

New Energy Policy for China and the UK

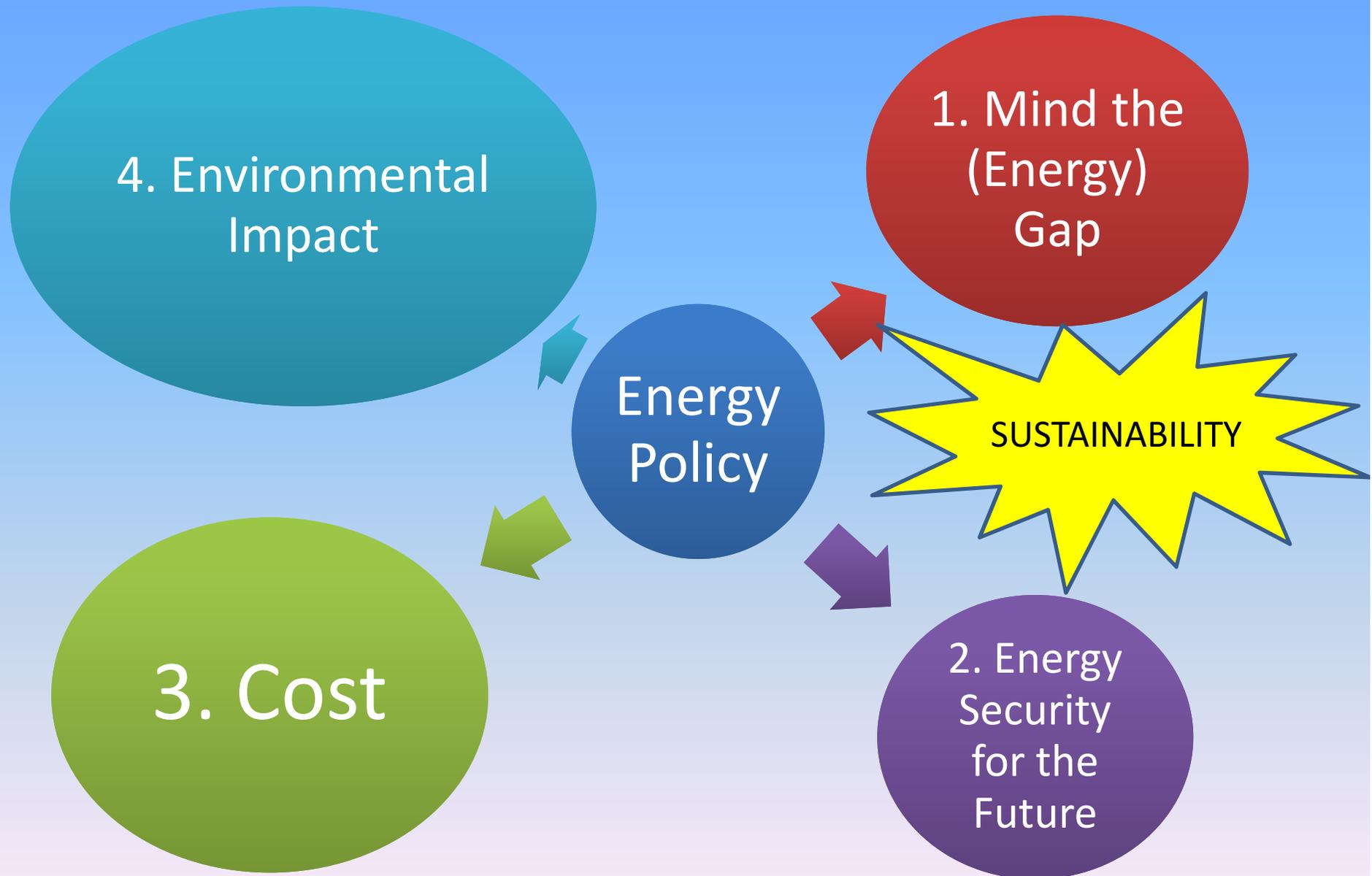
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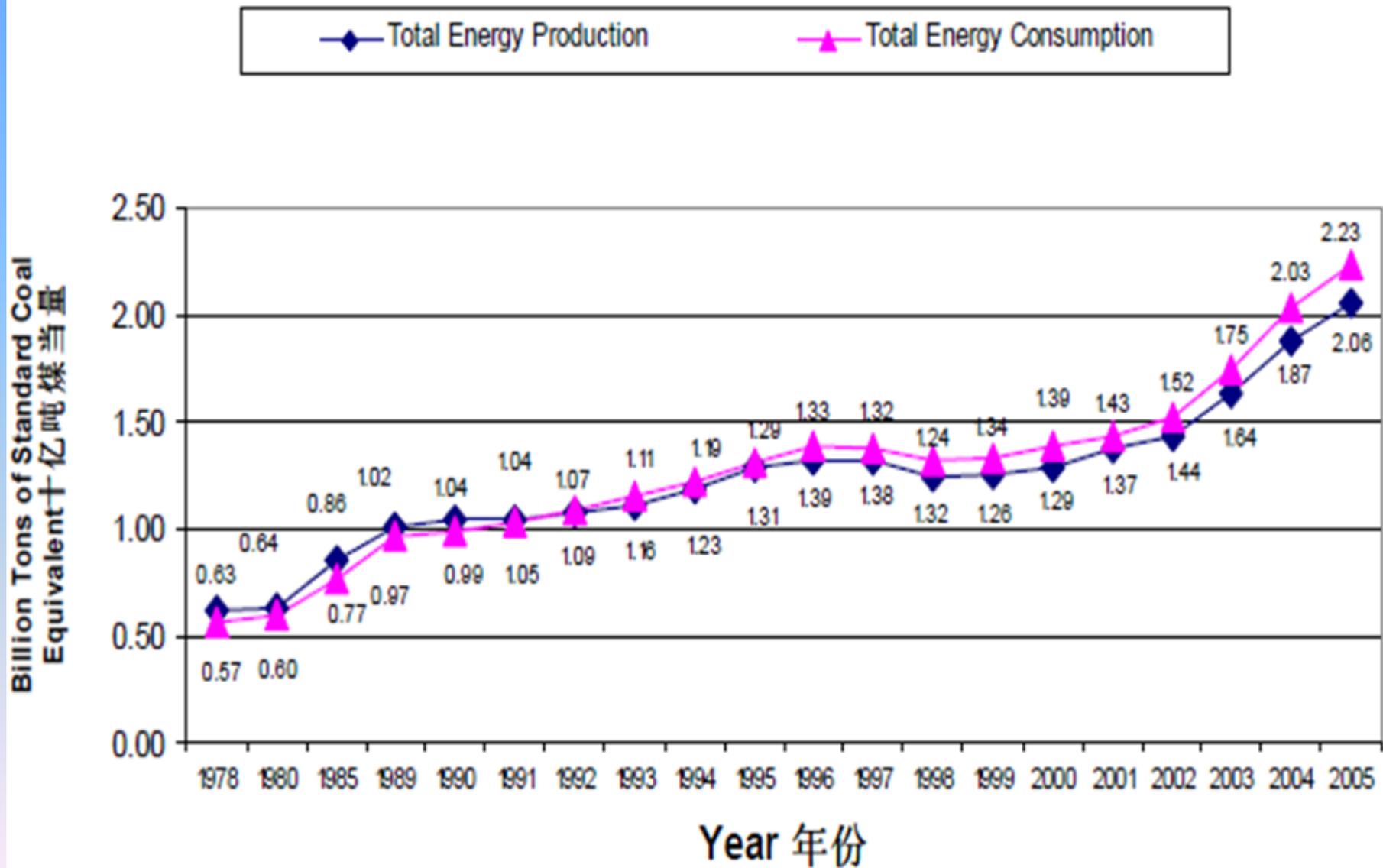
The Need for an Up-to-Date Energy Policy

- Economic and social growth powered by energy from fossil fuels.
- These are not, on their own, clean methods of energy production.
- Focus on reducing environmental impact of power generation from fossil fuels (in particular coal), whilst keeping costs low and ensuring energy security for the future.
- CCS will allow coal to be used more cleanly.

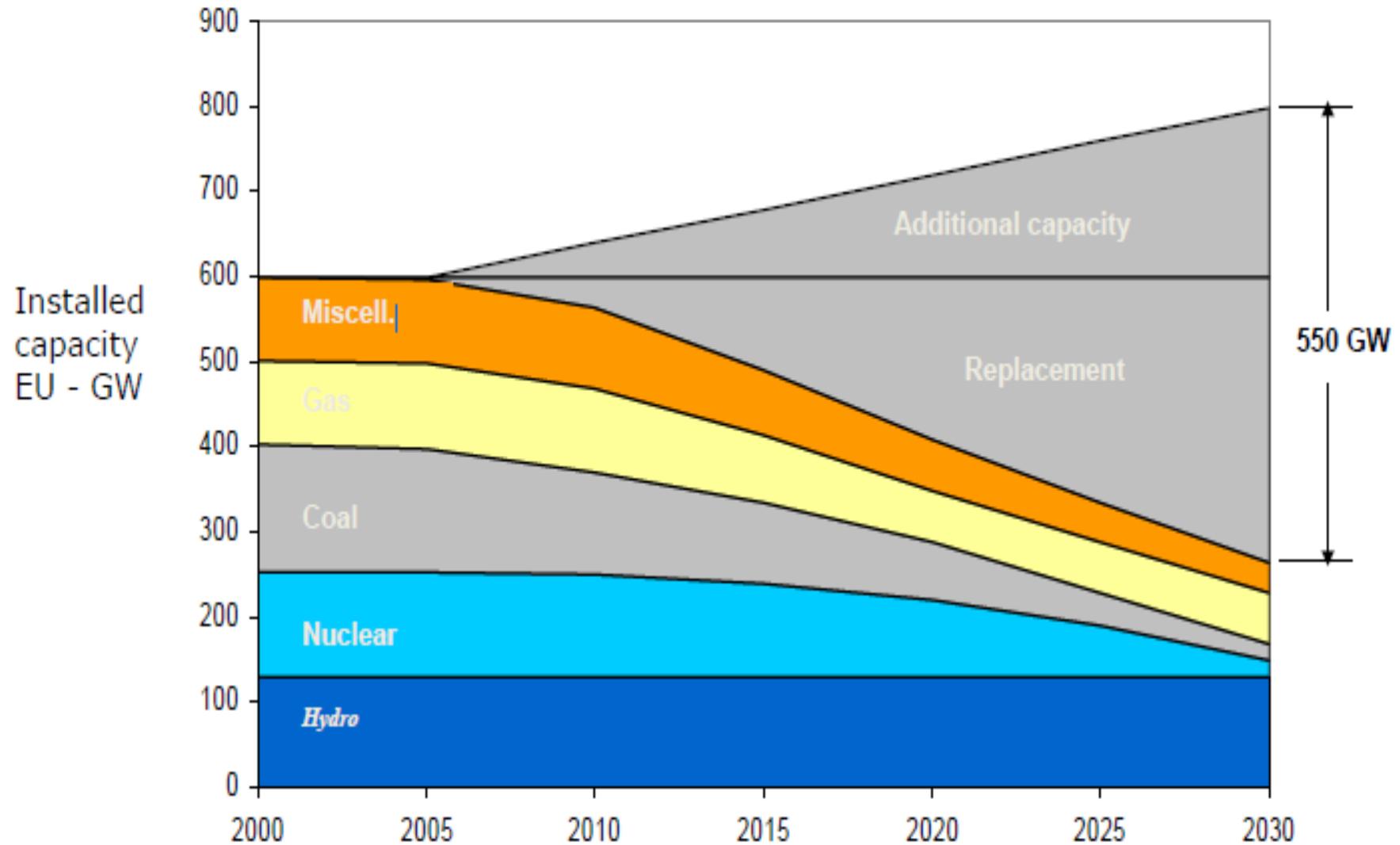
Energy Policy: The Engineer's Directive



China's Energy Production and Consumption

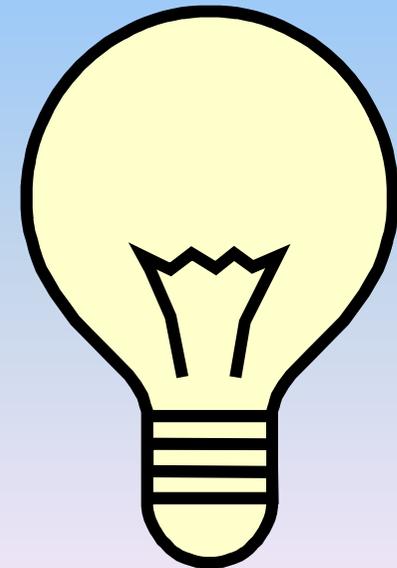


New Generation Capacity Required in Europe

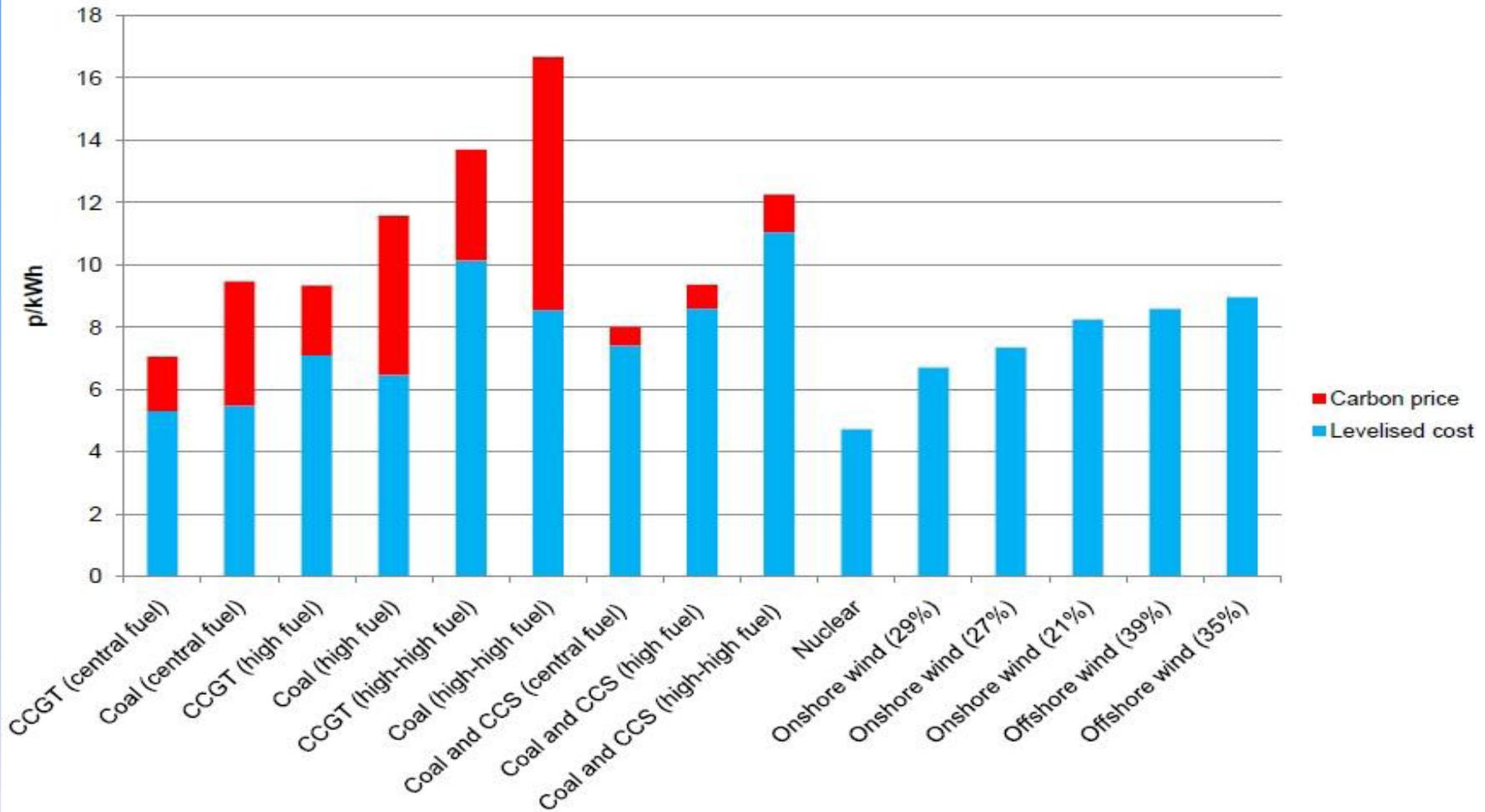


Energy Security

- Important to continue current economic growth is that the supply of energy continues.
- We are dependent on electricity for several fundamental purposes (e.g. hospital machines).
- Being overly dependent on one particular source or dependent on importing energy is not a good position to be in.



Cost



Source: IPCC (2005) Redpoint et al (2008), CCC estimates of the carbon price.

Note: £2008. Percentages next to wind relate to average annual availability at the site. Intermittency costs are included in cost estimates.

Environmental impact

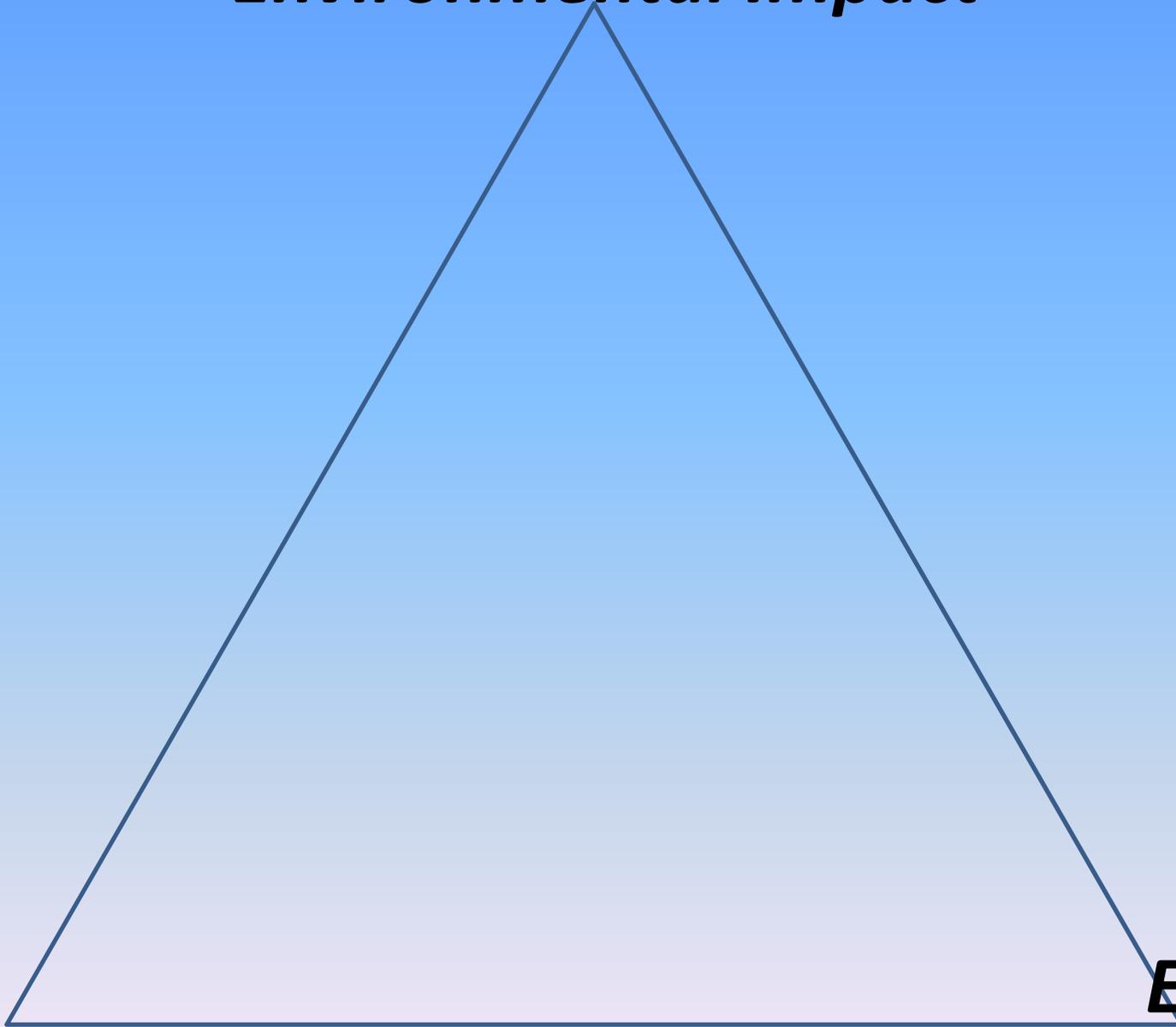
- Power generation methods which reduce the level of carbon emissions are needed.
- 2050 carbon emission reduction plan.
- Environmental impact not just limited to carbon emissions, but incorporates the effect on a local scale of power plant installation.



Environmental Impact

Cost

***Energy
Security***



Environmental Impact

Solar



Wind

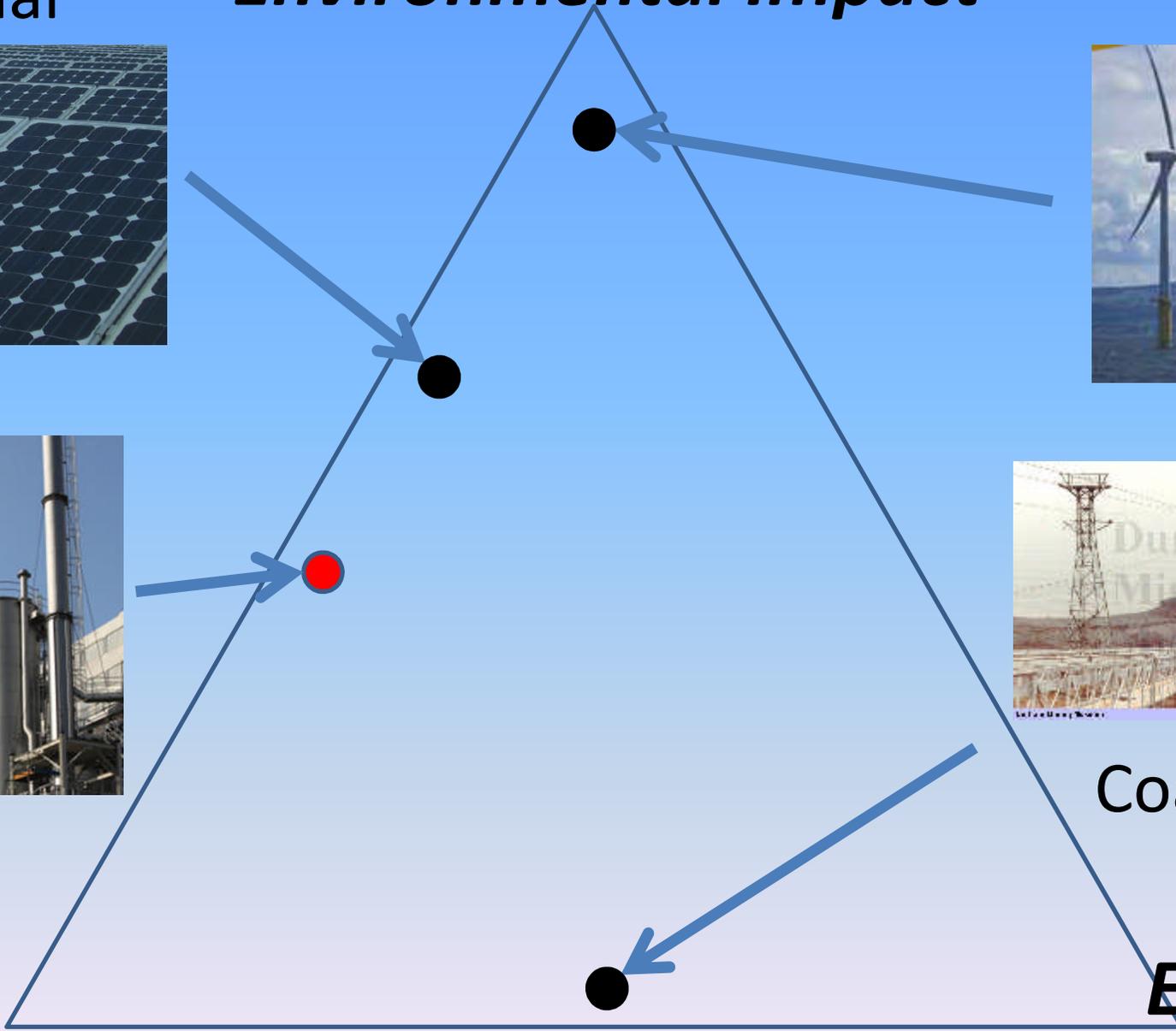


Coal

Energy Security

Gas

Cost



Environmental Impact

Solar

Wind

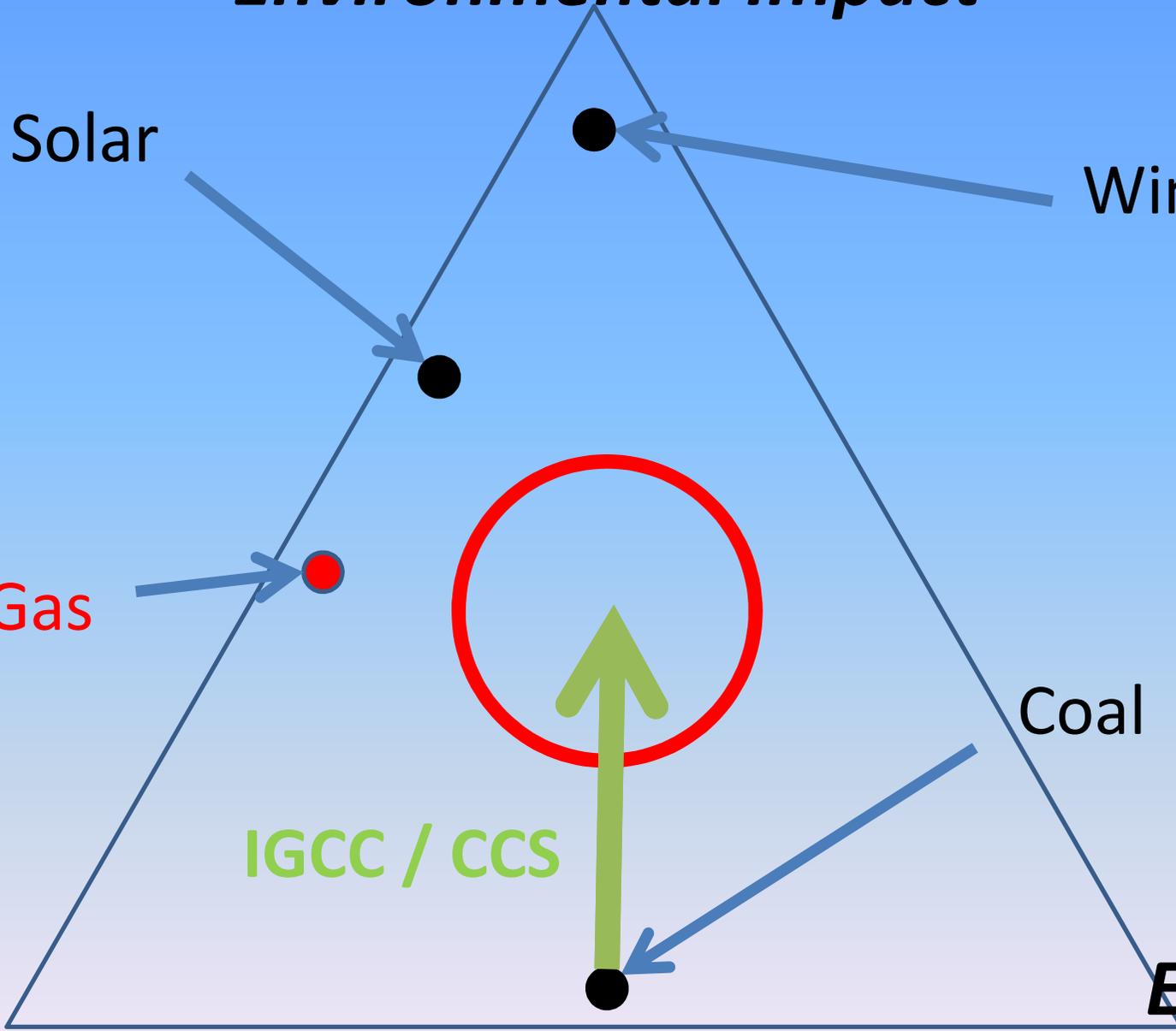
Gas

Coal

IGCC / CCS

Cost

Energy Security



Linking Policy to Technology

- The technical ability to implement low carbon technologies directly affects the policies which should be in place to legislate for their operation.
- New policy needs to be appropriate to the technology being introduced in order to minimise the risks and reap the full benefit.



Energy Policy: The Politician's Directive



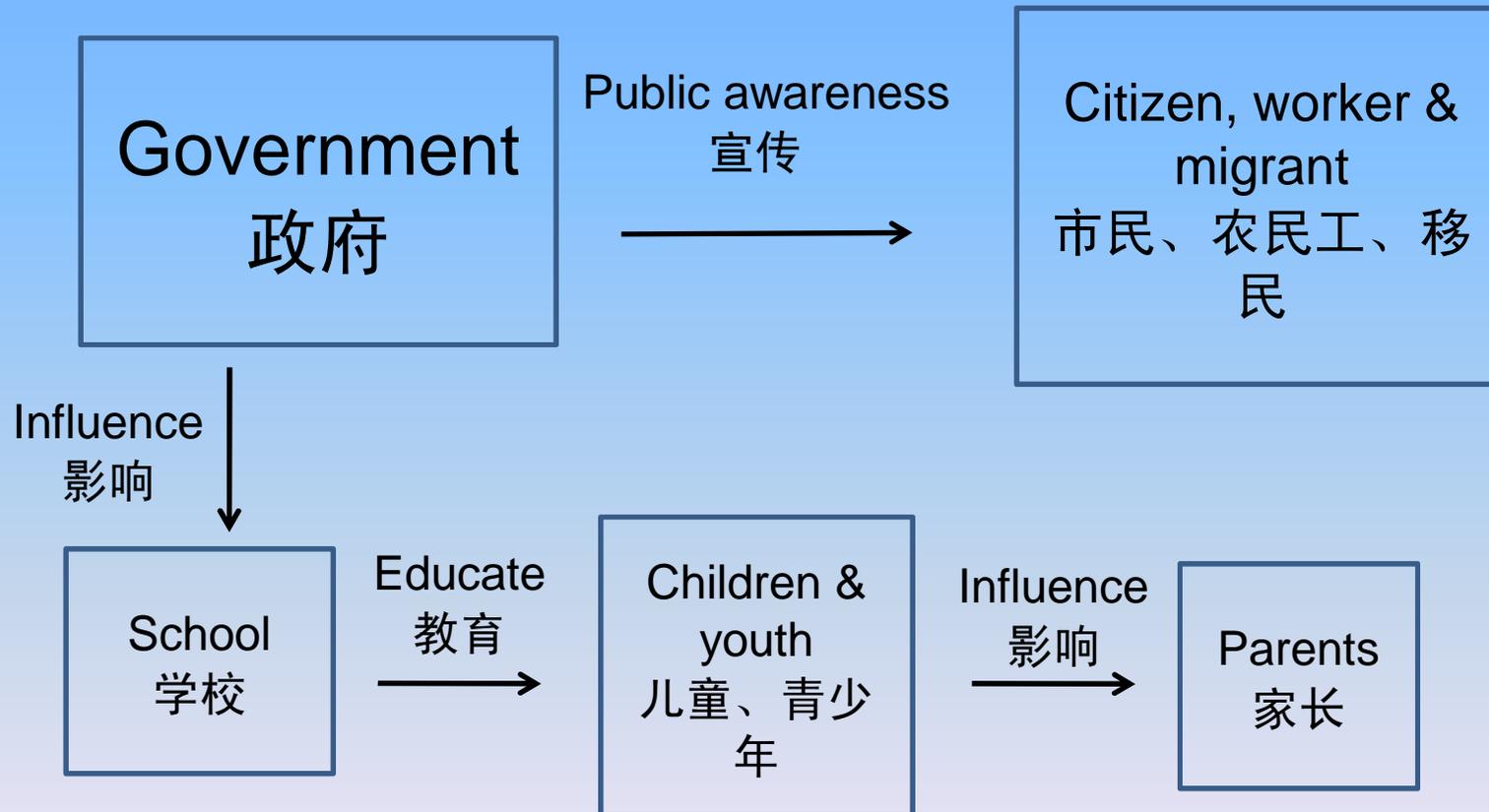
Legislation

- 立法规定CO₂的排放标准
Make laws to set CO₂ emission standards
- 对CO₂高排放企业征收较高赋税
Taxation for companies with high CO₂ emissions
- 制定碳排放交易规则
Introduce carbon trading
- 对排放超标企业从严从重处罚
Strict and serious punishment for companies which exceed the CO₂ emissions allowed by their permit
- 规定CO₂减排为每个公民的义务
Make CO₂ emission reduction become everyone's obligation
- 严格监管，落到实处
Strict supervision so that every rule is enforced

Government Financial support

- 新技术的研发
Research of new technologies
- 原有电厂的改建以实现CCS
Rebuild old power plants to realize CCS
- 新建电厂实现其他CO₂减排新技术（如IGCC）
Build new power plants with other new CO₂ reduction technology (e.g. IGCC)
- 对宣传和教育的投资
Investigation on public awareness & education

Public Awareness & Education



Establish the concept of "do for myself"

Role of NGOs

- 社区

Community

- 环境保护组织

Organization of environmental protection

- 志愿者

Volunteer

International Cooperation

- 新技术的研发
Research of new technology (value of academic collaboration)
- 政策制定
Policy making (has to be equal between countries)
- 企业间的合作
Between companies
- 民间合作
Between people

Differences Between Policy of China and the UK



- Ensure energy supply can meet the increasing demand. This will necessitate efficiency improvements now, with consideration for low costs secondary, and environmental impact last.



- Get new generation capacity ready, whilst keeping costs low in our fragile economy. All three aims need to be simultaneously met.

Summary

- Both China and UK are in need of increased energy security. China's need is to continue development, UK to replace existing generation capacity.
- Policy should place emphasis on this, for example, a plan of how future demand levels will be met.
- Necessity for costs to be low more important in UK than China as the UK economy is fragile.
- Environmental impact a lower priority in China than in the UK. Avoid excessive or unnecessary pollution in both cases – this is the motivation and main reason for CCS!

References

- IPCC
- CCC
- Prof. Ming-yao Zhang, “General Situation of Clean Coal Technology Research and Application in China”.
- Dr. Hongyi Lai, “Energy Security in China: Economic Developmental Strategy and Challenges”.

Thank you for your attention

Any Questions?