Tentative Tasks of Cross Border Lesson study on Energy through STEAM
Energy related KNUE Project through STEAM

• In 2014, KNUE has done the project supported by MOE and Korea Foundation for the Advancement of Science and Creativity

• It is a project to develop textbook/teacher’ guide to make:
  – A Plant Factory with sunbeams(grade 3-4)
  – A lighthouse with wind power(grade 5-6)
  – A Lamp with pro-environment Fuel cell(middle)
  – A rotating house toward the sun(high)
A Plant Factory with sunbeams (1)

• A natural disaster has caused a shortage of food in many countries.
• Securing foodstuffs stably without a problem from natural disaster.
• It is a concept of a plant factory.
A Plant Factory with sunbeams(2)

• In this project, students will make a plant factory to study the following things:
  – The process which sunbeams are changed to electricity and electricity to light.
  – The process of photosynthesis
  – hydroponics
Making Plant factory and Cultivation
A lighthouse with wind power

• Students make a lighthouse with wind power to study the following things:
  – The importance of wind power.
  – How to change wind power to electrical power?
  – Job related with wind power
Making a lighthouse with wind power
A Lamp with pro-environment Fuel Cell

• Students make a lamp with pro-environment fuel cell to study the following things:
  – A problem of existing battery
  – The importance of fuel cell.
  – Promising jobs related with fuel cell.
Making pro-environment of Fuel Cell
A rotating house toward the sun

- Students make a rotating house toward the sun to learn the following things:
  - The importance of sunbeams
  - The process to change sunbeam to electrical energy?
  - Ideas to promote the efficiency of sunbeams
  - Promising jobs related with sunbeams.
Designing A rotating house toward the sun
Steps for Cross Boader Education

• The most important and the first step for cross-border education is to develop textbooks on energy which can be used in many countries.

• Teaching ideas are not enough. We need a customizing process for fitting teaching ideas to situations of each economy.
Steps for Cross Border Education

• These teaching ideas must be harmonized to each school’s formal curricula.
• It is easy to develop some kind of project ideas at the local level.
• My school already has developed teaching ideas on energy. But it is only the Korean project.
• The ideas must be reviewed by each country through customizing process.