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## **Supplemental Material**

# **Quantitative Guidance for Stove Usage and Performance to Achieve Health and Environmental Targets**

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References

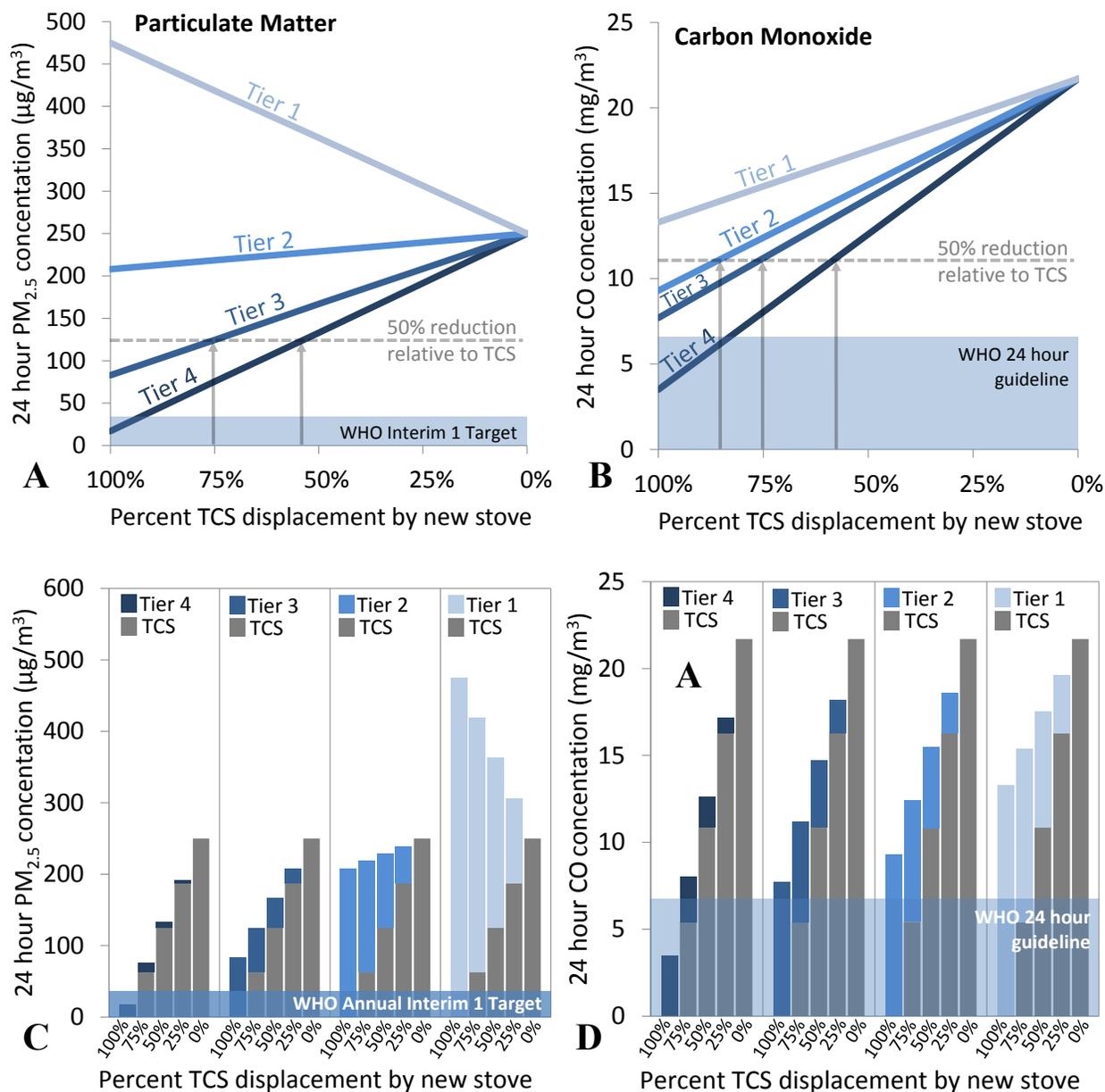


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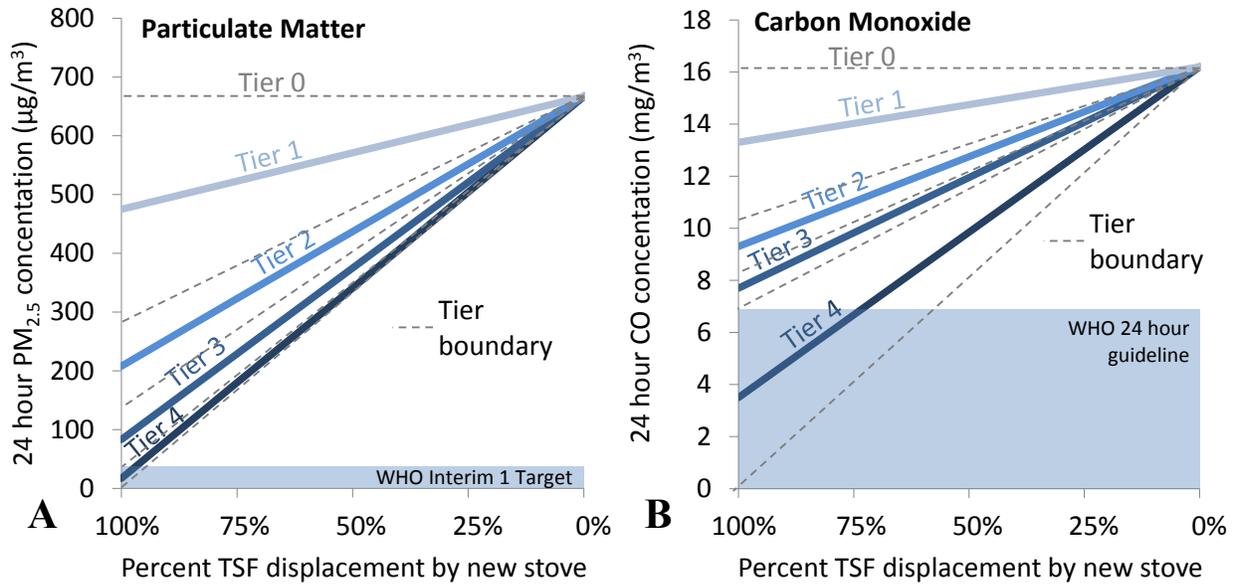


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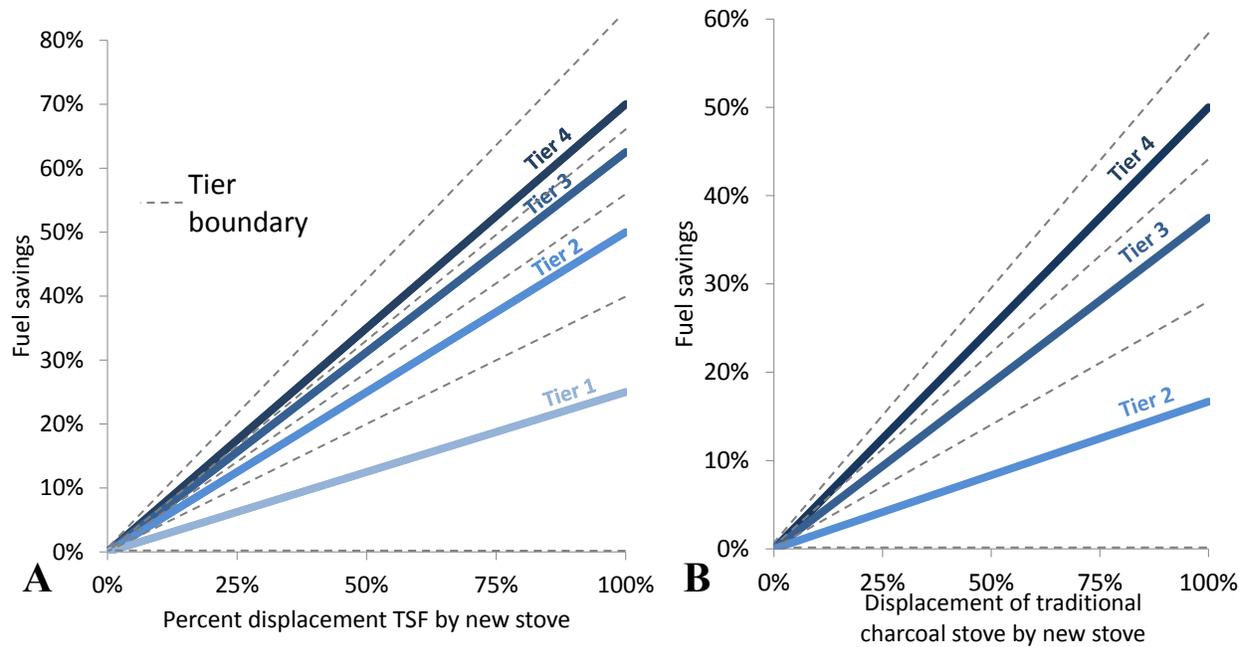


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Table S1: ISO IWA Tiers for Indoor Emissions and Efficiency.

<b>Indoor emissions Sub-tiers</b>	<b>Indoor emissions CO (g/min)</b>	<b>Indoor emissions PM<sub>2.5</sub> (mg/min)</b>
Tier 0	>0.97	>40
Tier 1	≤0.97	≤40
Tier 2	≤0.62	≤17
Tier 3	≤0.49	≤8
Tier 4	≤0.42	≤2
<b>Efficiency/fuel use Sub-tiers</b>	<b>High power thermal efficiency (%)</b>	<b>Low power specific consumption (MJ/min/L)</b>
Tier 0	<15	>0.050
Tier 1	≥15	≤0.050
Tier 2	≥25	≤0.039
Tier 3	≥35	≤0.028
Tier 4	≥45	≤0.017

The overall Tier for Indoor Emissions and Efficiency is the minimum Sub-tier value within that indicator category. For example, the Indoor Emissions Tier is the minimum of the Sub-tiers for PM<sub>2.5</sub> and CO emissions. Additional Tier values are available at <http://cleancookstoves.org/technology-and-fuels/standards/iwa-tiers-of-performance.html>.

These tiers were aligned with Water Boiling Test 4.2.3 and Biomass Stove Safety Protocol 1.1

(<http://cleancookstoves.org/technology-and-fuels/testing/protocols.html>).

## References

- WHO. 2010. *WHO guidelines for indoor air quality: selected pollutants*. World Health Organization Regional Office for Europe, Bonn.
- WHO. 2006. *WHO guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide*. World Health Organization Press, Geneva.