

# ONLY U CAN PREVENT CLIMATE CHANGE

IAEA Scientific Forum  
Nuclear  
Technology  
for Climate

*Mitigation, Monitoring, Adaptation*

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# Nuclear Energy: Solution for Pollution

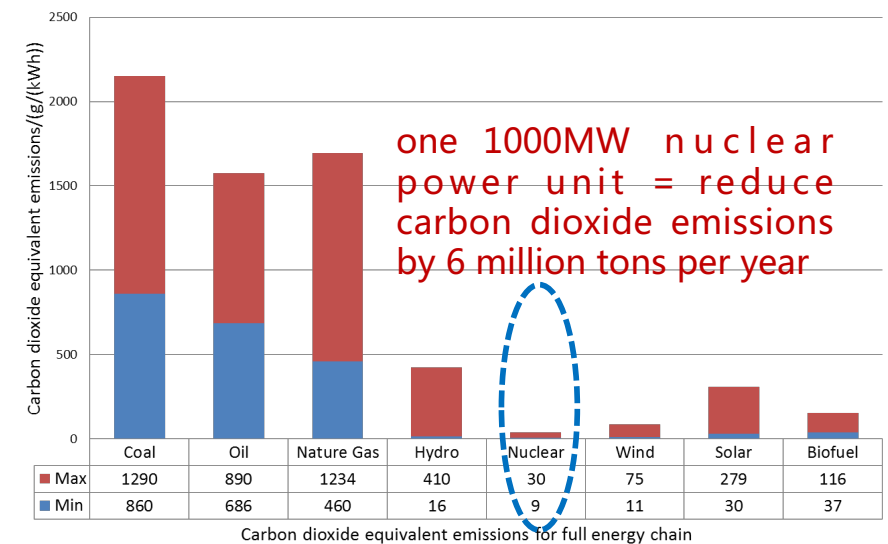
## Pollution: Fossil Fuel



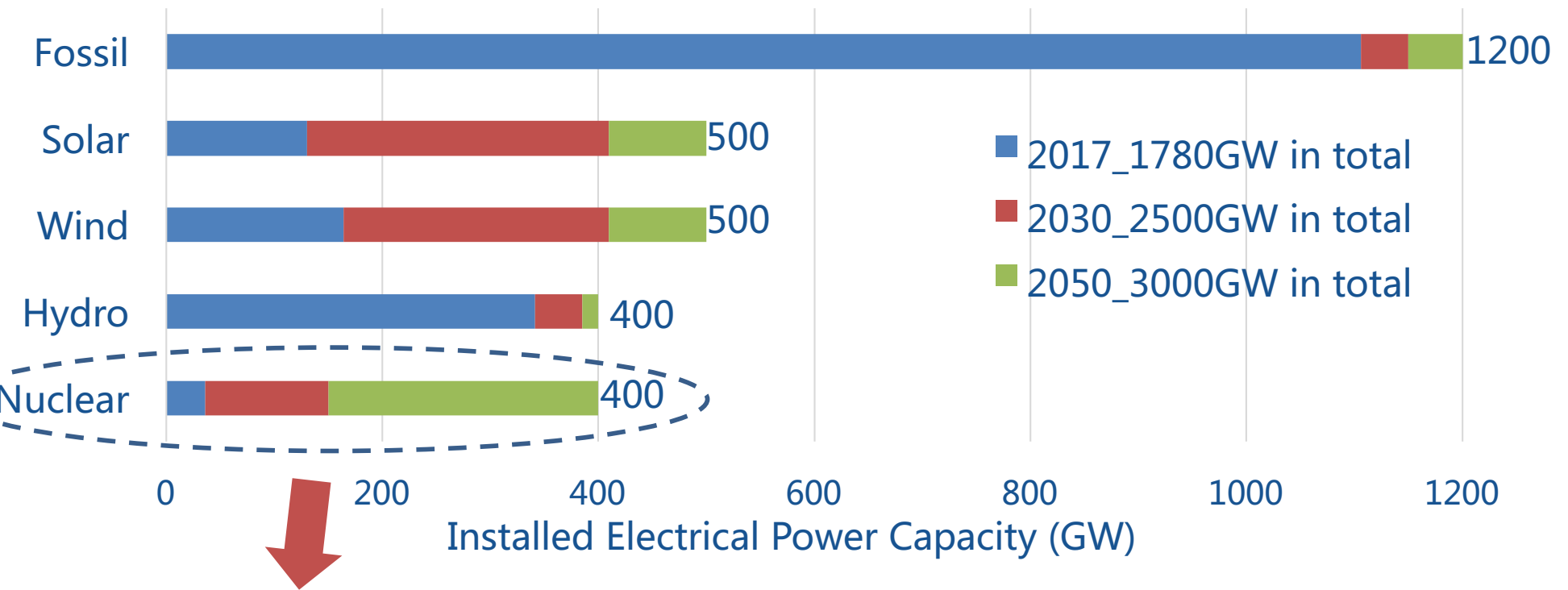
- In the north of China, heating in winter covers 17 province-level regions (34 in total). Heating area is more than 13 billion square meters, and increased by 5% - 10% per year by urbanization.
- The main source of heat supply is from fossil fuels, and 33% is from direct coal combustion, which is a critical reason for smog in the north.

## Solution: Nuclear Energy

- If the installed capacity reaches 150-200 million kilowatts by 2030, it will be equivalent to reducing carbon dioxide by 0.7-1 billion tons per year
- Chinese government encourages heating supplied by nuclear energy



# Nuclear Energy is promising in China



Year	Expectations as a nuclear engineer
2020	58 GW in operation, over 30 GW under construction
2030	150~200 GW
2050	500 GW (both electric and energy supply)

- Estimation based on:
- The government policy to control increment of fossil fuel plant and hydro power
  - Wind and Solar power is popular, but not stable and close enough as base load
  - Nuclear energy is clean and safe





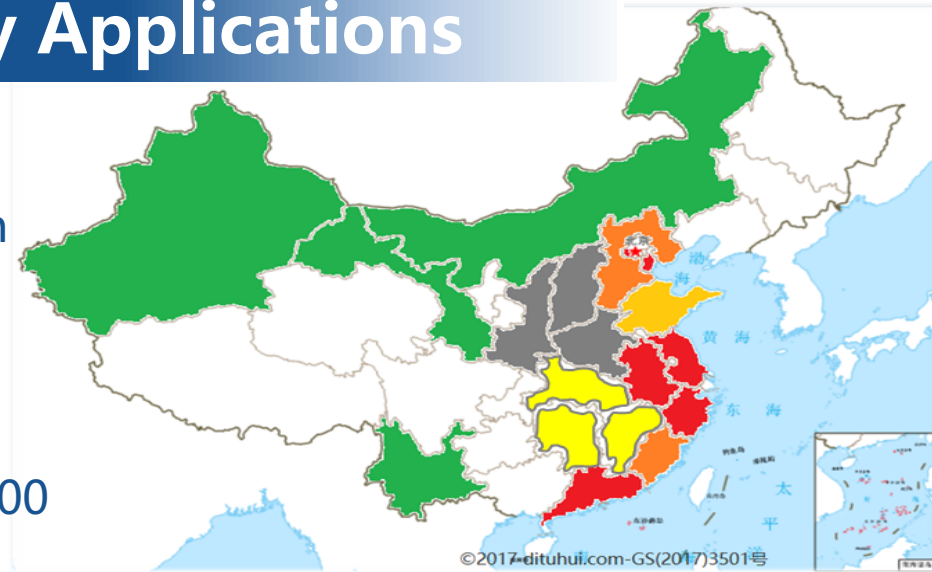
# Expectations of Nuclear Energy Applications

## SMR for multiple application

<300MWe: Electric supply/Heating/Desalination for land and ocean base

## The big for electric power generation

1000-1700MWe : CAP1000 , CAP1400 , CAP1700



■ Wind/Solar    
 ■ Coal    
 ■ Energy Demand

## AP1000 News in China

	Fuel Load	Initial Critical	Connected to Grid	First Full Power	Commercial Operation
<b>Sanmen 1</b>	2018.4.25	2018.6.21	2018.6.30	2018.8.14	2018.9.28
<b>Sanmen 2</b>	2018.7.5	2018.8.17	2018.8.24	2018.10.6	2018.11.8
<b>Haiyang 1</b>	2018.6.21	2018.8.8	2018.8.17	2018.9.16	2018.10.25
<b>Haiyang 2</b>	2018.8.8	2018.9.6	2018.9.14	2018.11.7	2018.12.11

AP1000 Sanmen unit-1, the first GEN-III NPP in China, will officially enter the commercial operation very soon.



# Nuclear Technology is ready and upgrading

- GEN III NPPs meet the requirements of environment protection
- No offsite emergency required for SMR, and technically for CAP1400(Chinese GEN III )

## 1 High Safety

two magnitude order better  
than GEN II NPP

## 2 Environmental Friendly & Waste Minimization

waste gas/ liquid/ solid ,  
spent fuel

### Characteristic of GEN III Passive NPP

## 3 Human Friendly Digitalization High Automation High Reliability High Availability

## 4 Economical

system simplified,  
fewer spare parts, less  
maintenance , land  
saving

