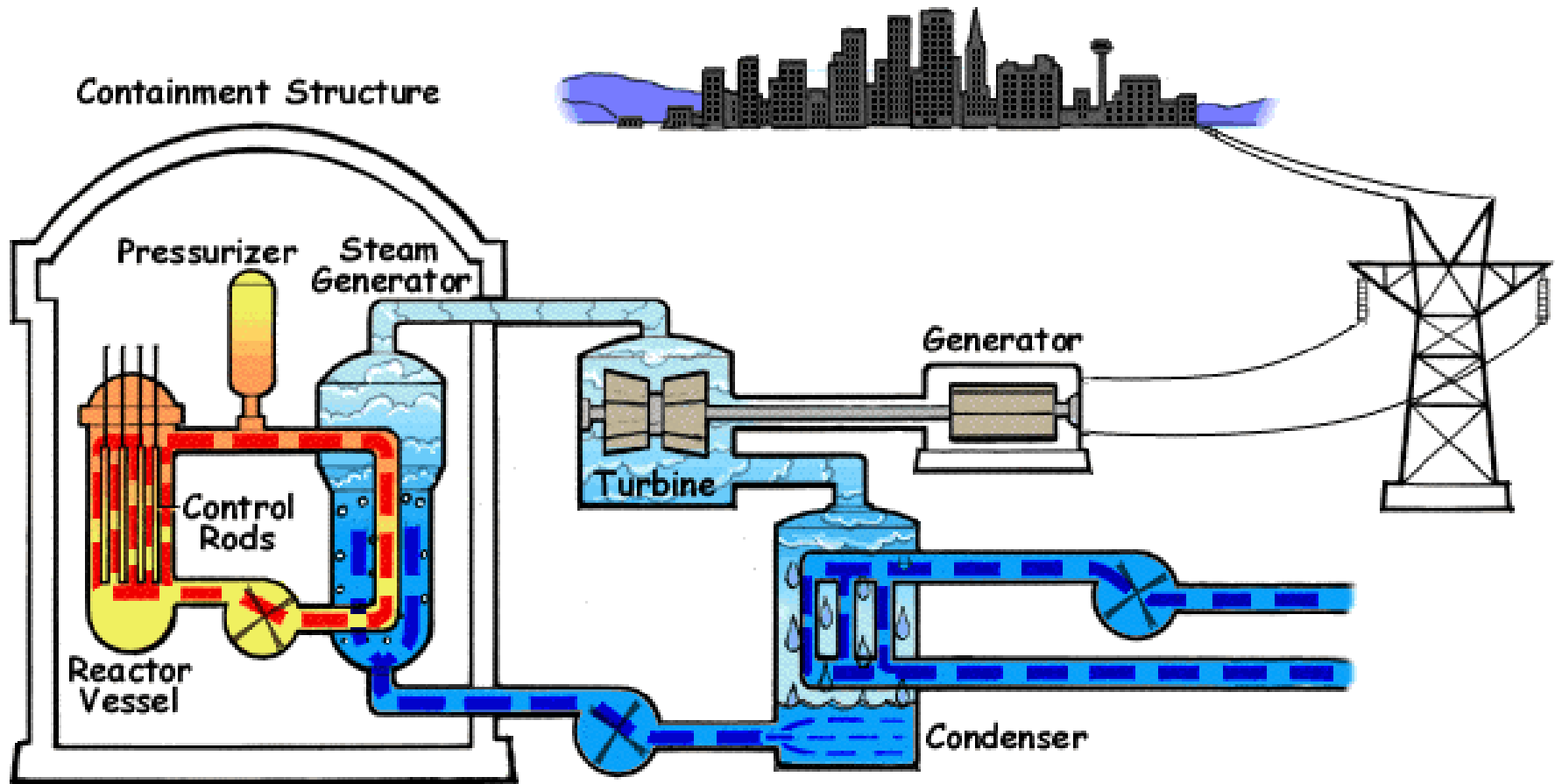


Baseload Electricity: Nuclear



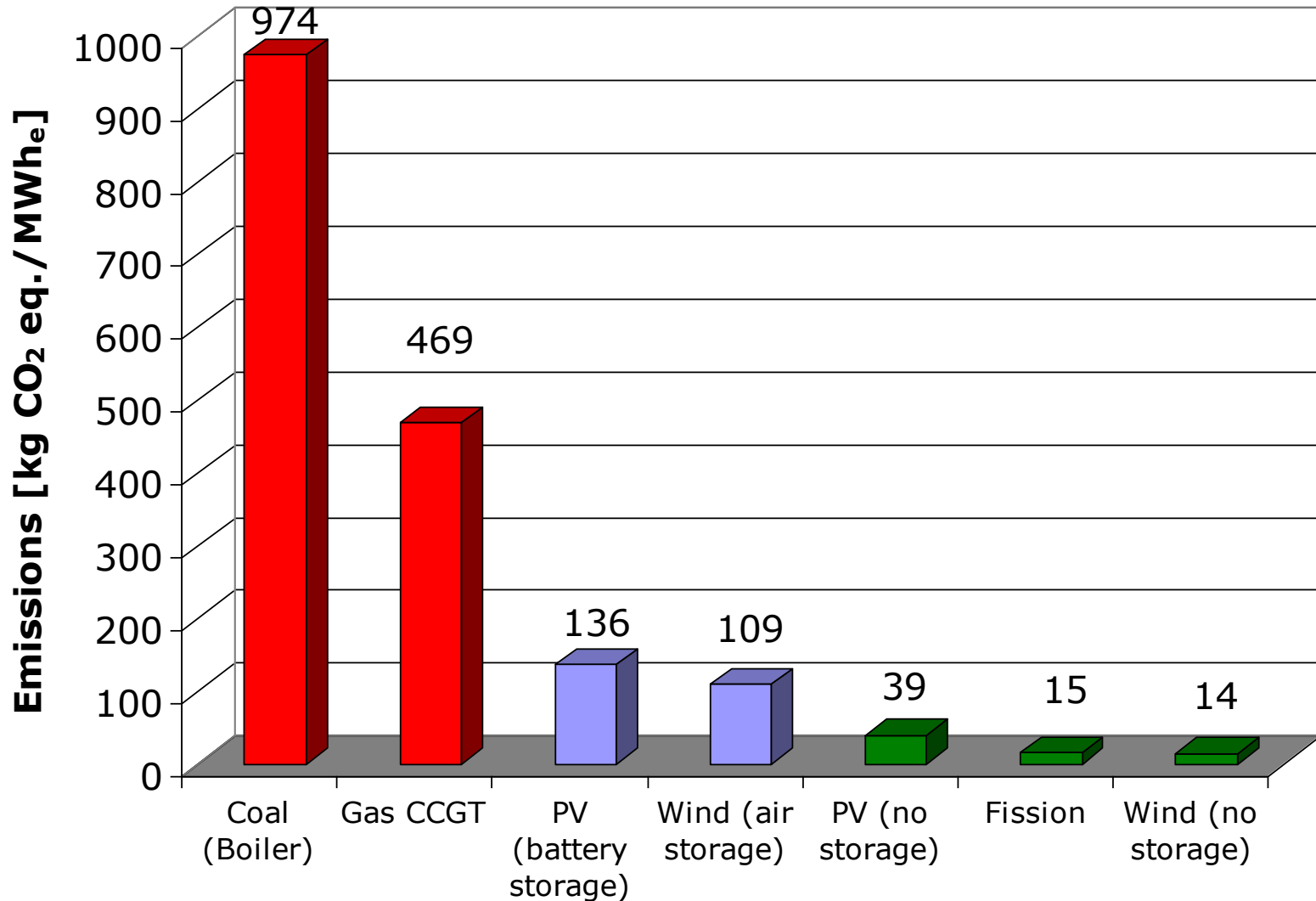


Baseload Electricity: Nuclear 2





Climate Change



The 3 C's of Used Nuclear Fuel

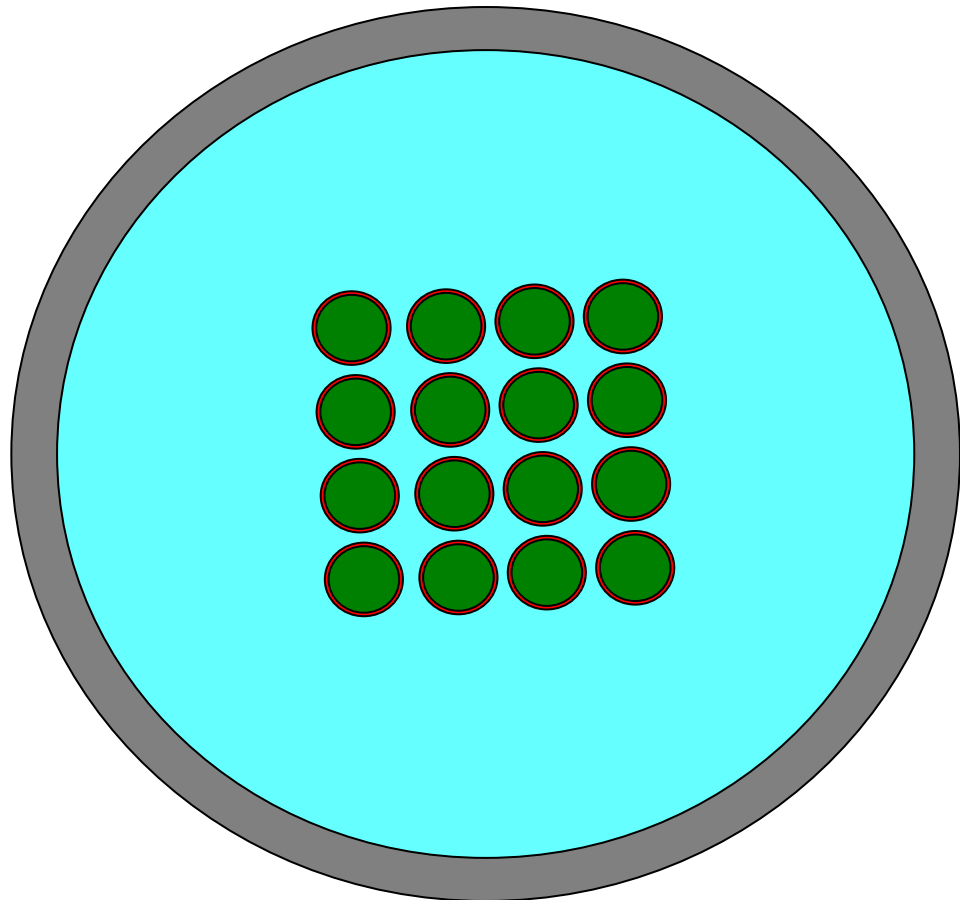
Compact ... Contained ... Cared for

- Imagine all your electricity for an entire lifetime was generated by nuclear energy
 - About 1 million kWh (2006 EIA)
- About 1 soda-can of used nuclear fuel

The 3 C's of Used Nuclear Fuel

Compact ... **Contained** ... Cared for

- Fuel itself is **solid**
- Wrapped in metal
- Stored in pool/cask



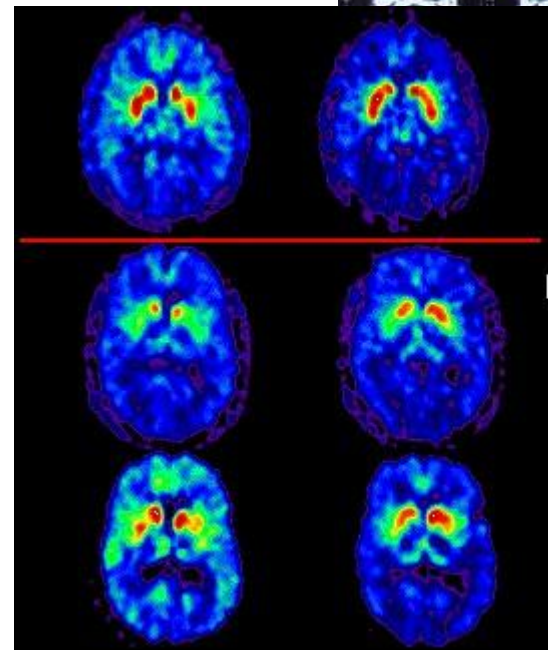
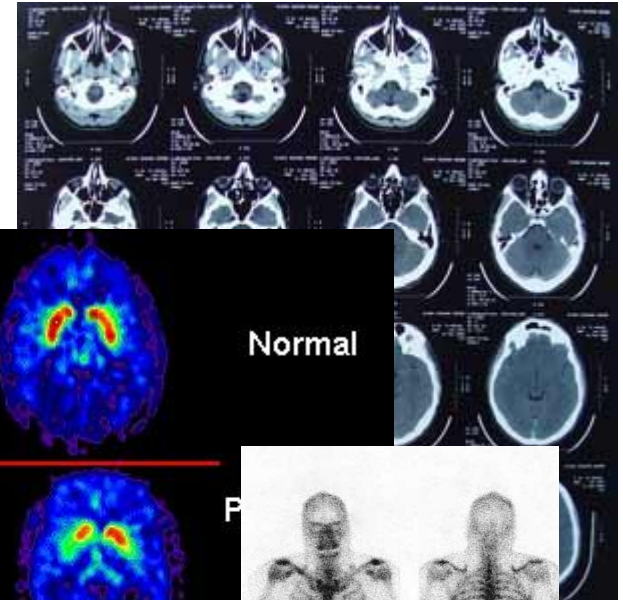
The 3 C's of Used Nuclear Fuel

Compact ... Contained ... **Cared for**

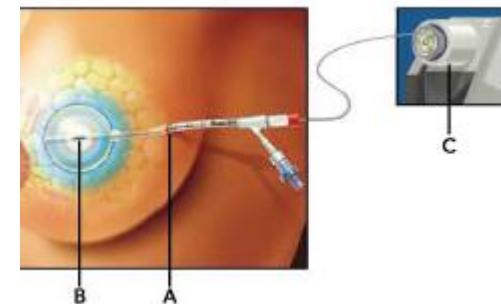
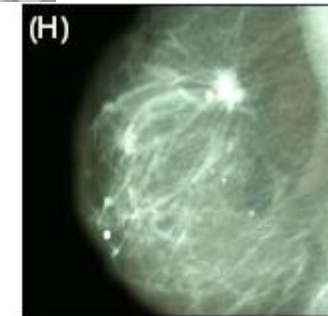
- Carefully tracked
- Decades of experience in safe handling
- Easy to detect and monitor
- Paid for in Nuclear Waste Fee

Health: Diagnosis

- computed tomography (CT) scan
- positron emission tomography (PET) scan
- Nuclear Medicine



- Nuclear medicine
- External beam radiation
- Brachytherapy



Detecting Dangerous Material

