

Energy Internet, an Effective Way Toward Sustainable Future

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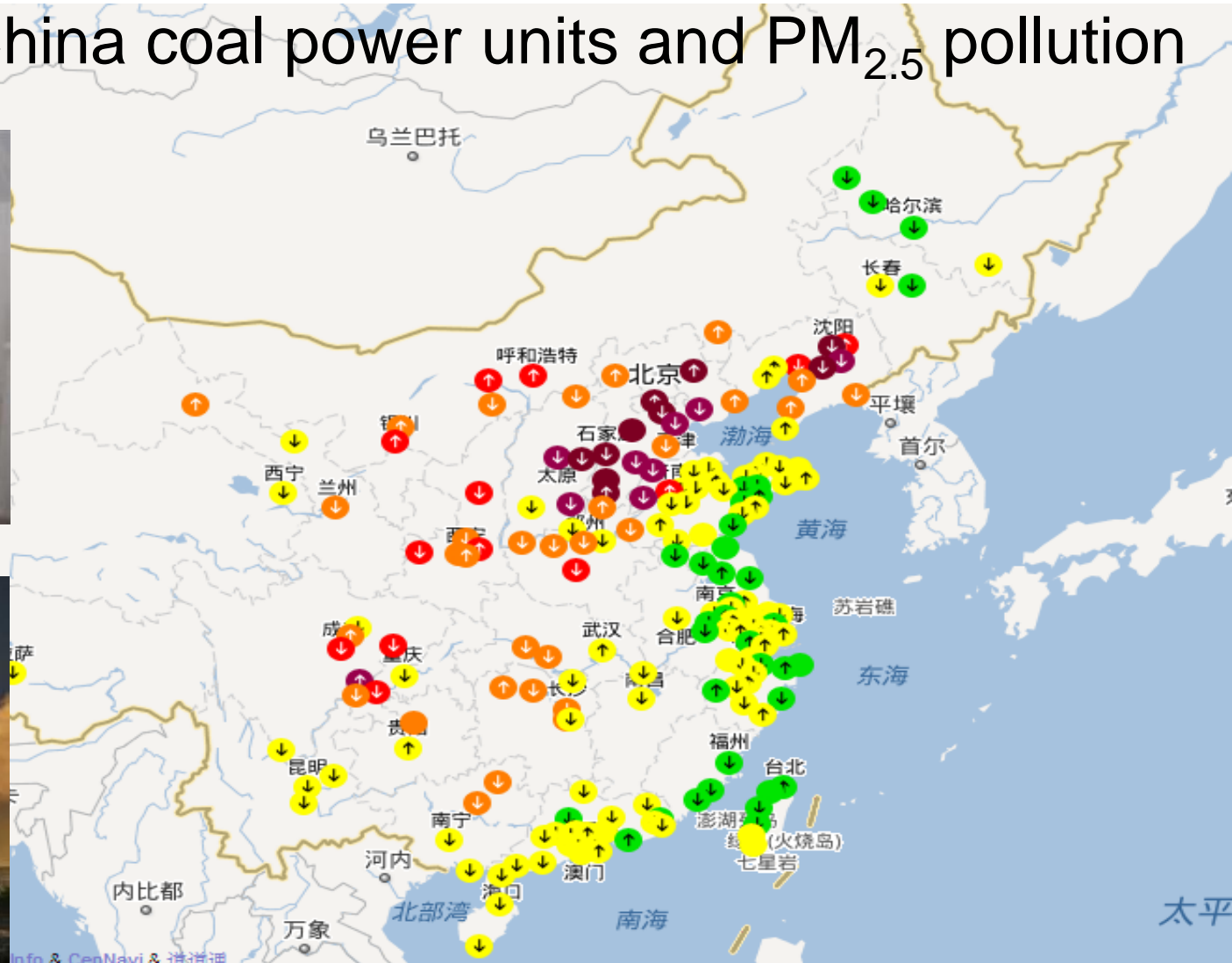
Outlines

- 1. Background
- 2. Aims
- 3. Methods
- 4. Research components and outputs
- 5. Work plans

1. Background

2°C 2030

■ China coal power units and PM_{2.5} pollution

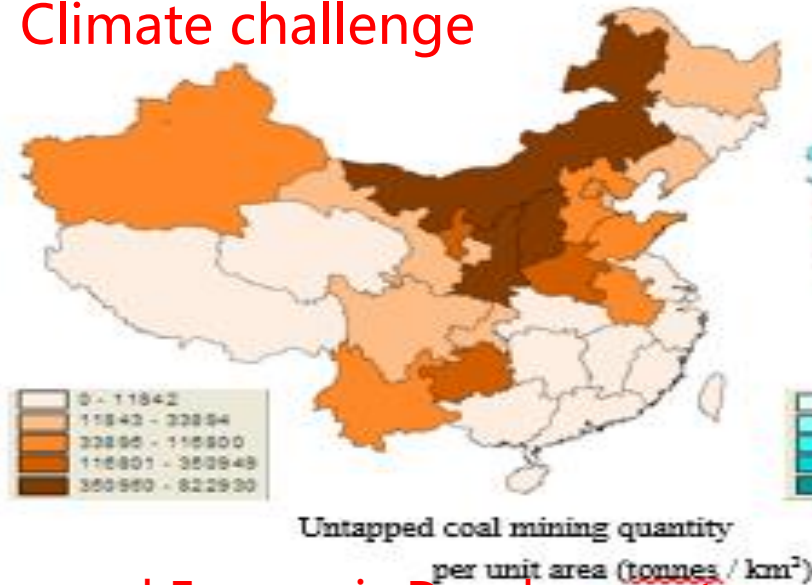


Green is the best air quality, yellow and orange in the middle, and brown is the worst air condition

1. Background

Developing countries are facing enormous challenges in sustainable development of energy and environmental issues in the same time.

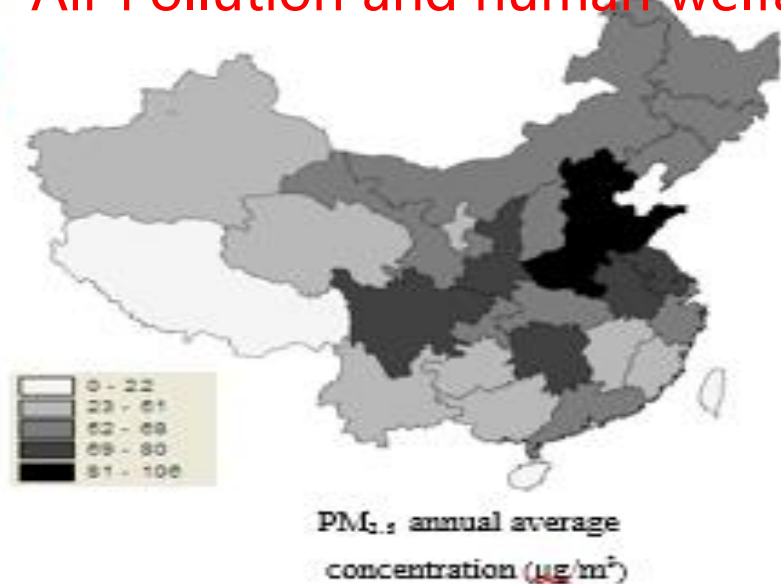
Coal and Climate challenge



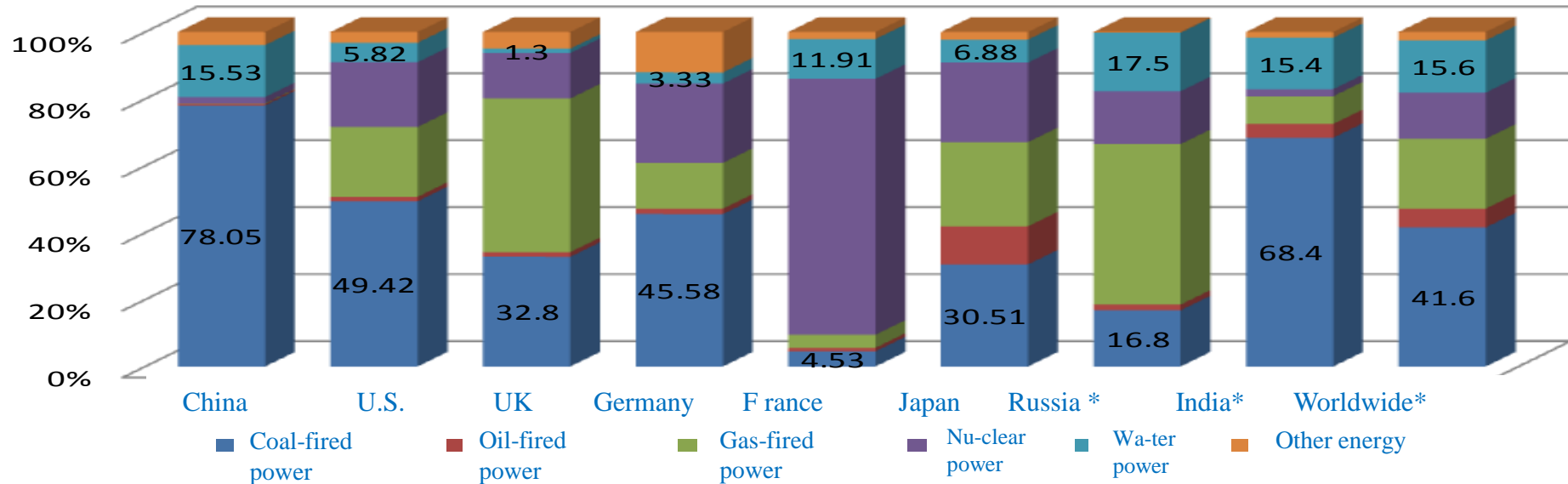
Coal Power and Economic Development



Air Pollution and human welfare



Need Energy efficiency Improvement and Renewable Energy Replacement



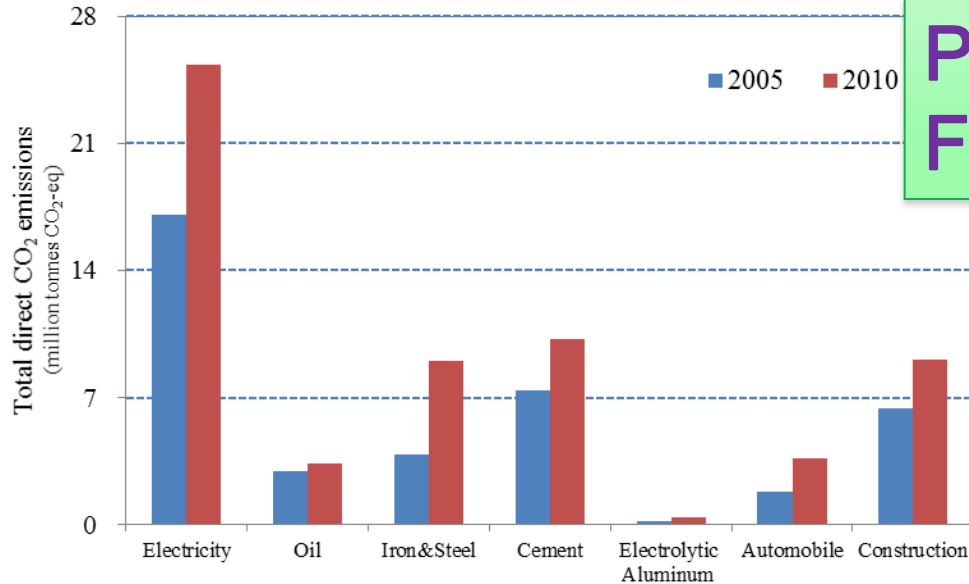
Characters:

- Unit coal consumption decreased, but the CO₂ emission of the whole electricity industry is higher than that of developed countries
- Energy Structure: Coal combustion dominates electricity generation in China.

Difficulties :

- Electricity: Restricted by primary energy structure.
- Renewable energy: Cannot form a large portion of the energy structure in the short term. Expensive, limited by regional resources.

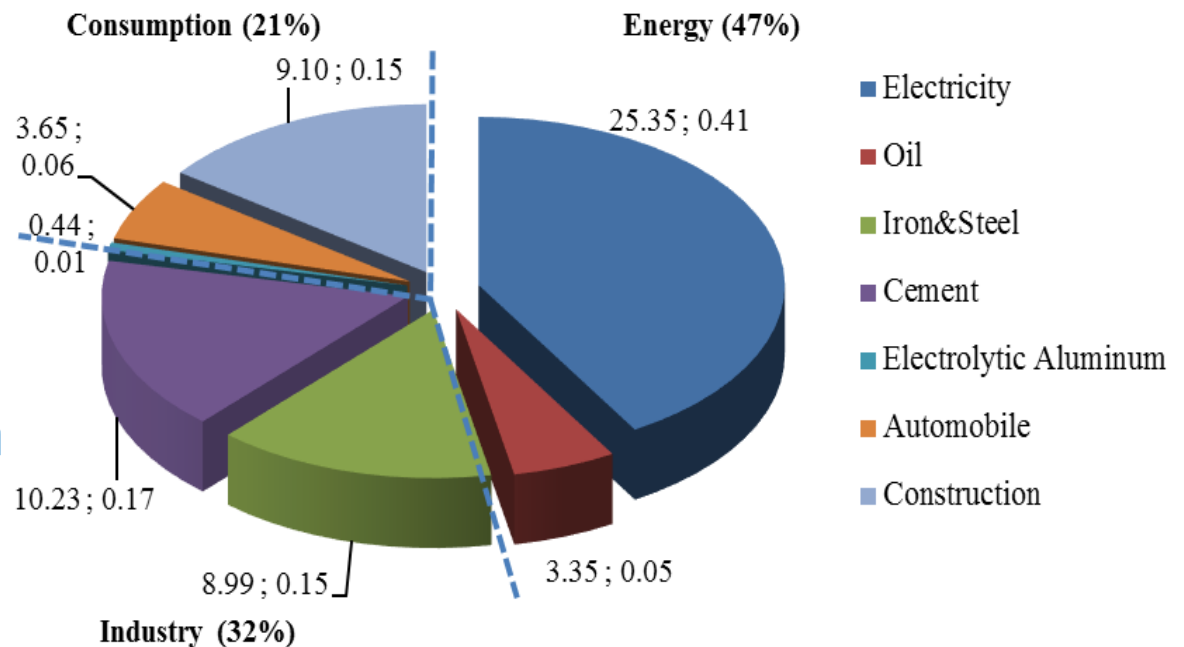
Major energy consuming industries of China



Pathways for the Sustainable Future of Developing Countries?

Energy (47%),
 Industry (32%),
 Consumption (21%)

7 Key consuming industries :
 Electricity, Oil,
 Iron and Steel , Cement,
 Electrolytic Aluminum,
 Automobile and Construction



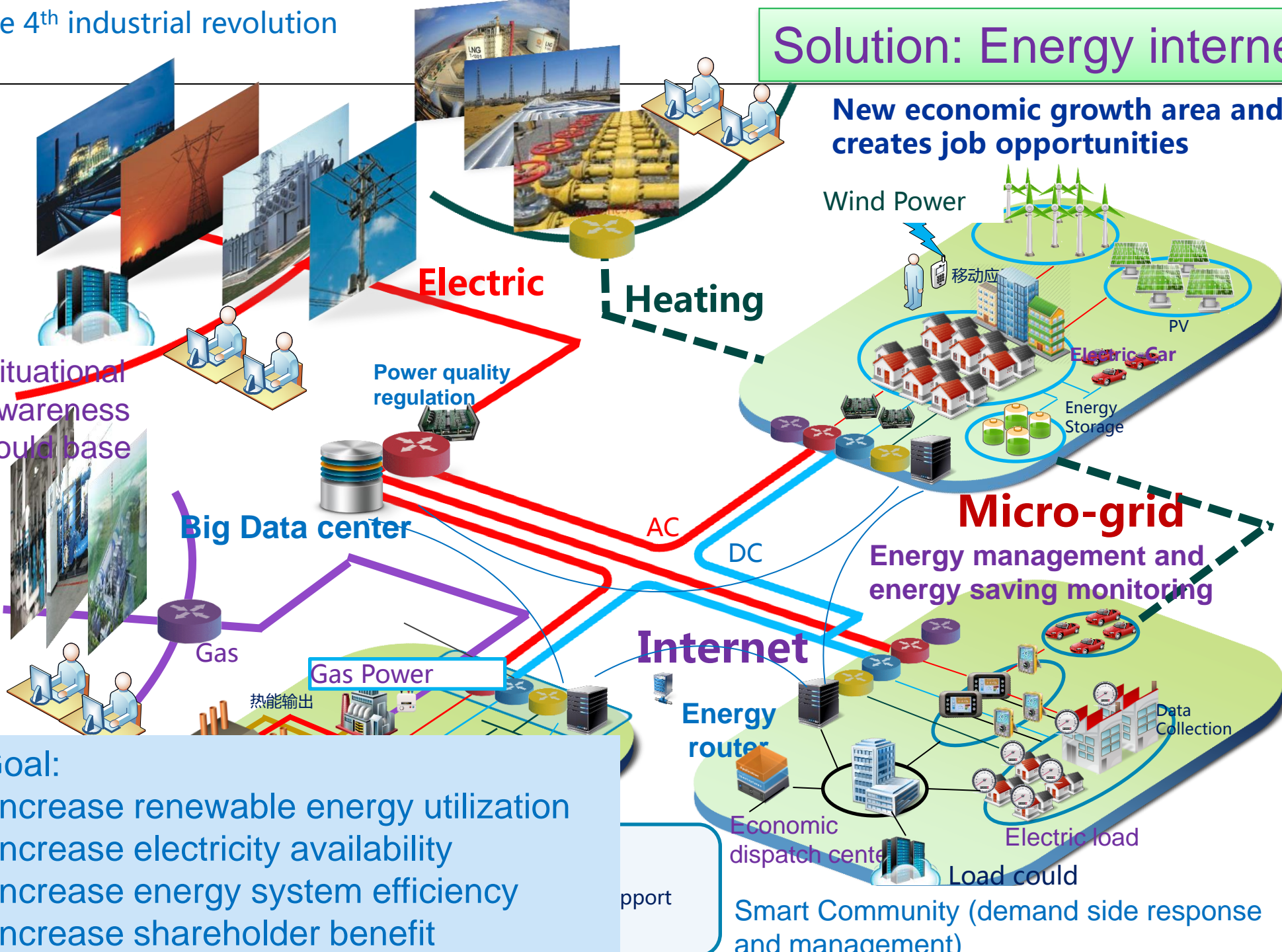
Solution: Energy internet

New economic growth area and creates job opportunities

Situational awareness could base

Goal:

- Increase renewable energy utilization
- Increase electricity availability
- Increase energy system efficiency
- Increase shareholder benefit



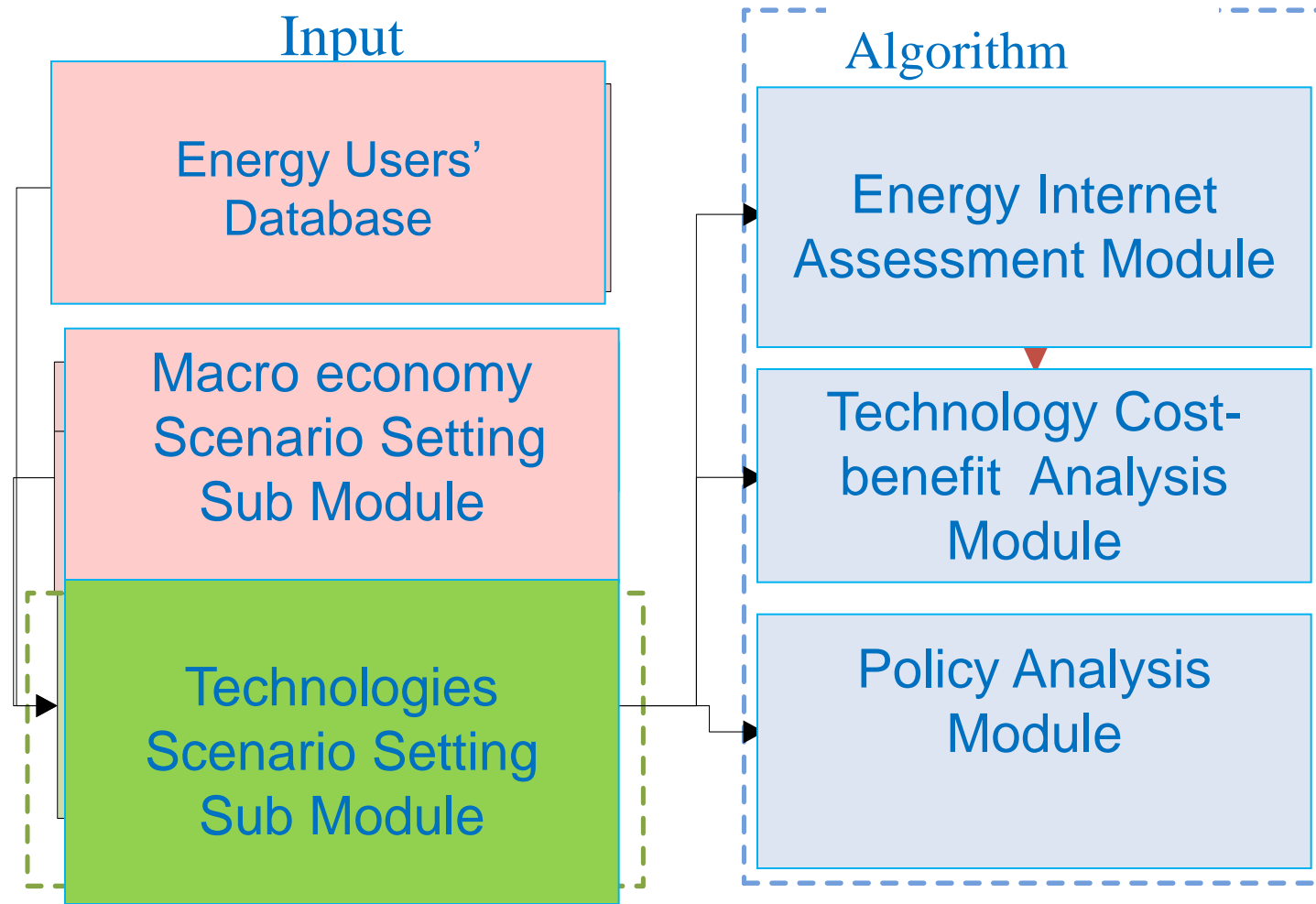
Access to affordable, reliable, sustainable and modern energy for all

- 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services
- 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix
- 7.3 By 2030, double the global rate of improvement in energy efficiency

- 7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology
- 7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programs of support

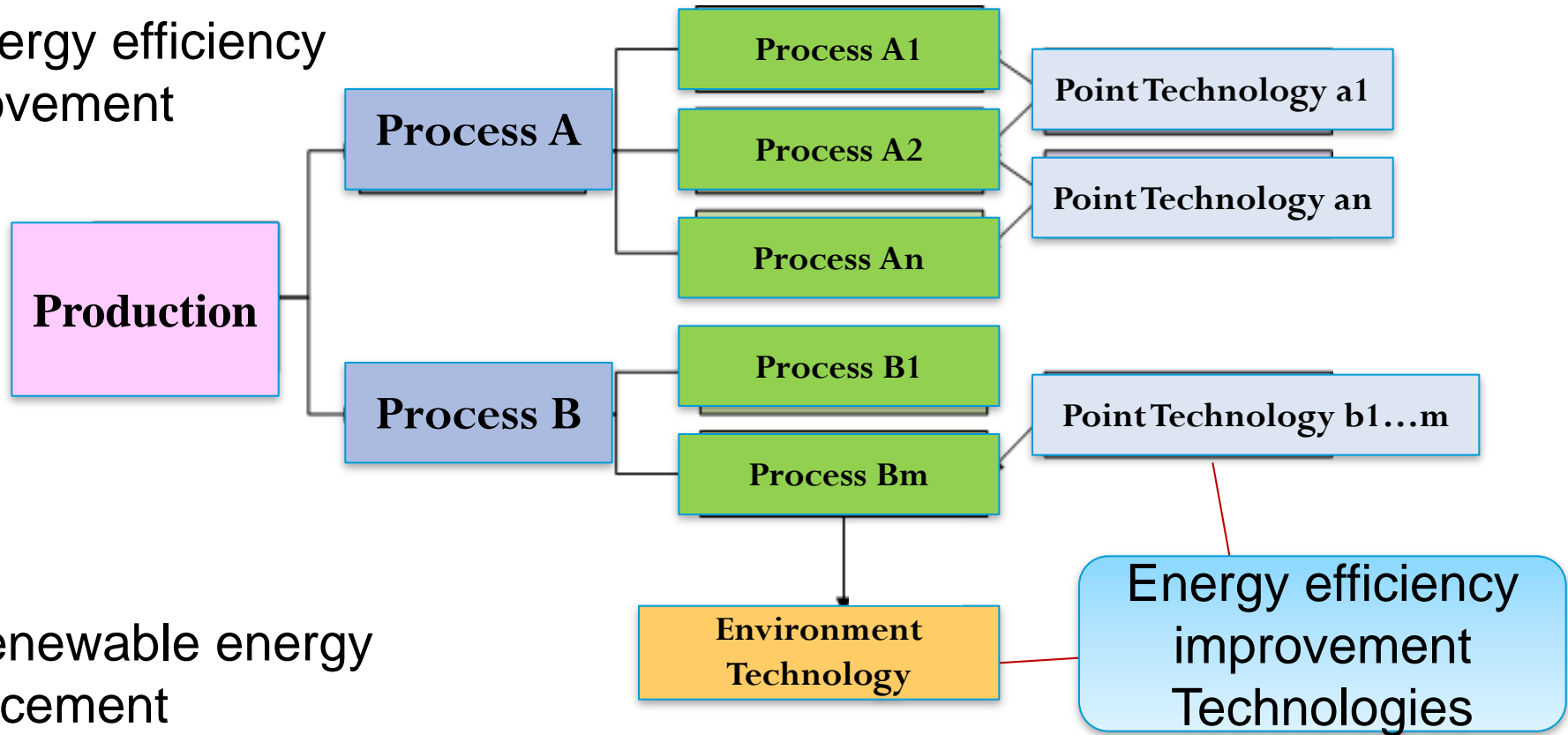
3. Methods

——The energy internet promote in the developing countries



Energy Internet System Simulation

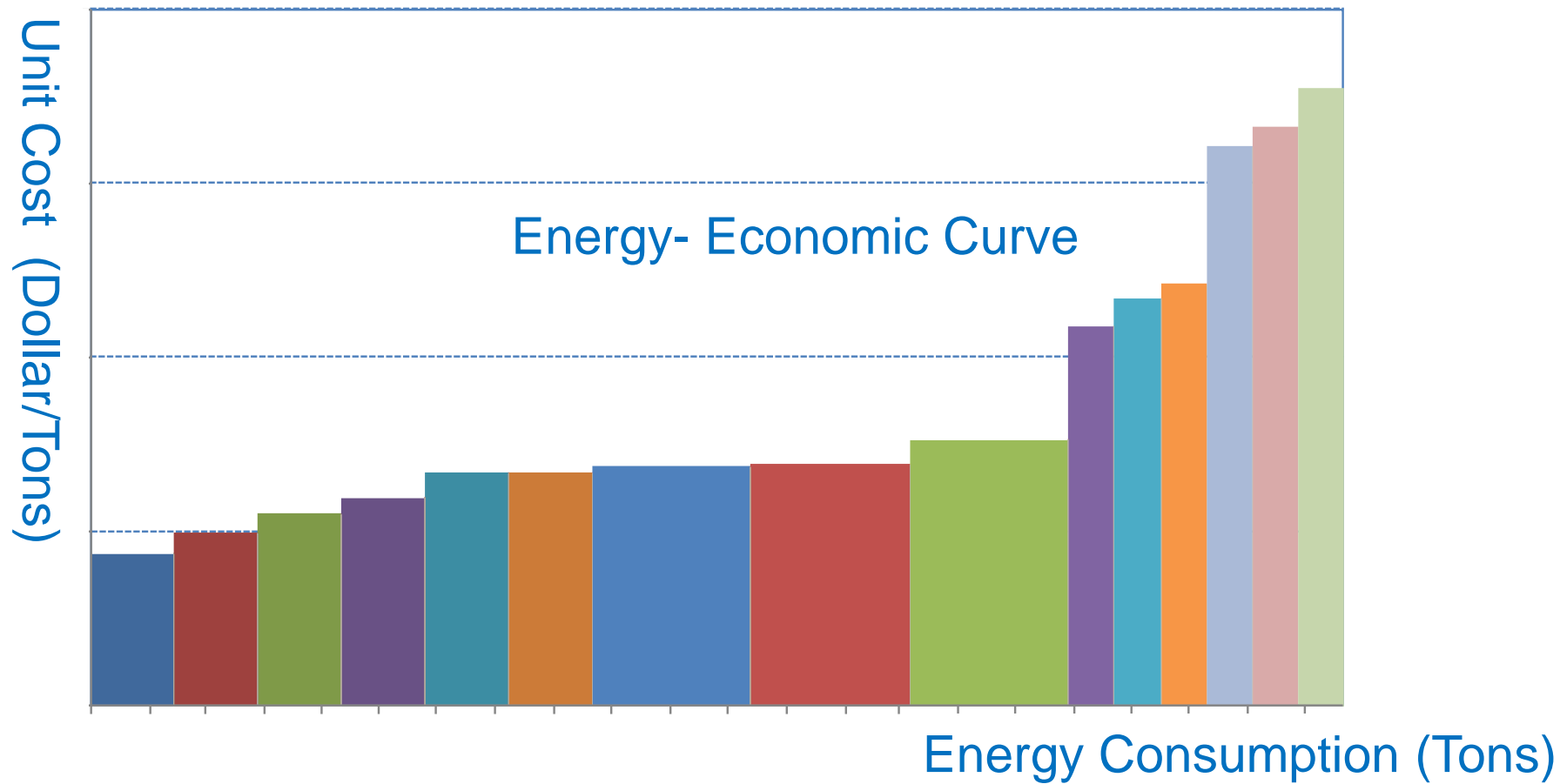
1. Energy efficiency improvement



2. Renewable energy replacement



Energy - Economic Analysis



4. Research components and outputs

4.1 By 2030, ensure developing countries to **affordable, reliable and modern energy internet services**



4.2 By 2030, increase substantially the share of **renewable energy in the global energy mix**

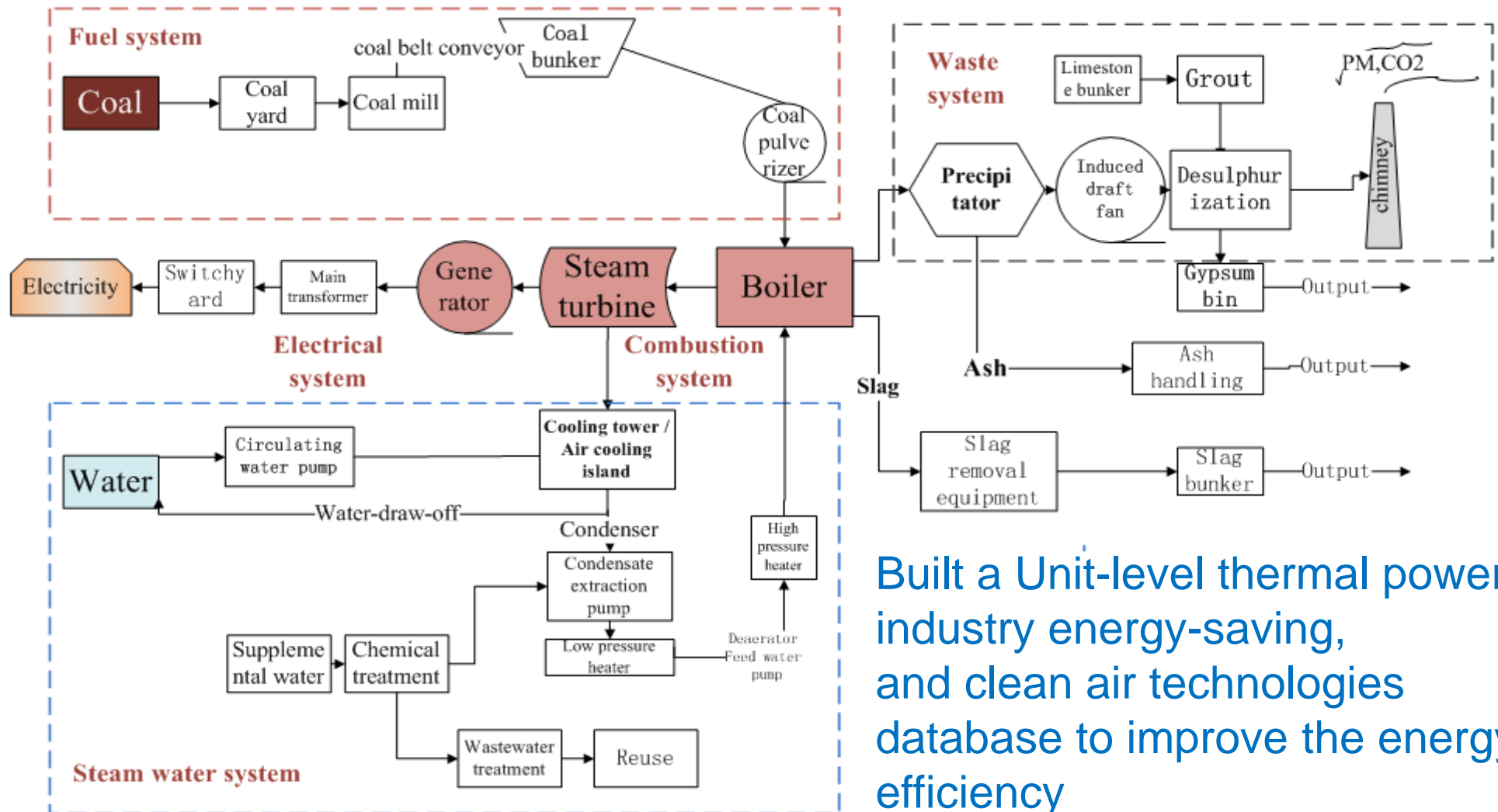
A comprehensive evaluation of the beneficial effect of energy internet on:

- the economic benefits achieved by users
- convenience for users to consume &/or output electricity by solar/wind
- the assurance of the energy safety level.
- more share of renewable energy for consumption
- the positive effect on the environment



4.3 By 2030, Double the energy efficiency

Strategies and plans to improve energy efficiency



Built a Unit-level thermal power industry energy-saving, and clean air technologies database to improve the energy efficiency

4.4 By 2030, enhance international cooperation to access to clean energy research and technology

- International cooperation
- Advanced and cleaner fossil-fuel technology
- Promote investment in energy infrastructure
- Clean energy technology



4.5 By 2030, build energy information sharing database and platforms

- Supply modern and sustainable energy services
- Information transparency and energy market
- Energy Internet management database
- Equality and justice



5. Working plans

- 1. 3 months:

Investigation of economic/industrial/energy situation of representative developing countries. Collect new statistics and data about the technology cost and PM_{2.5}, etc.

- 2. 6 months:

Calculate the existing technology in the database. Analyzing statistics and data with model and complete the new methodologies.

- 3. 3 months:

Analysis and draw the figures, completed the first edition of the English paper. Begin to write the Sub-report and Final report.

- 4. 6 months:

Revise the English paper and begin to interoperate it into Chinese and English version. Finish the first edition of the Sub-report and Final report.

Thank you!

