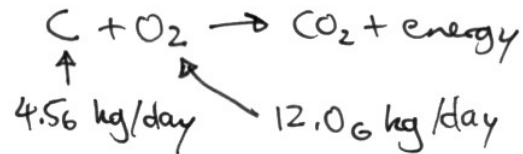


"Conversion" of mass to energy

Coal-fired power plant: typical 500 MW

Requires 50 rail cars (5000 tons) of coal per day

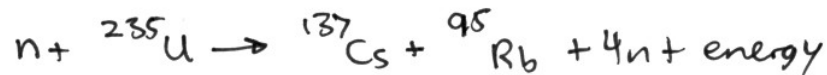


Mass of CO₂ at output is smaller than mass

of C & O₂ at input by $m_{\text{rest}} = \frac{E}{c^2} = 500 \text{ MW} \cdot 3600 \frac{\text{s}}{\text{h}} \cdot 24 \text{ h/d}$
 $= 0.5 \text{ g. (!)}$

⇒ 3.9% of starting mass is converted to energy.

Nuclear power plant (500 MW)



→ ~0.1% of mass of ²³⁵U is converted to energy.

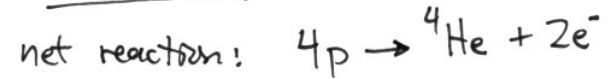
Still a change of 0.5g in mass from start to finish

↔ 0.55 kg of ²³⁵U used per day

but it is in low concentration in the fuel

⇒ ~10kg of fuel rod used/day

The Sun



0.6% of starting mass is converted to energy

The second "page" of the summary is the worked example with the ship and comet; this is a separate document.