

# SMALL MODULAR REACTORS FOR LOW-CARBON ELECTRIC AIRCRAFT

**1 Nuclear Fuel Cycle**  
 Uranium ore is extracted and processed into fuel rods for use in fission reactors

**1a Mining and Milling**  
 Uranium is extracted from the crust and converted from raw ore into a concentrate

**1b Conversion**  
 Concentrated "yellow cake" is processed and reacted with fluorine

**1c Enrichment**  
 Conversion product is concentrated to contain more fissionable components

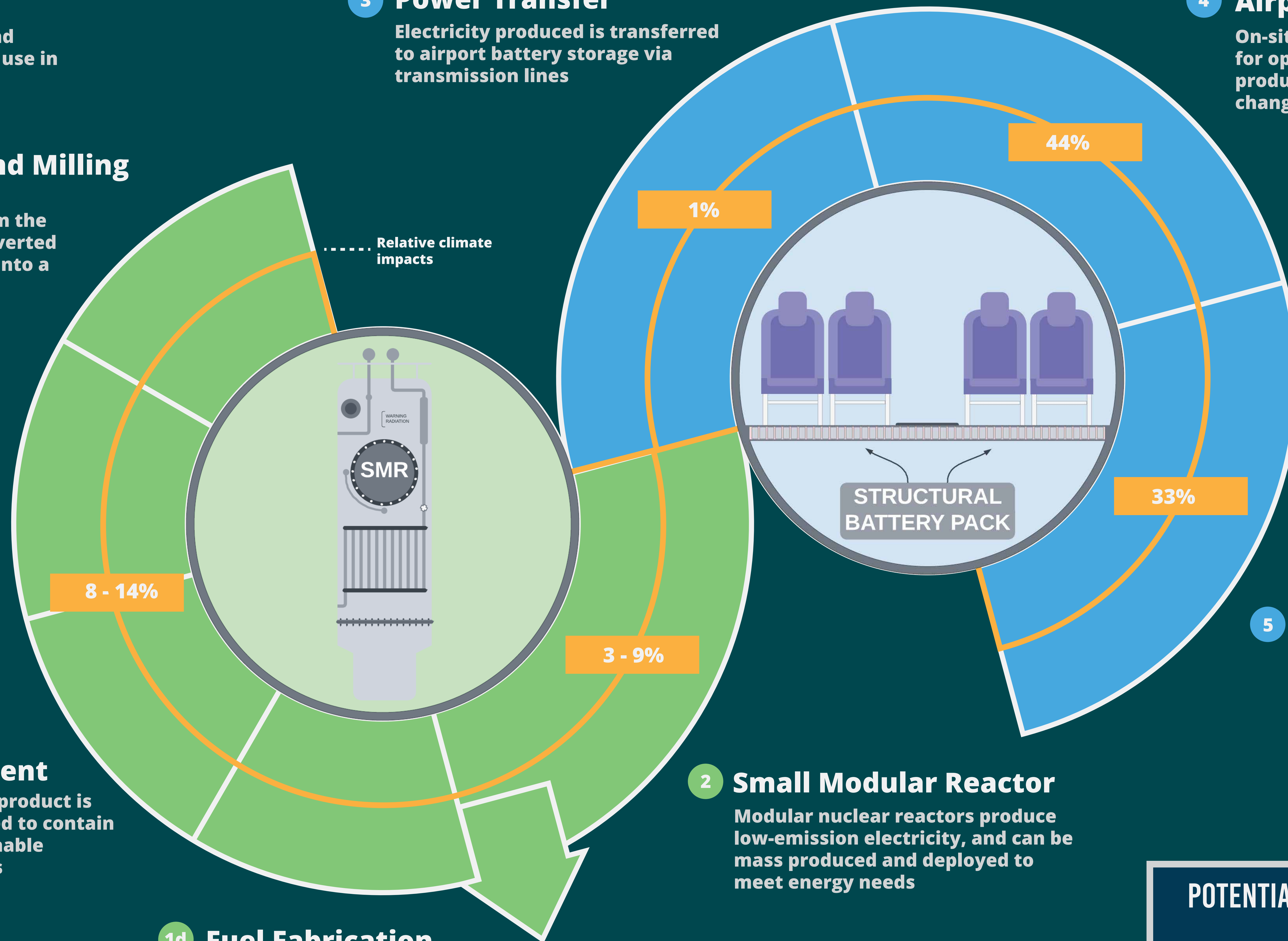
**1d Fuel Fabrication**  
 Enriched uranium is converted into fuel suitable for reactors

**3 Power Transfer**  
 Electricity produced is transferred to airport battery storage via transmission lines

**4 Airport Storage**  
 On-site energy storage allows for operations during potential production downtime and changes in demand

**5 Lithium-Air Battery Application**  
 Structural lithium-air batteries on the aircraft provide energy-dense storage of electricity to propel commercial aircraft

**2 Small Modular Reactor**  
 Modular nuclear reactors produce low-emission electricity, and can be mass produced and deployed to meet energy needs



**Nuclear Waste**  
 Waste from nuclear reactors must be disposed of or reprocessed

## POTENTIAL CLIMATE IMPACTS OF SMR



SMR powered electric aircraft compared to conventional jet fuel (g CO<sub>2</sub> eq/kWh energy delivered)