

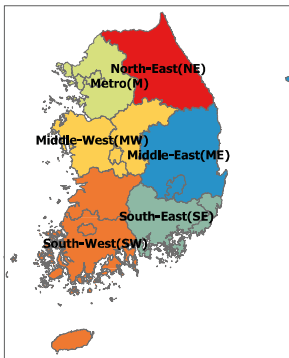
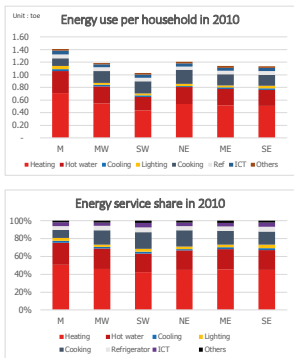
What factors are important for energy service demand in Korean residential sector?

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Introduction

Residential sector accounts for 12% of the CO2 emission in Korea
 Reduction potential is differ from region to region
 Socio-economic change and climate change will affect the energy use
 This research discusses the underlying Korean regional energy service demand in residential sector due to future changes

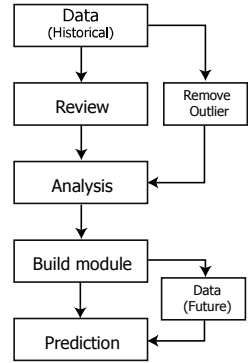
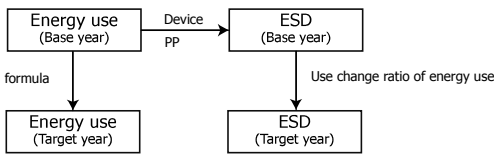


Methods

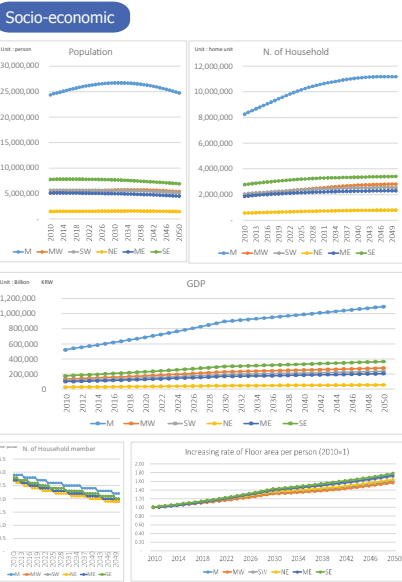
Energy service = Activity * Structure * Intensity * Purchasing power * Efficiency
 ESD Regression = f(Structure, Intensity, Purchasing power)
 Regression analysis was conducted using historical data. Energy service demand was predicted by using GDP, Floor area, N. of household, Heating degree days, Cooling degree days, Purchasing power, life style, and so on.

	Activity	Structure	Intensity	PP	Efficiency
Heating	Household	Floor area/Household	ESD/Floor area	EU/ED	ED/ESD
Hot-water	Household	Population/Household	ESD/Population	EU/ED	ED/ESD
Cooling	Household	Floor area/Household	ESD/Floor area	EU/ED	ED/ESD
Cooking	Household	Population/Household	ESD/Population	EU/ED	ED/ESD
Lighting	Household	Floor area/Household	ESD/Floor area	EU/ED	ED/ESD
Refrigerator	Household	Ownership/Household	ESD/Ownership	EU/ED	ED/ESD
ICT	Household	Ownership/Household	ESD/Ownership	EU/ED	ED/ESD
Others	Household	Ownership/Household	ESD/Ownership	EU/ED	ED/ESD

*ESD: Energy Service Demand, ED: Energy Demand, EU: Energy use, PP: Purchasing Power



Drivers



Results

<Heating/Hot water>
 -Penetration rate of device: Almost 100%
 -GDP, and infrastructure effect on fuel mix
 -HDD, family size are dominant factors

<Cooling>
 -Purchasing power for cooling is not sufficient

<Cooking>
 -Eating outside habit is getting increased

<Lighting>
 -Lighting demand is correlated with floor area

<Refrigerator>
 -Due to Kimchi refrigerator, demand will increase

<ICT(TV/PC)>
 -Urban area people use less ICT device

<Others>
 -Purchasing goods will lead the energy service demand of other devices

<Total in RCP60>
 N. of household, family size, climate change are the most important factors

