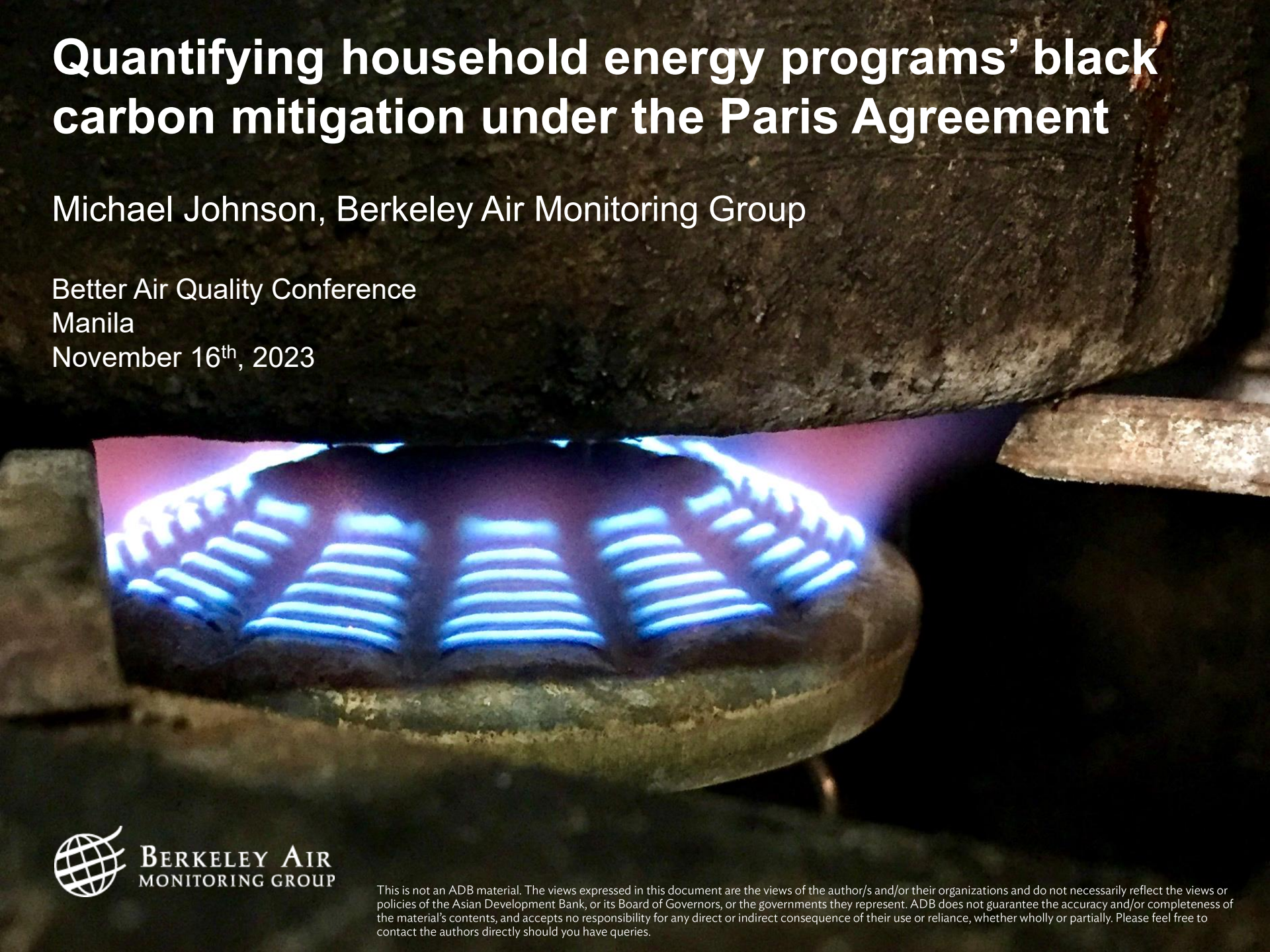
Quantifying household energy programs' black carbon mitigation under the Paris Agreement

Michael Johnson, Berkeley Air Monitoring Group

Better Air Quality Conference
Manila
November 16th, 2023



BERKELEY AIR MONITORING GROUP

Renewed focus on black carbon

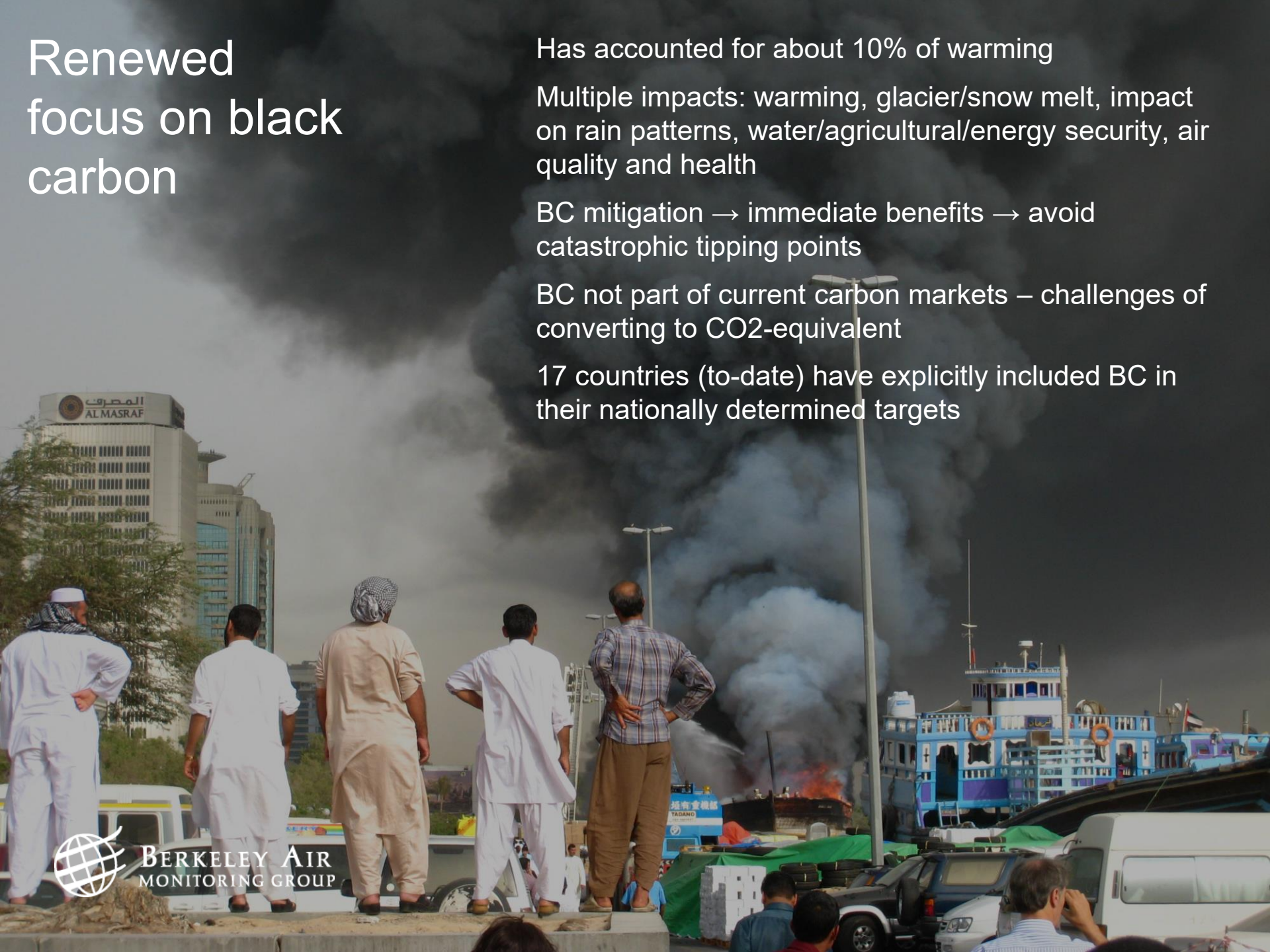
Has accounted for about 10% of warming

Multiple impacts: warming, glacier/snow melt, impact on rain patterns, water/agricultural/energy security, air quality and health

BC mitigation → immediate benefits → avoid catastrophic tipping points

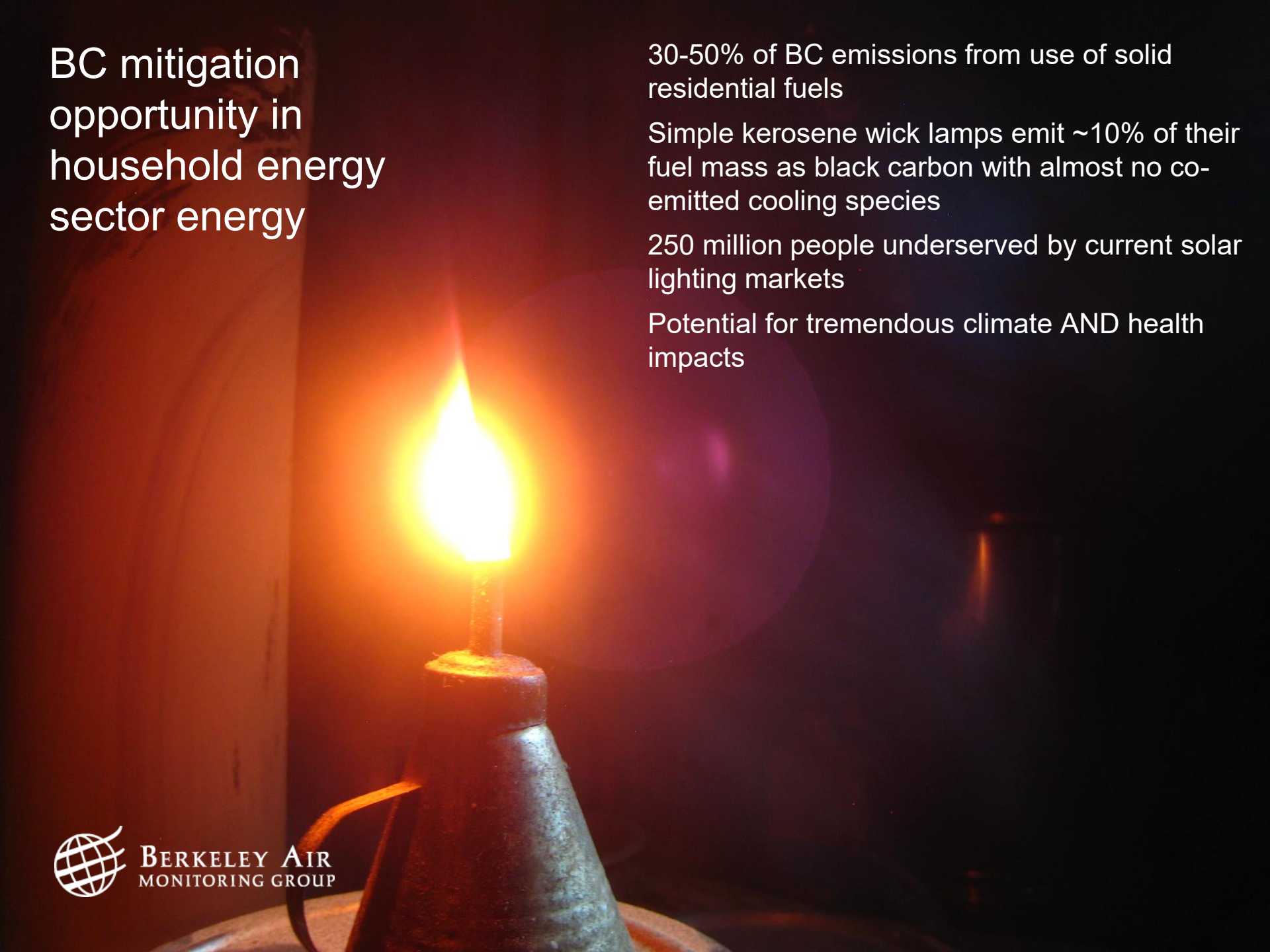
BC not part of current carbon markets – challenges of converting to CO2-equivalent

17 countries (to-date) have explicitly included BC in their nationally determined targets



BC mitigation opportunity in household energy sector energy

- 30-50% of BC emissions from use of solid residential fuels
- Simple kerosene wick lamps emit ~10% of their fuel mass as black carbon with almost no co-emitted cooling species
- 250 million people underserved by current solar lighting markets
- Potential for tremendous climate AND health impacts



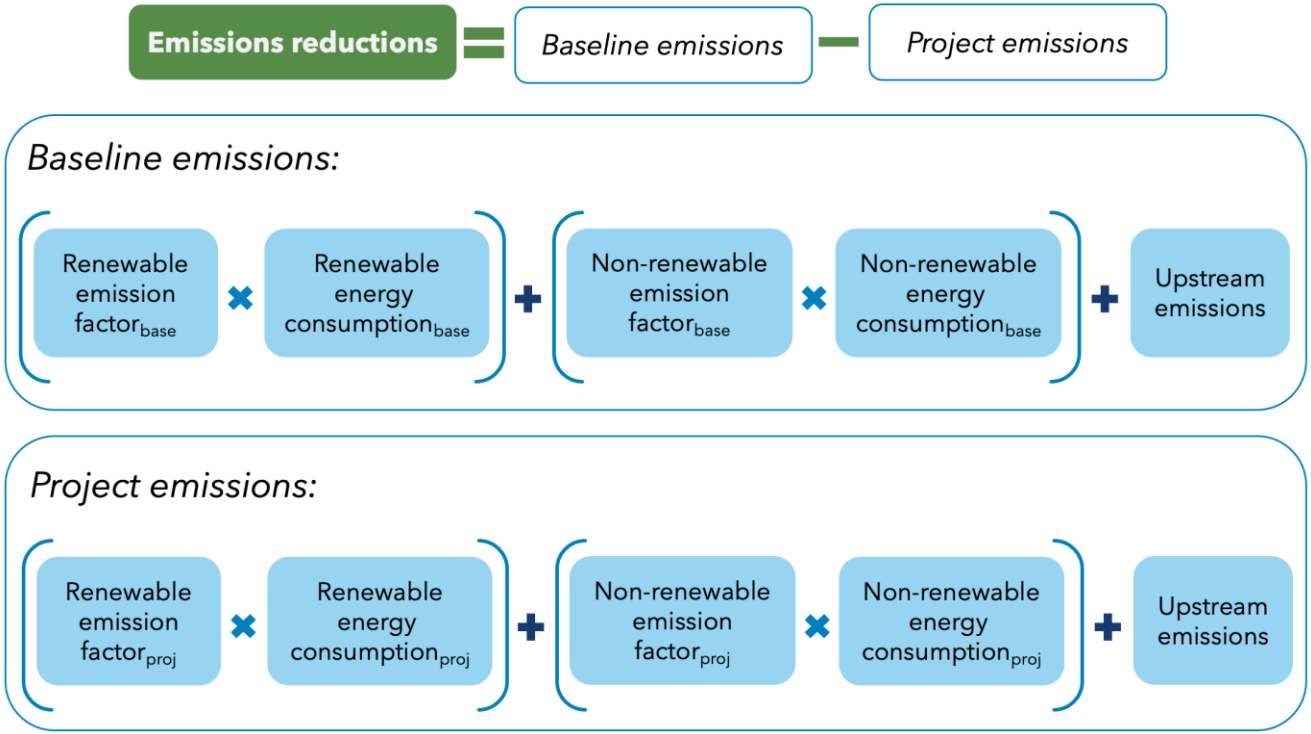
BERKELEY AIR MONITORING GROUP

Accelerating BC mitigation

- More countries include household energy and lighting programs in their climate action portfolios
- Buyer countries (article 6.2) can prioritize decarbonization actions in BC-rich sectors
- Programs are complimented with strong monitoring, reporting, and verification
- Make BC quantification part MRV (easily layered onto methods that CO2e emissions reductions)

BERKELEY AIR MONITORING GROUP

Harmonized and updated emissions reduction methodology



Why develop something new?

- Concerns of overestimated emission reductions from stove projects
- Countries can propose their own approaches for estimating emission reductions

Key updates:

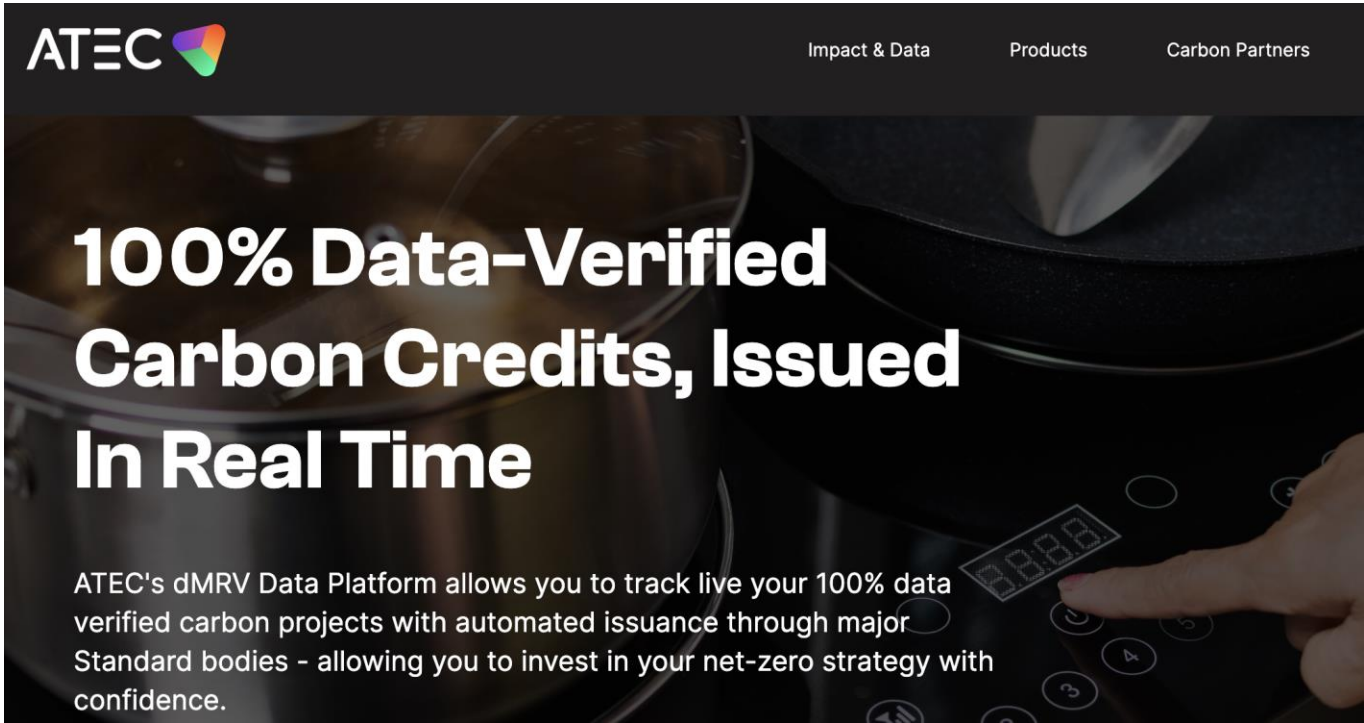
- Holistic whole-household approach that works for any project fuel/technology
- Combination of conservative assumptions/defaults and best practices to estimate parameters
- Better accounting for impact of stacking multiple stoves

Technologies and business models provide solutions

Lighting Africa has provided innovative market-based approaches

New IoT embedded within electric cooking to verify emission reductions

Target geographies where impact is greatest: South Asia/Himalayan region region, Andean Region, West Africa




Thanks!
mjohnson@berkeleyair.com
BERKELEY AIR
MONITORING GROUP