GHG and air pollution emissions in Korea, 2010~2100

- Focused on Industrial Sector -

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Today, the negative impact of global climate change is widely observed and Korea also been a big influence. To reduce the risks of climate change, global GHG and air pollution emissions and the impact is investigated the relationship of research being performed. In this study, socio-economic scenarios were made for the situation in Korea. The inventory of GHG sources are divided in residential, commercial, transportation, power generation, industry sector. Structured data were entered in the AIM/Enduse models to estimate future energy use based on the technology of choice over time to estimate GHG emissions. In this study, I will estimate GHG and air pollution emissions in the industrial sector.

Service demands of steel and cement appears similar. Because population data was used to calculate service demand as the primary data. The trend is increasingly reduced after 2030. Demand of the other industries are look like GDP trend.

In steel industry, almost emissions are continually reduce in all scenarios. Greenhouse gas will be decrease from 92Mt to 34~77Mt and air pollutants will be reduce from 0.24Mt to 0.08~0.19Mt. In cement industry, almost emissions are continually reduce in all scenarios. Greenhouse gas will be decrease from 36Mt to 15~35Mt and air pollutants will be reduce from 0.03Mt to 0.01~0.03Mt. In other industry, emissions appear differently depending on the scenario. Greenhouse gas will be decrease or increase from 287Mt to 143~638Mt and air pollutants will be also reduce or increase from 0.93Mt to 0.48~2.12Mt.

In the BAU scenario including the emissions reduction policy of the government has increased both the energy consumption and GHG and air pollution emissions of industrial sector increased until 2030, and decreased until 2100. Energy consumption decreased until 2030, because it was influenced by emissions reduction policy and population, input data. Therefore, GHG and air pollution emissions had same tendency with energy consumption, and it will decrease gradually until 2100, target year. In the low emission scenario, energy consumption and GHG and air pollution emissions decreased greatly, but it is expected to be impossible in reality. However, what is the difference between the emissions in scenarios appears largely means the reduction potential is large. To meet the emission reduction scenarios, it is not only important to carry out a policy of the government and but also developed technology.