



- 1.2 billion people without access to electricity
- A further 1 billion people only have intermittent access

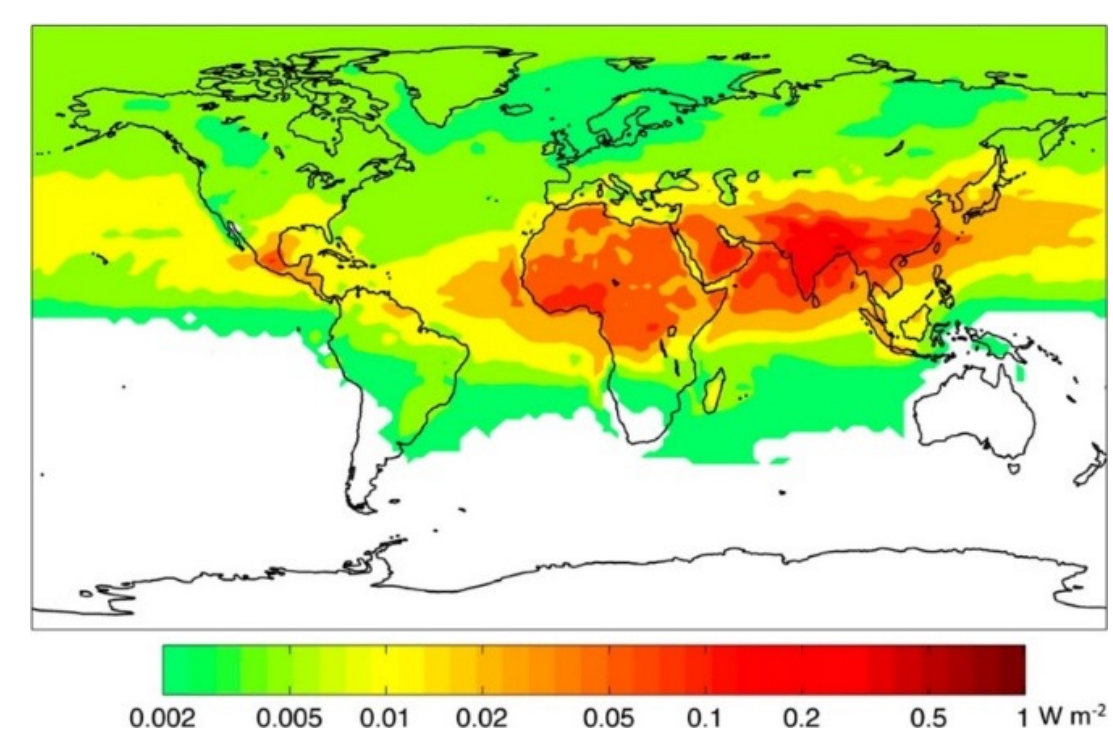


- Many people without access to electricity live on \$2 per day. Continuously purchasing kerosene fuels takes up to 25% of the household income

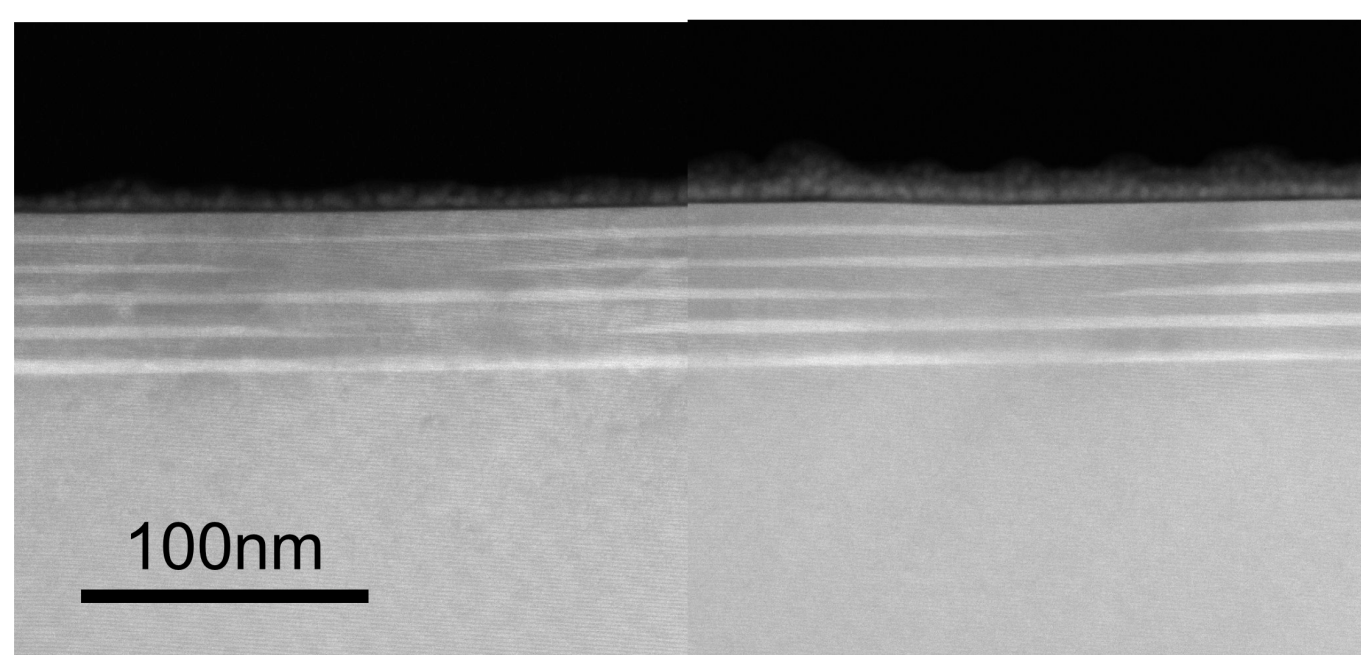
- Many people use kerosene lamps for lighting purposes, causing serious respiratory illness
- More than 4.3 million people die each year from indoor air pollution



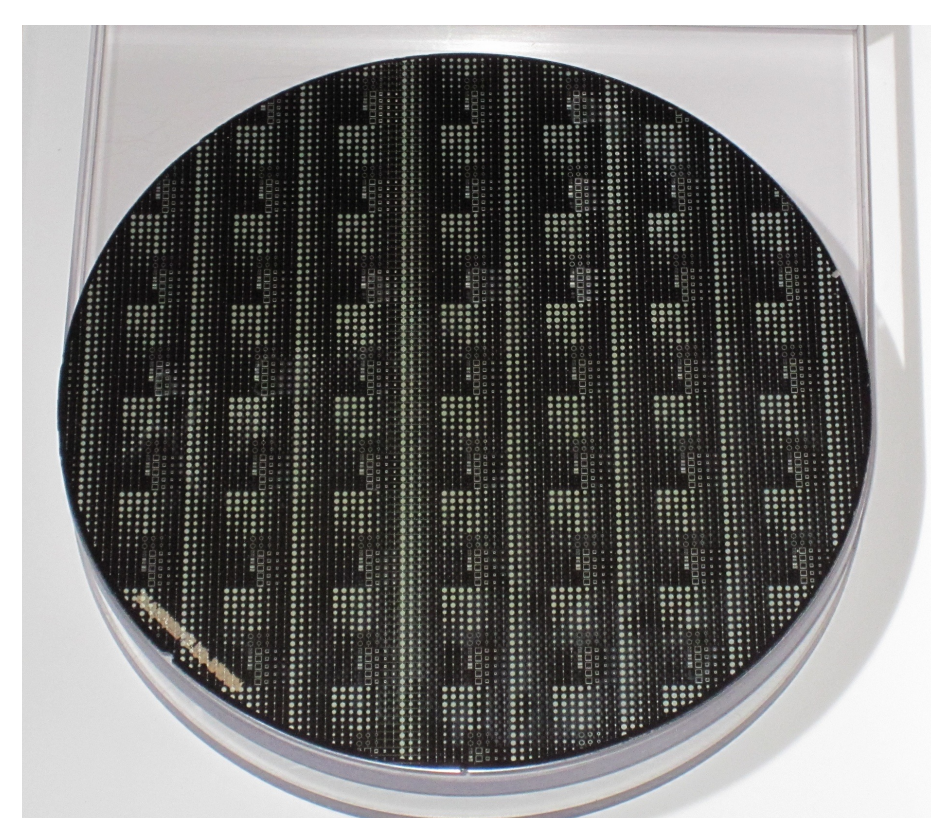
- Kerosene lamps are responsible for 20% of greenhouse gas emissions, equivalent to about 240 million tonnes of CO<sub>2</sub> each year



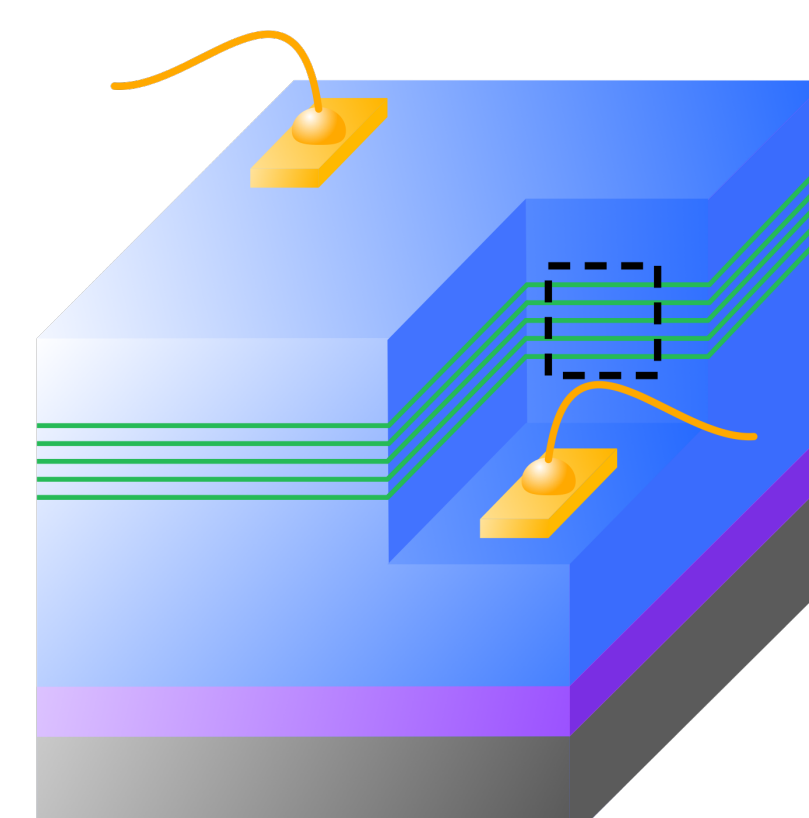
## Low-cost High Brightness Lighting Technology to benefit people without access to electricity



Lighting region — quantum wells



LED chips on a Si wafer



One processed LED chip



Finished device

- **Low-cost:** the LEDs employ silicon substrates in contrast to the more expensive sapphire traditionally. Sapphire can be more than ten times more expensive, providing our devices with a substantial cost advantage.
- **High brightness:** the LEDs provide more than 30 lumens of illumination for indoor task lighting
- **Sustainable energy** using high efficiency monocrystalline solar cells, which can generate up to 400mW over just 4 × 7cm
- **Maximum energy extraction** can be achieved by a maximum power point tracking circuit, which ensures that the maximum energy is drawn under various sun lighting conditions.

