

# Chapter 2 Cooling Demand

- Review and discussion

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# Outline

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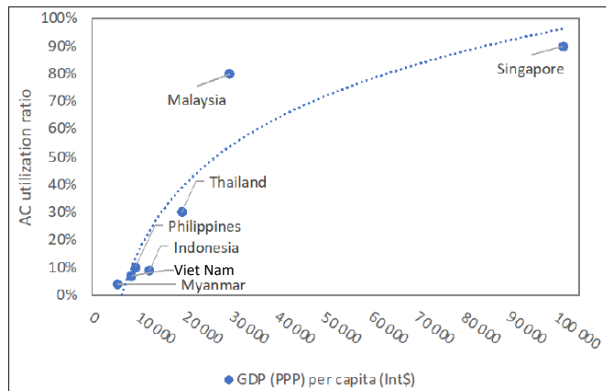
- Give your overall opinion and general observations of the article. Summarize the article in a short paragraph. What are the strengths of the paper?
- Review the methodology, results, conclusion/discussion. Point out weaknesses/errors and suggest how authors can resolve them.
- Consider feedback on the presentation of data in the article, the analysis of any data and whether the conclusions are supported by the data.
- Give recommendations for better policy implications. How this research can make an impact?



# Overall assessment

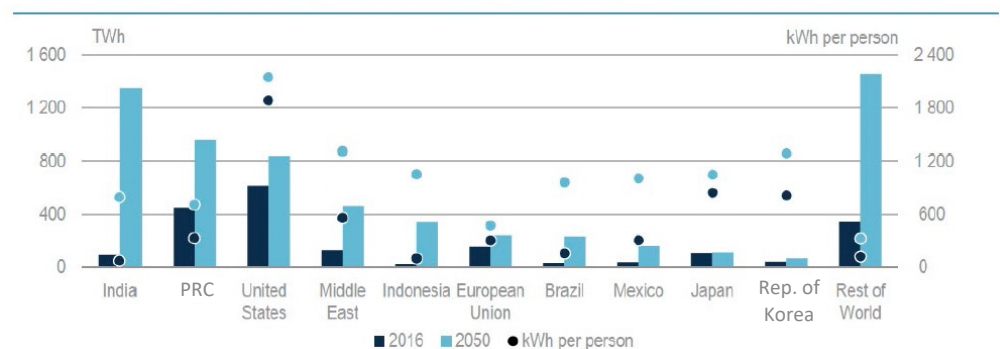
- Strong paper with good data and policy discussion
- Strength
  - Good paper structure to include drivers, cooling end uses, energy use for cooling, environmental impact, health and social impacts, electricity grid impacts, cooling and SDG, and sustainable cooling policies
  - The paper is well supported by data. Specially, Asian countries relevant data presentation makes this paper very relevant for Asia application
  - Good introduction with data supposed on cooling energy demand, ownership and 2050 forecast.
  - Include both energy related CO<sub>2</sub> emissions as well as HFCs

Figure 1: AC utilization for selected countries in Southeast Asia with similar CDD in 2021



Source: Authors' calculations

Figure 5: Consumption of electricity for cooling in 2016 and estimated 2050



# Overall assessment

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## □ Improvement

- Some sections of this paper is discussion about cooling's impact. I wonder if the paper title should be change as "Cooling Demand and Impacts".
- Some policy recommendation of this paper is not well supported in previous sections. E.g. occupants' behavior are rarely mentioned in previous sections.
- Another general thought is that can we provide policy recommendation especially for developing countries and low-income households on low cost cooling.

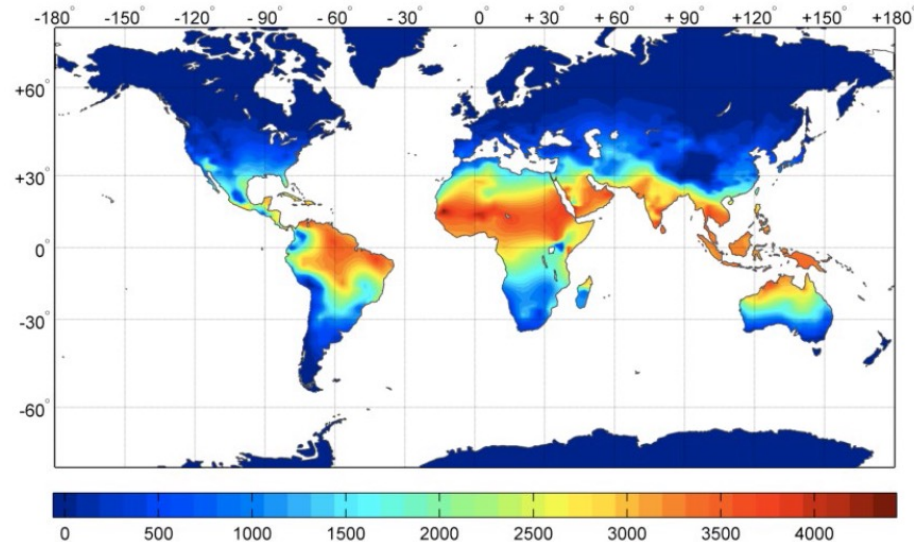


# Improvement

## □ Technical details:

- Regarding drivers for cooling demand, for developing countries, it is important to mention about thermal comfort. Thermal comfort conditions usually vary a lot from developed countries to developing countries.
- Not all Asia countries use CDD 18. e.g. the PRC uses CDD 26 in their cooling load estimation. Personally, I think CDD 26 would be more suitable for the majority of developing countries in Asia. CDD 26 encourage people to calculate cooling load when above 26 deg C, instead of 18, also it encourages passive cooling such as nature ventilation and fans.

Figure 4: Distribution of Cooling Degree Days (CDD 18)



# Improvement

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## □ Technical details:

- Driver: should urbanization and economy development be a factor of cooling? People moving into cities usually have much higher per capita living floor space and better thermal comfort requirements?
- Table 2-1, I wonder if the author can provide a general pie chart regarding the percentage of each cooling demand in different sectors and end uses.
- MEPS is very important, can the paper provide more introduction on MEPS and give some MEPS examples (also how it relates with U4E MEPS)
- Section 6, for cooling impact on electricity grid, I wonder if the paper could introduce cooling related demand response strategies (“load shifting” and “load shedding” to reduce cooling peak load.
- Section 8, sustainable cooling, I wonder it should be change as “policy recommendation”?
- Abbreviations needs to spell out at first time of use, e.g. SDG, PGC

# Policy Recommendation

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- I feel the policy recommendation section can be better organized to be consistent with previous sections presented.
- Some policy recommendations here are also discussed in other chapters
- The content presented on policy recommendation are mainly focusing on concrete measures in two categories: 1) passive cooling, and 2) cooling technologies. Are there any other cooling policies related to this chapter at the high level?



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Thank You  
Questions?

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