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# Smart Grid – A technological pillar of low carbon community

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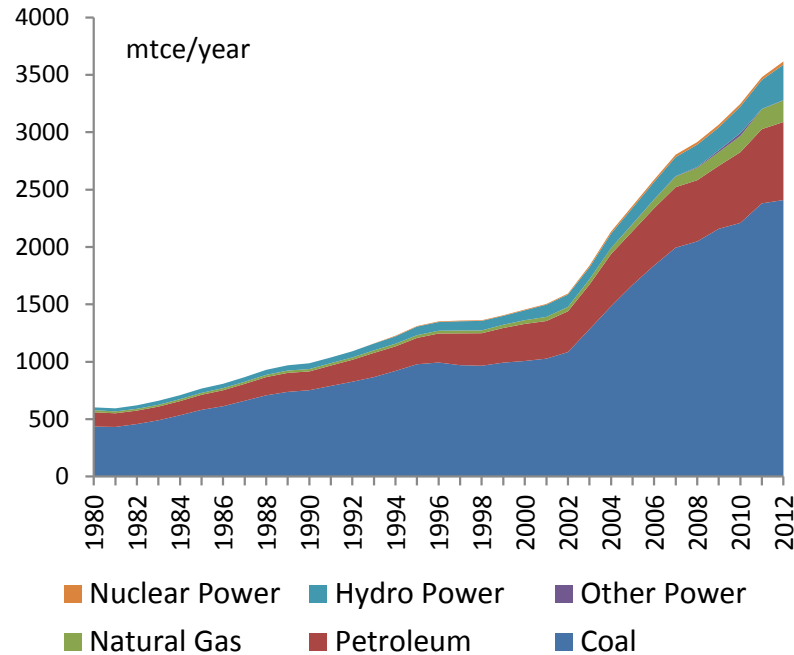
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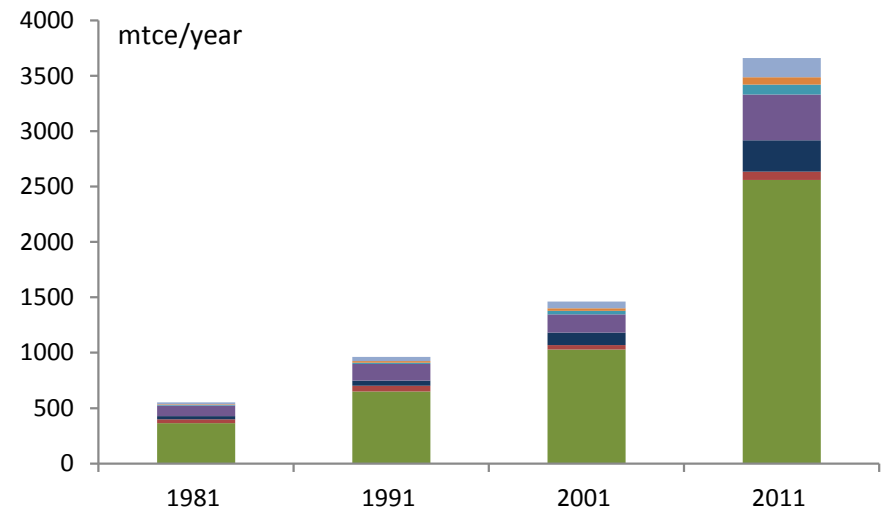
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# China's energy system: A snapshot

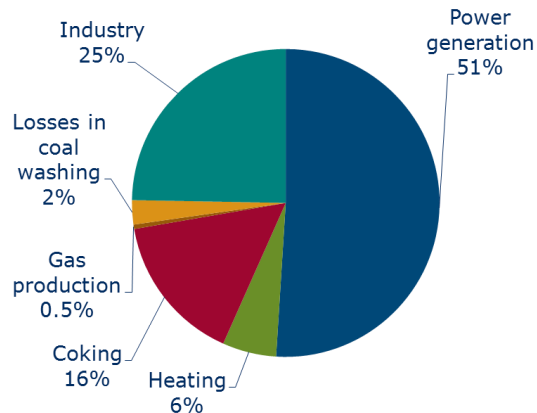
## By primary energy type



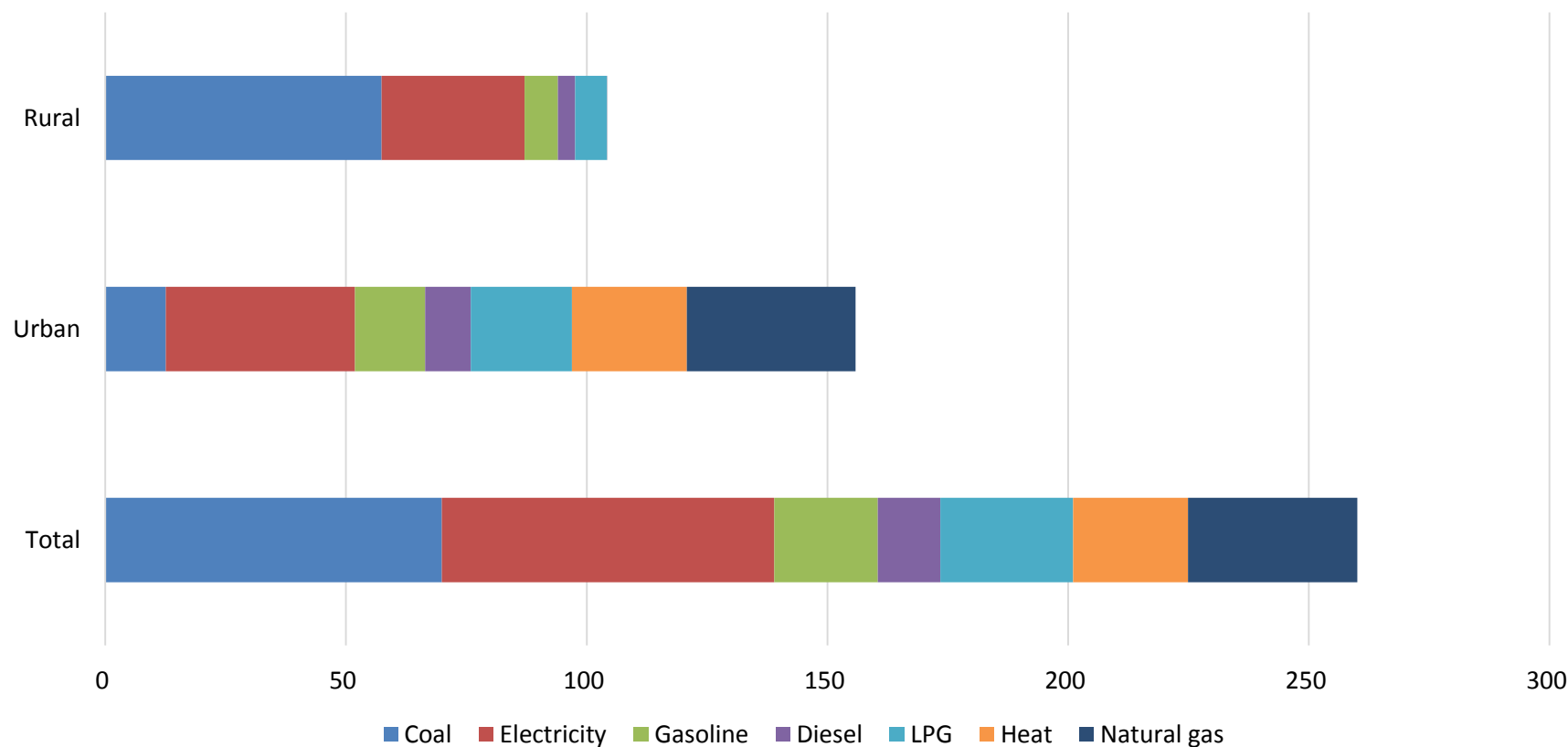
## By end-use sector



## Coal use by sector



# China's Direct Energy Uses in Households (Mtce) in 2011

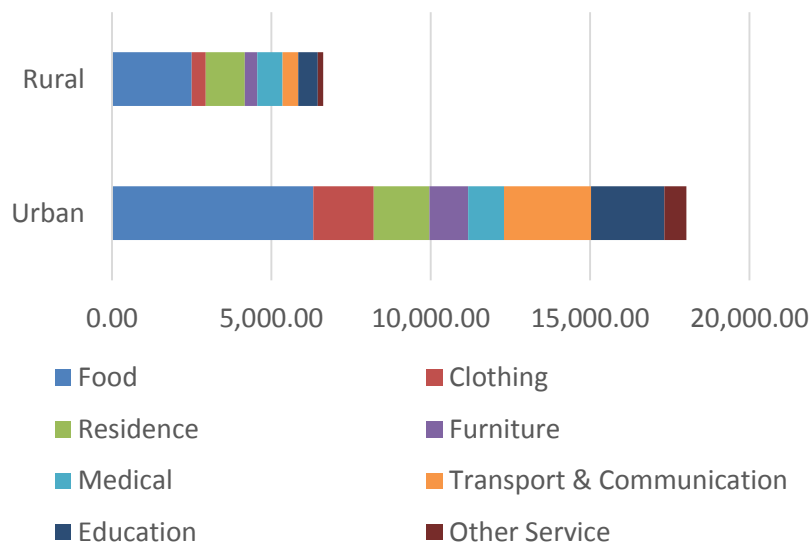


Source: China energy regional statistic year book 2012

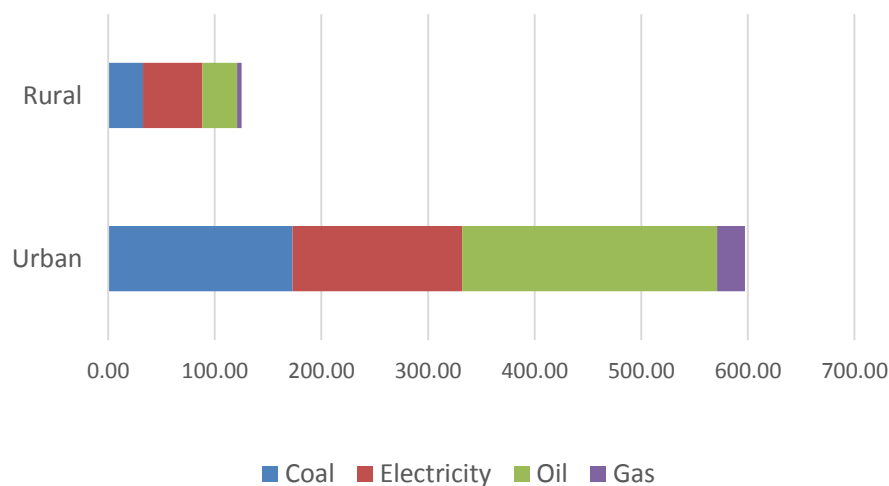


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# China's Indirect Energy Consumption from Households



Household consumption by goods (RMB/person)



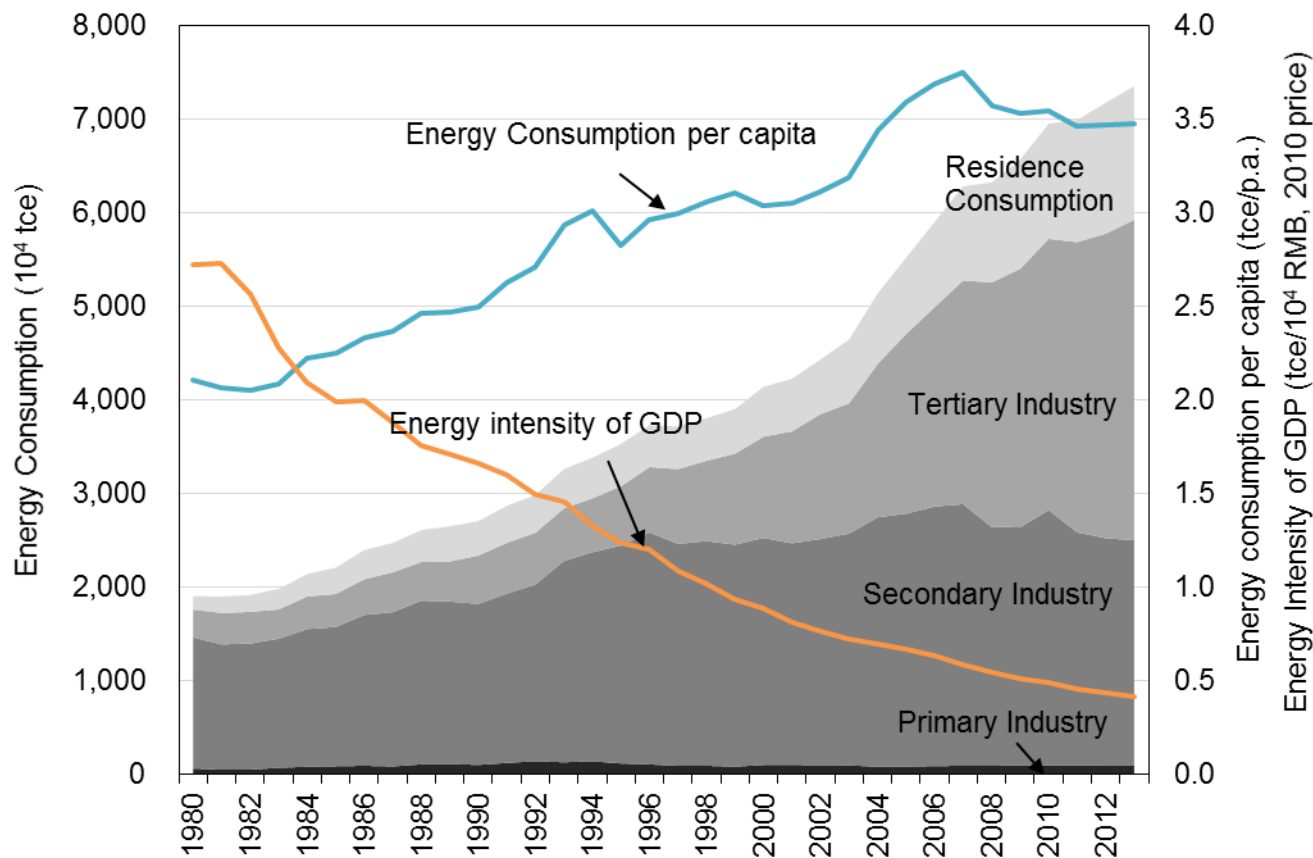
Indirect energy consumption from households (Mtce)

Source: China statistic year book 2012



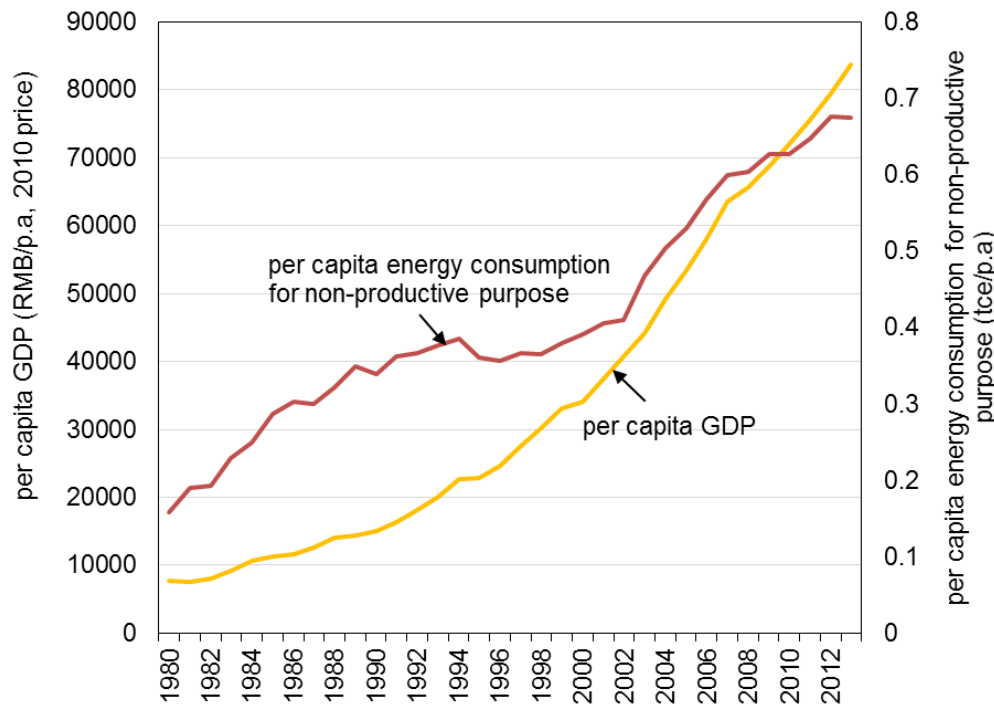
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# Energy consumption in Beijing



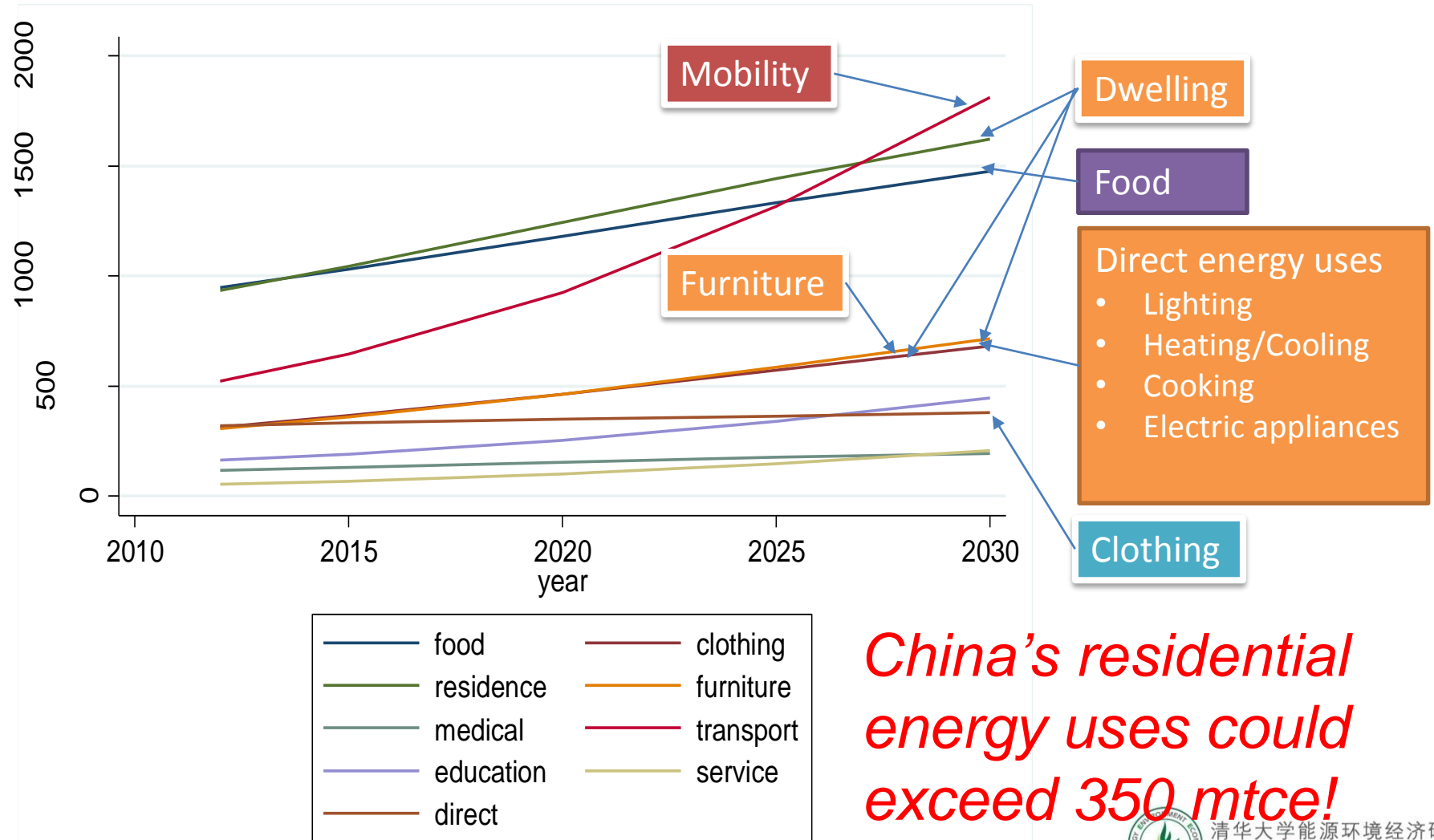
	1980	2000	2010	2013
Energy consumption (M- tce)	1908	4144	6954	7354
Energy consumption per capita (tce/p.a)	2.11	3.04	3.55	3.48
Energy intensity (tce/10 <sup>4</sup> RMB)	2.723	0.892	0.493	0.416

# Per capita energy consumption for non-productive purpose in Beijing



- Per capita GDP increased from less than 10,000 RMB in 1980 to more than 80,000 RMB in 2013.
- With the residents living standard enhanced, per capita energy consumption for non-productive purpose keeps increase.

# A Business-as-Usual Projection of Residential Energy Uses



*China's residential energy uses could exceed 350 mtce!*



# China National Low Carbon Community Pilot Program - An overview

**Definition:** “Low carbon community” refers to urban and rural communities with climate-friendly natural environment, dwelling, infrastructure, lifestyle and management pattern which will reduce energy consumption and carbon emission.

**Motivations:** Seek an innovative urbanization path, build a low-carbon society, encourage low-carbon lifestyle and **control the rapid growth of GHG emission in the residential sector.**

**Target:** By the end of the 12<sup>th</sup> FYP, approximately 1000 of pilot low-carbon communities will be established in China.

**Stakeholders:** Governmental agencies at different levels, urban communities, rural villages, industry partners, NGOs.





# China National Low Carbon Community Pilot Program – Key components

- Low carbon planning
- Low carbon infrastructure
  - Buildings
  - Transportation system
  - Energy system
  - Water resource management system
  - Waste management system
  - Ecological environment
- Operation management
- Low carbon lifestyle



# Technical Guidelines for Low Carbon Community Assessment in Beijing - Indicators

- Per capita carbon emission
- Renewable/clean energy accessibility
- Share of energy saving buildings
- Adoption rate of energy saving electric appliances in households
- Per capita per month water consumption
- Forest/grass coverage rate
- Share of low carbon trips
- Distance to public transport stations
- Share of low carbon households
- Energy uses statistic and report system
- Low carbon community governance



# Some Technological Perspectives of Low Carbon Community Development

- Low Carbon Dwelling
  - Household solar PV system
  - Household electricity storage
  - Household energy management system
- Low Carbon Mobility
  - Electric vehicles
  - Electricity charging system
  - V2G

***Smart grid constitutes a technological pillar of low carbon community!***



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Thank you for your attention!

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