

# New nuclear power – Global development

2016-01-20  
Confidentiality - None (C1)

# China

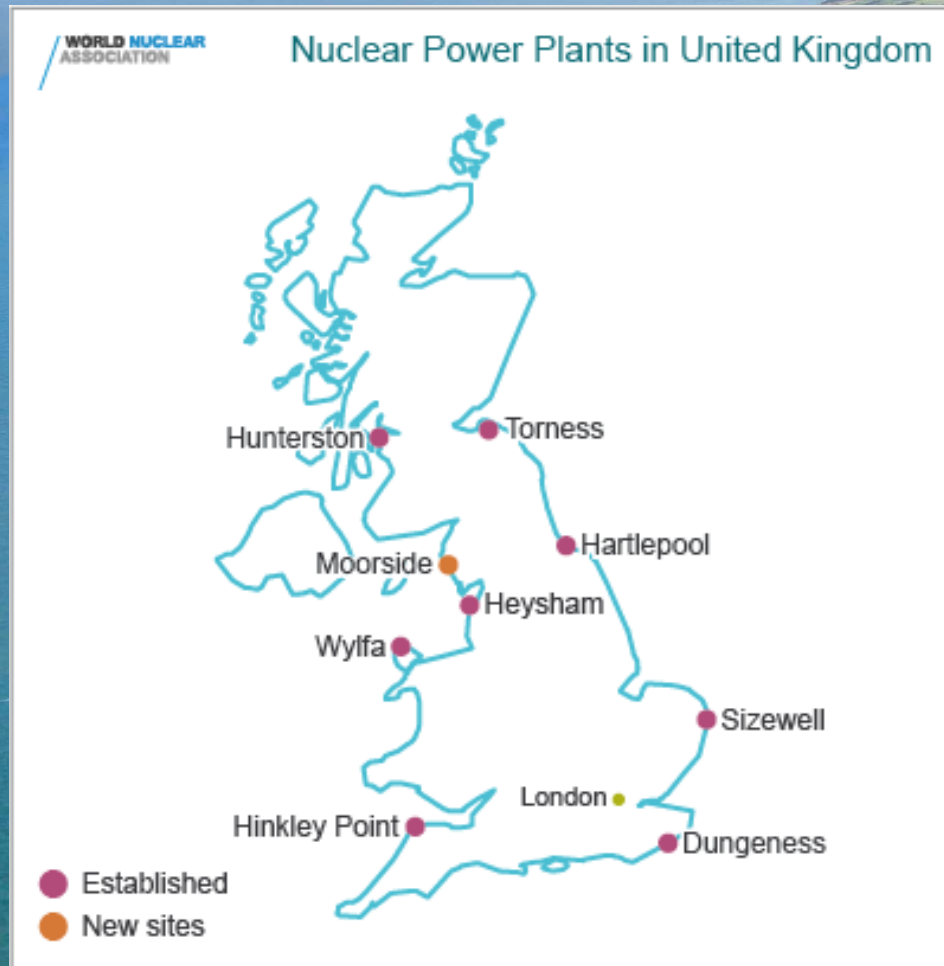
- 70 % of Chinas energy from coal
- Half the world consumption of coal
- Urgent need to improve air quality

# China

- 30 commercial reactors in operation (26,7 GWe)
- 24 under construction (24,1 GWe)
- Significant R&D – aiming for closed fuel cycle

- Very ambitious expansion plans
  - 140 GWe PWR capacity 2040
  - 6-8 new units 2015-2020
  - 10 units per year beyond 2020
  - Domestic supply chain
- First fast reactors being built 2020
  - Major FR expansion anticipated

# United Kingdom



- 2/3 of electricity from fossil fuels
  - Growing fuel imports
- 15 reactors in operation - 8900 MW
  - 14 GCR – located in pairs
  - 1 PWR – Sizewell B
- Energy policy focused on CO2
  - Energy poverty is a serious concern
- Ten sites identified as suitable for nuclear new build before 2025
- Generic design assessments
  - AP1000, EPR, and Hitachi's ABWR
- Three companies with firm ongoing projects
  - EDF - Hinkley point and Sizewell
  - Horizon - Oldbury and Wylfa
  - NuGeneration – Moorside



# Finland

- Four reactors in operation – Olkiluoto 12 and Loviisa 12
- Olkiluoto 3 under construction
- Hanhikivi 1 (Fennovoima) nearing construction start
- Significant import dependence
  - >25 % of peak demand
  - Mainly from Sweden and Russia





# United Arab Emirates

- Electricity consumption exceeding 100 TWh, increasing by 9 % per year
  - 98 % fossil gas
  - Domestic gas insufficient to meet the increase in demand

- Four units under construction at Barakah
  - APR-1400
  - 5600 Mwe
  - Construction started 2012
  - First unit expected on line 2017, last 2020
  - Reactor contract worth \$ 20 billion
- Second fastest per capita addition of clean energy ever

# Newcomers (examples)

## Poland

Two NPPs 3000 MWe each  
Construction 2020

## Belarus

Two 1200 MWe VVER  
Started 2013 and 2014

## Jordan

Two 1200 MWe VVER  
Construction 2016

## Turkey

Akkuyu 4\*VVER 2016  
Sinop western reactors 2017

## Bangladesh

Two 1200 MWe VVER  
Construction 2017/18

## Vietnam

Four 1200 MWe VVER  
Firm plans



# Why did Sweden build?

Demand growth

Possible expansion of hydro limited

- Environmental discussion
- Limited number of sites

Modernity

Acidification

Coal and nuclear discussed  
Competitiveness not an issue –  
both competitive

Energy  
independence



# Drivers for nuclear new build programmes

