IPCC Outreach Event on AR4
Working Group III
March 6, 2008 Tokyo

Comments for Chapter 6: Buildings

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LA for Ch. 6
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Acknowledgment

Japanese contribution to IPCC/Ch 6 was supported by Committee of IPCC/WG3 (Chair: Prof. Shuzo Murakami, Keio University) organized in IBEC (Institute for Building Environment and Energy Conservation)

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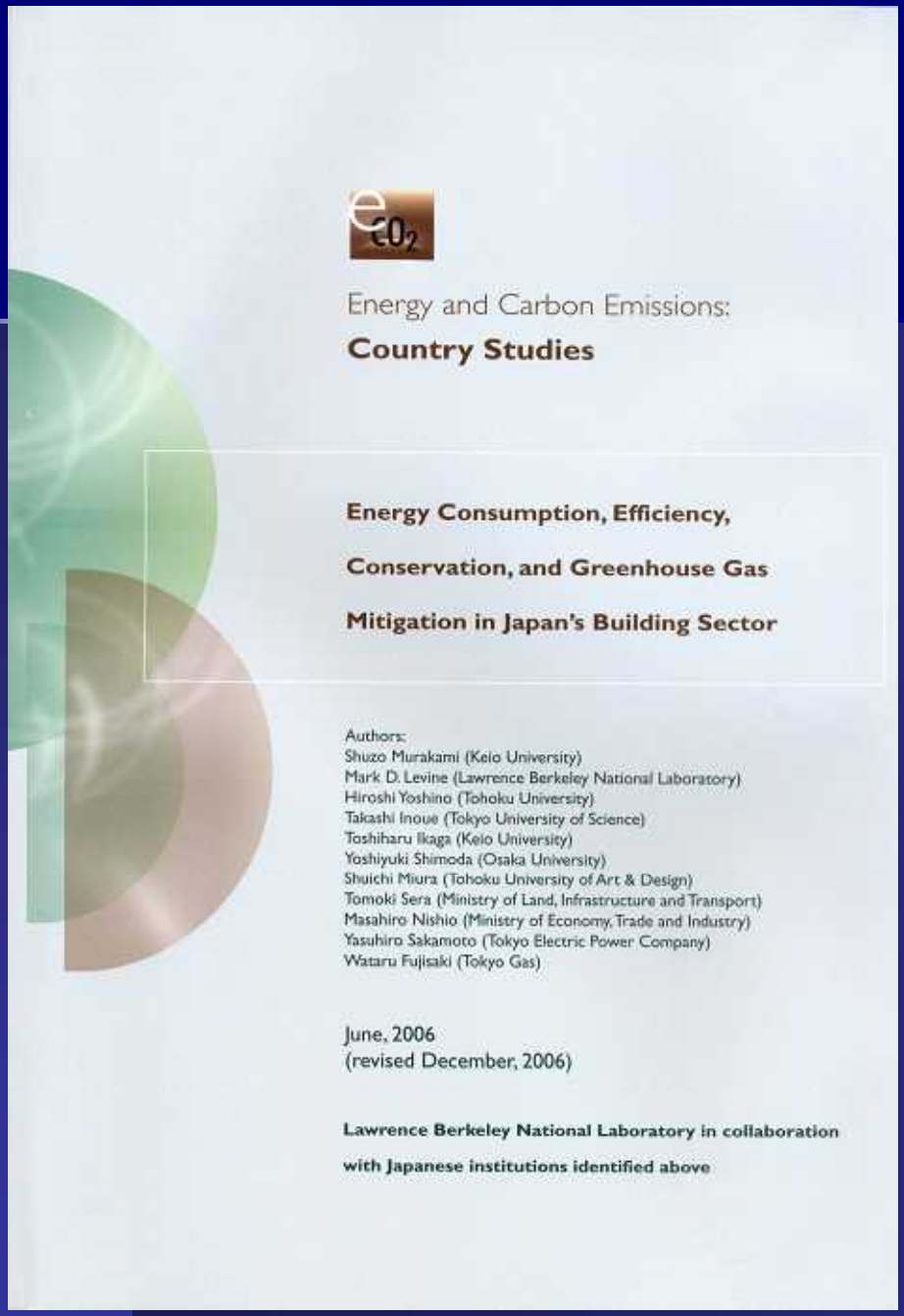

LBNL Report-60424 Energy Consumption, Efficiency, Conservation, and Green Gas Mitigation in Japanese's Building Sector

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CO_2 mitigation potential

- CO_2 mitigation potential is highest in building sector.
- Respective baseline was determined between two scenarios of A1 and B2.
- Mitigation potential will be 30% in 2020 comparing with the baseline based on 17 review papers.

CO2 Mitigation Potential in 2030 for Each Sector

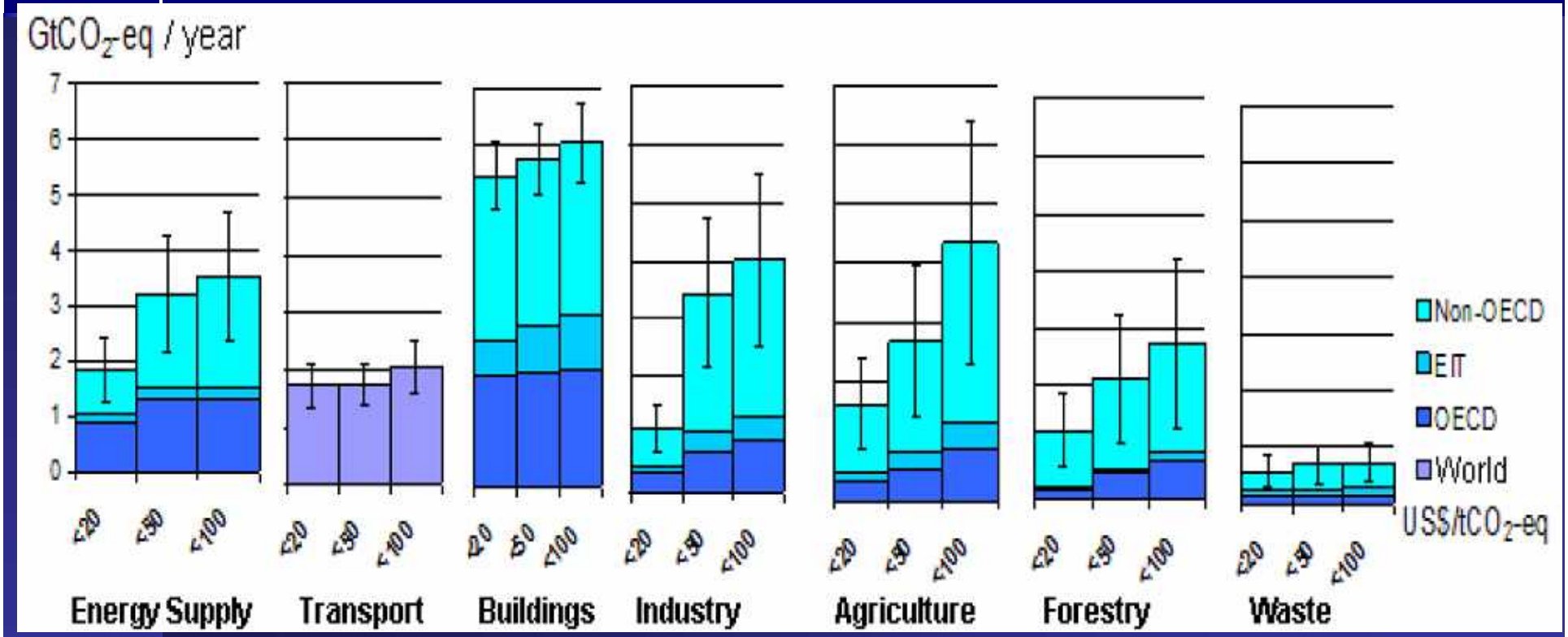


Figure: Estiamted mitigation potential at sectoral level in 2030 from bottom-up studies, compared to the respective baseline assumed in the sector assessments

Technological instruments

- Mitigation potential will be realized by existing technologies such as increase of thermal efficiency with building insulation and introducing of high efficiency appliances; lighting, heat pump system, cooking stove.

Political instruments

- European Energy Performance of Buildings Directive has strong initiative for energy saving for buildings in EU countries.

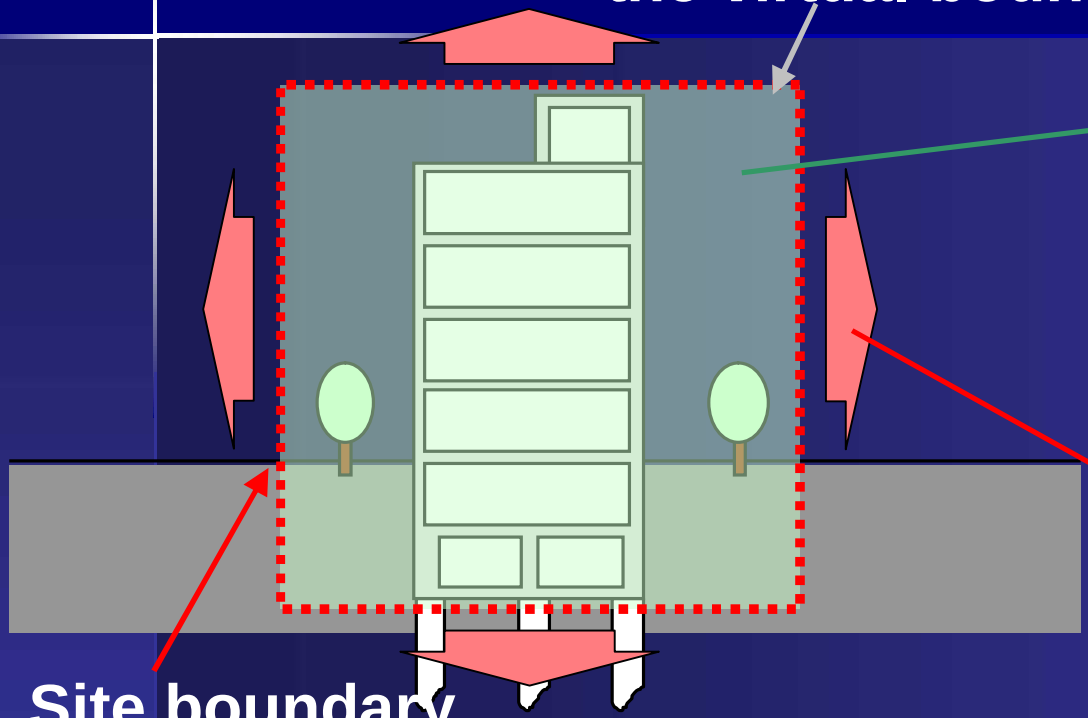
a. Minimum requirements for the energy performance of buildings
b. Energy certification of all buildings
c. Regular mandatory inspection of boilers and air-conditioning systems

Instruments in Japan

- In Japan, many kind of instruments are introduced;

a. Building codes for energy conservation
b. Top runner system
c. CASBEE
d. Cool Biz, etc.

BEE : Building Environmental Efficiency



Q (Quality)

BEE= Q / L

L (Load)

Assessment criterion for achieving higher quality building with lower environmental load

⇒ **BEE**

(S.Murakaki, T.Ikaga)

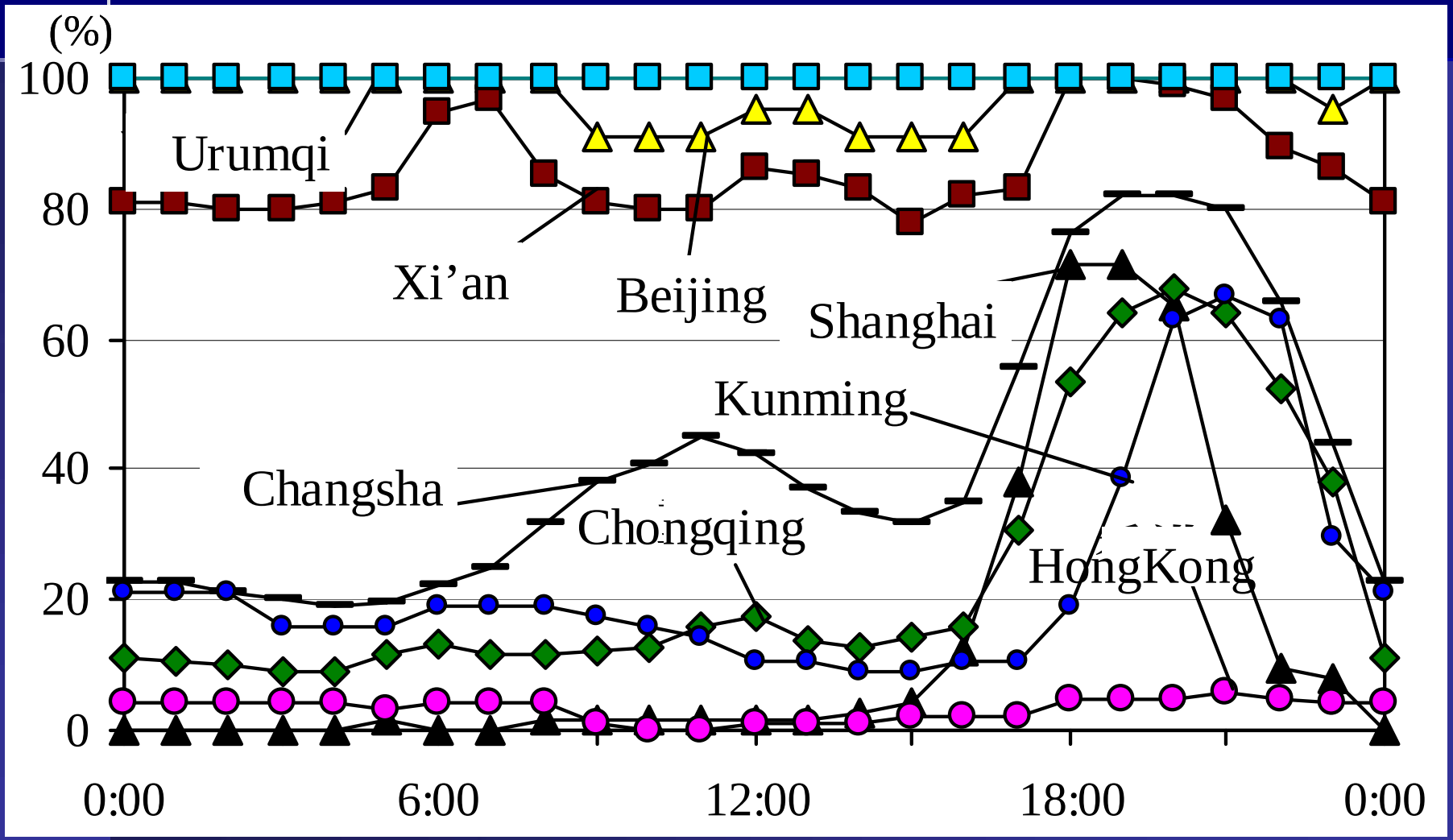
Lacking in information

- Energy consumption data for buildings worldwide
- Quantitative evaluation of co-benefit along with CO_2 mitigation strategies
- Information of CO_2 mitigation strategies in developing countries

Location of the cities investigated

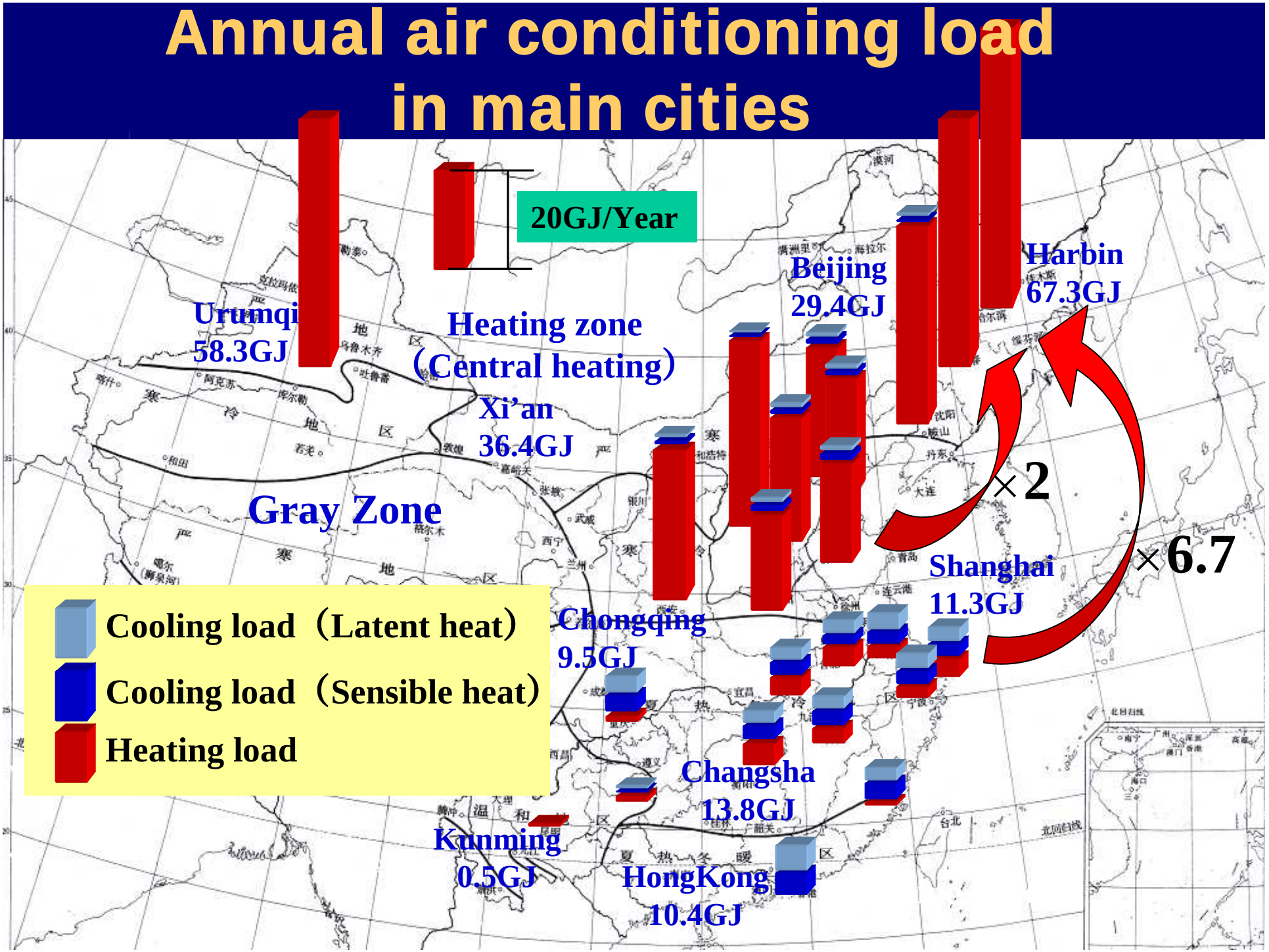
GB 50176-93 Standard of climate regionalization for architecture

Operating ratio of space heating systems

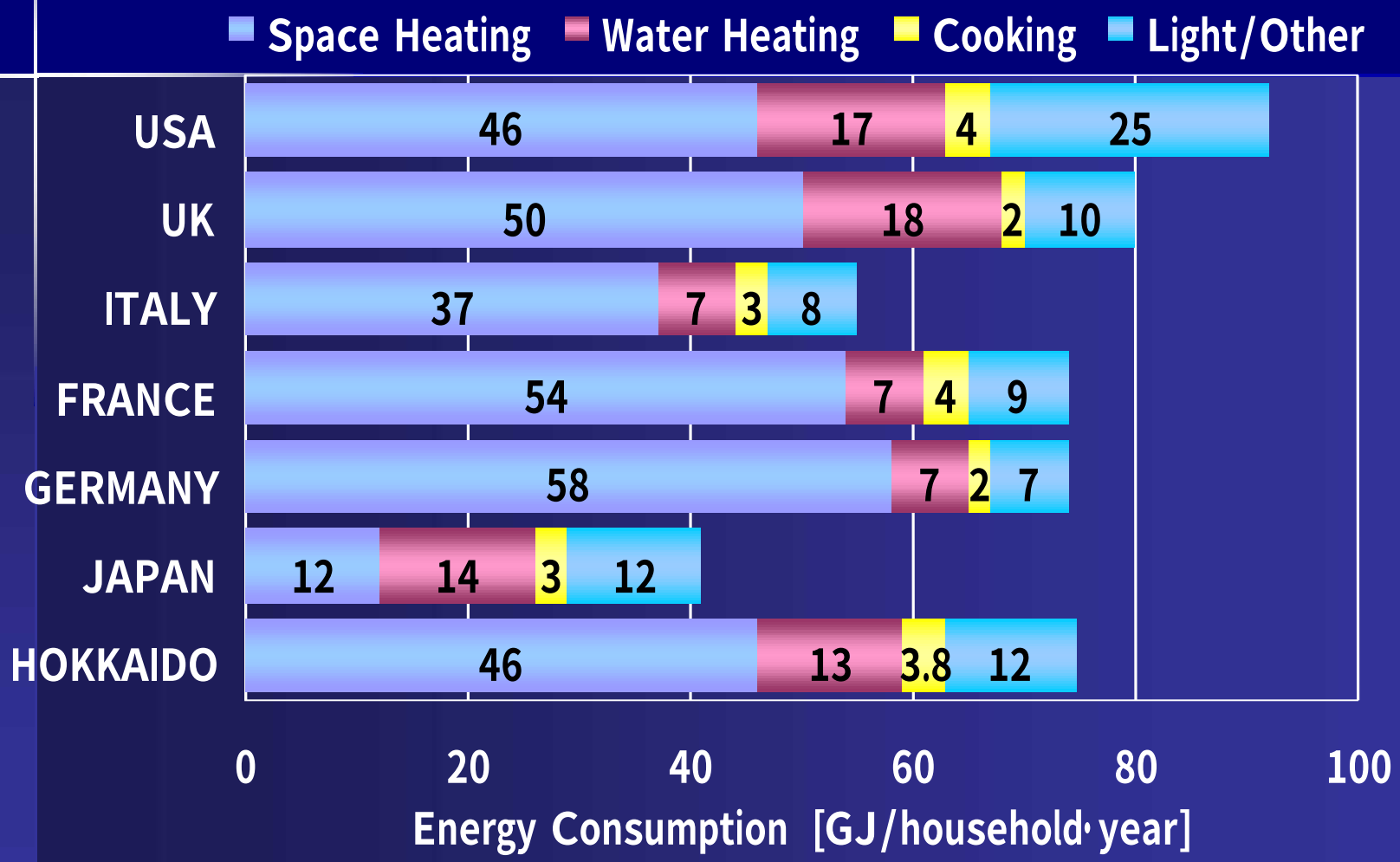


(Yoshino et al.,2003,2004)

Annual air conditioning load in main cities

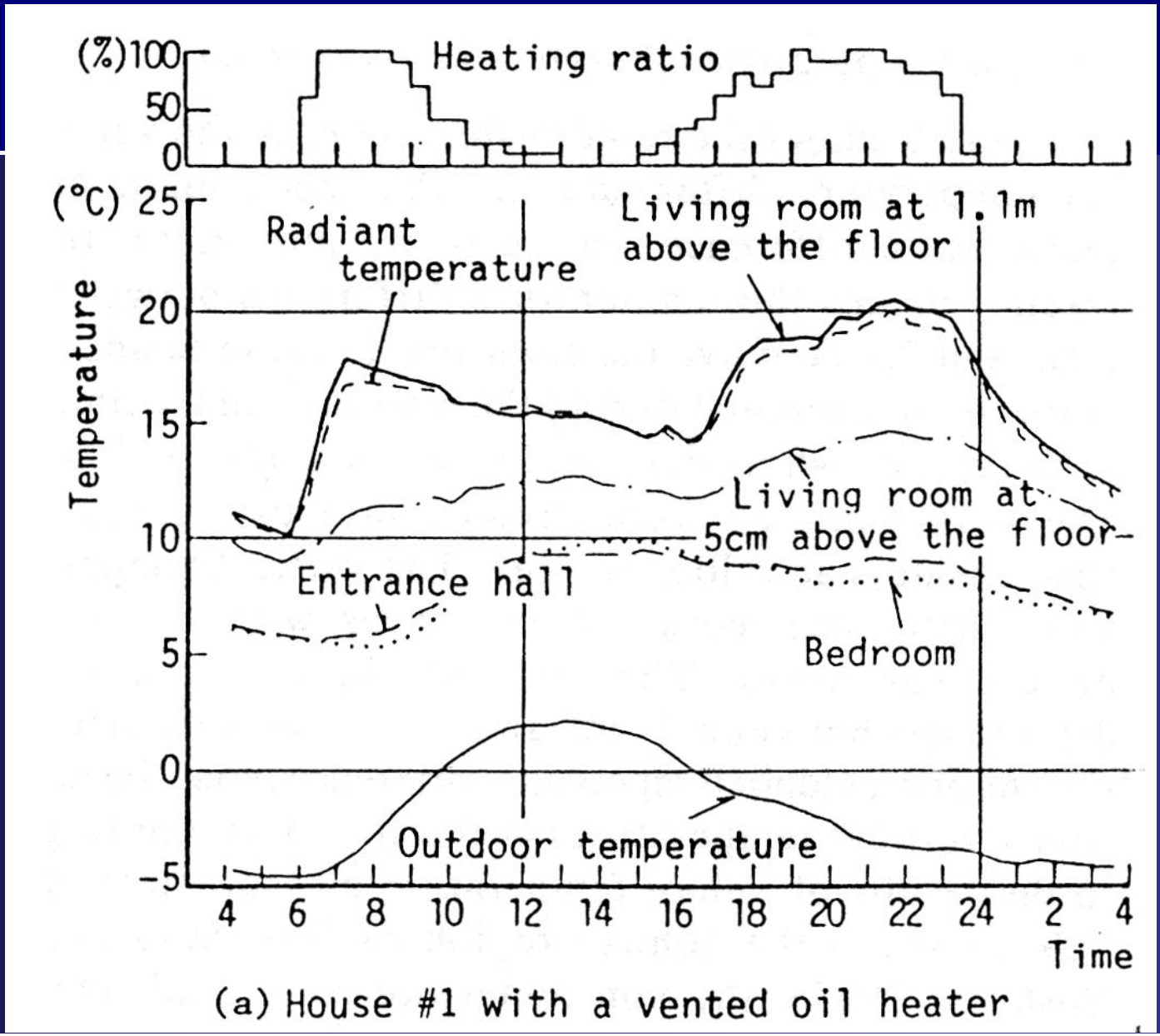


Residential energy comparison in main countries

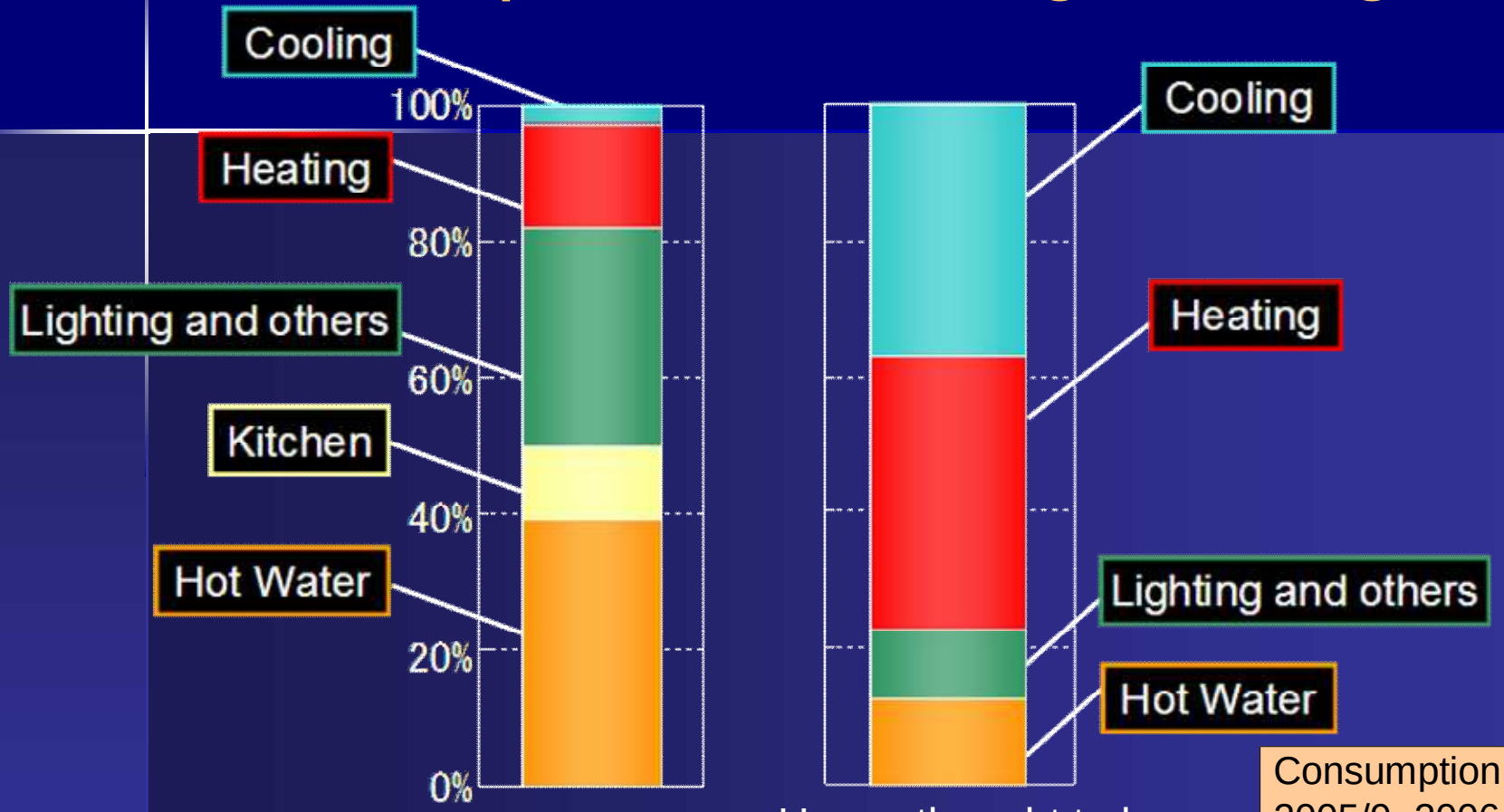


(Nakagami et al.,2006)

Indoor temperature profile



The actualities and considerations of energy consumption according to usages



Consumption period: 2005/9~2006/8

Region: Tokyo
Number of samples:135

⇨ Although 'Hot Water' covers a large proportion in the maximum usage, 'Cooling' is thought to be the biggest usage.

CONCLUSIONS

- IPCC report shows mitigation potential of 30% in 2020 comparing with the baseline using existing technologies. However many information of energy consumption is lacking.
- In China, energy consumption for space heating in the northern region will be reduced significantly by thermal insulation and heating system control.
- In Japan, energy consumption for water heating is greater than space heating except for the northern areas. Information dissemination is very important.

Thank you
for your attention!