Influences on proportion of electricity generated by nuclear power around the world

David Toke and Yaojun Li,
Department of Sociology,
University of Birmingham

Data collection

- UN statistical series
- Only countries with population of over 1 million
- Only countries that existed in 1975
- 108 countries in study
- FRG (1975) assumed to be Germany (2002 for electricity output) and same for USSR (1975) and Russia (2002)

Significant associations with proportion of electricity from nuclear power in 2002 (GLM analysis)

- Communist and former communist countries – 0.000
- Per capita GDP – 0.001
- 1975 Energy dependence – 0. 012

Richest countries and portion of electricity from nuclear

Country	Per capita GDP 1988 $000	Per cent of electricity from nuclear (2002)
Switzerland	28.2	41
Japan	23.6	27
Sweden	21.5	46
Norway	21.3	0
Finland	21.3	30
Denmark	21.2	0
USA	19.5	20
Germany	19.5	29
Canada	18.8	13
France	17.2	78
Austria	16.5	0
Australia	16.1	0

Per capita GDP and nuclear share of electricity – poorest countries with nuclear power

Country	Per capita GDP 000s US$ 1988	Per cent Nuclear share of electricity 2002
Rep. of Korea	4.2	35
Argentina	2.8	7
India	0.29	3
China	2.1	1
Mexico	2.1	4
Brazil	2.3	4
South Africa	2.6	5
Pakistan	0.41	3

	2002 Per cent electricity from nuclear	1975 Energy independence	1975 Per capita GDP 000s US$
USSR	0.16	1.23	1.9
Czech	0.34	0.76	2.7
Bulgaria	0.47	0.37	1.0
Romania	0.1	1.0	1.6
Cuba	0	0.02	1.1
China	0.01	1.03	0.14
Hungary	0.39	0.58	1.8
Poland	0	1.1	2.2

Conditions necessary for successful nuclear programme

- Coherent, decisive approach at relevant political/industrial levels
- Dedicated funding mechanism
- Increasing national income
- Perceived energy dependence

Opportunities and challenges for nuclear power

- Opportunities: increasing per capita GDP and continuing fears of energy dependence
- Challenges: electricity market liberalisation and rivalry with renewable energy

UK generating investment choices – An investor's perspective – assuming gas supply contracts linked to energy price indices

	Low energy prices	High energy prices
Invest in nuclear power station	Financial loss	Financial gain
Invest in gas (CCGT) power station	Financial gain	Financial gain