

Energy Consumption Survey in Korea

Moon-Sun Choi

Korea Energy Economics Institute(KEEI)

stat.mschoi@keei.re.kr

Energy End-Use Data and Energy Efficiency Metrics Initiative

The 2nd Meeting

February 22, 2018

Energy Consumption Survey

- Energy Consumption Survey(ECS) is a national sample survey that collects information on energy consumption of end-users including their energy-related business/household/vehicle/building characteristics by sector or industry.
- The 1st Energy Consumption Survey in Korea was conducted in 1981 and every 3 years thereafter. The 13th survey was conducted in 2017.
- The objectives of the survey are to estimate and analyze changes in structure of energy consumption by industry and end-use.
- MOTIE* and KEEI administer the survey based on Energy Act.

* Ministry of Trade, Industry and Energy

2017 ECS : Schedule

- Field survey : 2017. 07 ~ 2017. 12 (4.5M)
 - ✓ Paper-assisted personal interviewing(PAPI), face-to-face
 - ✓ Information for calendar year 2016
- Energy suppliers survey : 2017. 12 ~ 2018. 02 (3M)
 - ✓ Energy Consumption Survey is collecting data on monthly energy consumption from providers of electricity and citygas only if respondents agree to collect the information.
- Data editing & callback survey : 2017. 12 ~ 2018. 02 (3M)
 - ✓ conducted by research company
- Data editing, imputation, estimation : 2018. 02 ~ 2018. 07 (6M)
 - ✓ conducted by KEEI

2017 ECS : Population

Sector	Industry	Unit	2014	2017	Change rate
Industry	Agriculture, forestry	Business	2,102	2,745	30.6%
		Household	1,177,318	1,179,028	0.1%
	Fishing	Business	349	439	25.8%
		Household	69,434	57,905	-16.6%
	Mining*	Business	(1,883)	(2,006)	6.5%
	Manufacturing*	Business	(370,616)	(416,493)	12.4%
	Construction	Business	109,201	128,215	17.4%
		Machine	414,658	465,296	12.2%
Transportation	Transportation	Business	361,044	378,884	4.9%
	Privately-owned	Vehicle	19,870,017	21,915,881	10.3%
Services	Commercial, public	Business	2,763,329	2,902,064	5.0%
Residential	Renewable energy	Household		(99,250)	-
	Non-renewable energy	Household	17,276,265	19,111,030	10.6%
Building**	Services, residential	Building	997	1202	20.6%
Total			42,044,714	46,142,689	9.7%

Note) The figures in parentheses are excluded from the total.

* Mining and manufacturing energy data are collected from a survey for green-house gases emission in industry sector.

** The building sector includes only buildings that consume more than 2,000 toe per year.

2017 ECS : Sample

Sector	Industry	Unit	2014	2017	Change rate
Industry	Agriculture, forestry	Business	462	651	40.9%
		Household	1,110	1,251	12.7%
	Fishing	Business	118	151	28.0%
		Household	410	400	-2.4%
	Mining*	Business	(1,883)	(2,006)	6.5%
	Manufacturing*	Business	(370,616)	(416,493)	12.4%
	Construction	Business	1,000	1,200	20.0%
		Machine	2,000	2,000	0.0%
Transportation	Transportation	Business	6,000	6,001	0.0%
	Privately-owned	Vehicle	5,500	6,050	10.0%
Services	Commercial, public	Business	12,400	12,402	0.0%
Residential	Renewable energy	Household	-	1,000	-
	Non-renewable energy	Household	8,000	8,000	0.0%
Building**	Services, residential	Building	997	1,202	20.6%
Total			37,997	40,308	6.1%

Note) The figures in parentheses are excluded from the total.

* Mining and manufacturing energy data are collected from a survey for green-house gases emission in industry sector.

** The building sector includes only buildings that consume more than 2,000 toe per year.

2017 ECS : Results

- The results of the 2017 ECS are expected to be announced after this August.
- The results include
 - ✓ Energy consumption by sector, industry, facility and end-use,
 - ✓ Energy consumption by characteristics of household and vehicle,
 - ✓ Energy conservation behaviors of households, vehicles and buildings.
- The results are basic data for National Energy Demand Outlook and used for policy-making and evaluation.

2017 ECS : Challenges

- Because the survey is not mandatory, non-response rate due to the respondents' refusal continues to increase.
 - ✓ Use of administrative data -> not available, personal information protection
- There could be many measurement errors in end-use energy consumption information collected by recall.
 - ✓ There is no energy data available in most small businesses.
- Data users request more detailed data for different energy policy-making and assessment.
 - ✓ Increase in survey items -> budget, human resources, time...