

Sustainable Energy Visions

**zero carbon britain**  
an alternative energy strategy

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Sustainable Energy Policy Seminar,  
October 1-5, 2007,  
Samsø, Denmark

[http://www.inforse.org/europe/seminar07\\_samsø.htm](http://www.inforse.org/europe/seminar07_samsø.htm)

**zero carbon britain**  
an alternative energy strategy

 Centre for  
Alternative  
Technology

In collaboration with:  
Public Interest Research Centre

**introduction**

- A radical yet realistic vision
- Based on **35 years** experience
- A closing window of opportunity
- To dream of things that never were

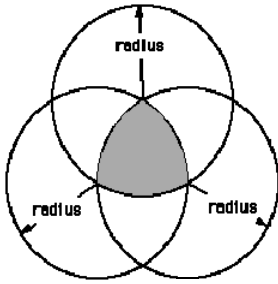
**introduction**

Mapping the unthinkable...

- Special period in history
- An open invitation to collaborate...
  - Research & Integration
  - Grassroots Support
  - EU?

**globalcontext**

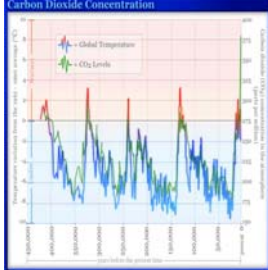
- **Climate Change**
- **Energy Security**
- **Global Equity**



**globalcontext**


**Climate Change**

- Record CO2 levels
- Triggering positive Feedbacks



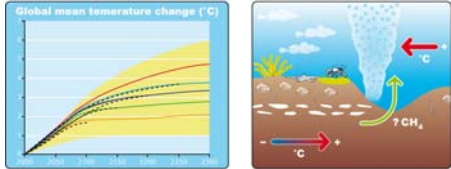
**Climate Change**

- Sink Failures
- Feedback
- Runaway effects




**Climate Change**

Methane Hydrates -  
 Emergency Situation -  
 Go to Zero Carbon -



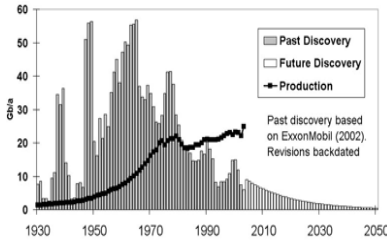
**Energy Security**

- Peak Oil
- Geology & Production
- Dependency
- Depletion



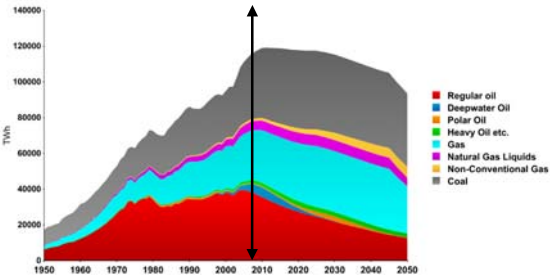
**Peak Oil**

THE GROWING GAP  
 Oil Discovery and Production

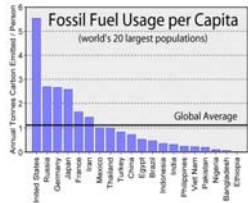


Past discovery based on ExxonMobil (2002).  
 Revisions backdated

**Peak Fossil Fuel**



**Global Equity**



- Britain's GDP = £17,200  
 Tanzania's GDP = £420
- British citizen = 10 Tonnes CO<sub>2</sub>  
 Afghani citizen = 0.01 Tonnes CO<sub>2</sub>
- The 360 wealthiest people have combined income of the poorest 45% of the world's population (2.3 billion people).

## framework▶

- **International**
  - Contraction & Convergence
- **National**
  - Tradable Energy Quotas (TEQs)

## 'Island Britain' Scenario

powerdown

powerup

powerdown

- Sector by Sector
  - Household
  - Industry
  - Transport
  - Agriculture & Services
- **50% overall reduction**



powerdown

- POWERDOWN:
- Sector by sector
- 50% reduction
- Electric vehicles
- Organic food

powerdown

## Household

- Large-scale retrofit of existing stock
- New homes to be zero-carbon
- Demolish & replace worst performing dwellings, with exceptions
- Behaviour change
- Intelligent appliances

powerdown

## Industry

- Import/Export issues
- Chemical & Steel industries making significant reductions
- Needs extensive research
- TEQs framework would drive low- and zero-carbon innovation

powerdown

## Transport

- Switch to electric vehicles – huge savings
- Efficiency & Generation
- Freight to rail
- Modal switches - “earthports”

powerdown

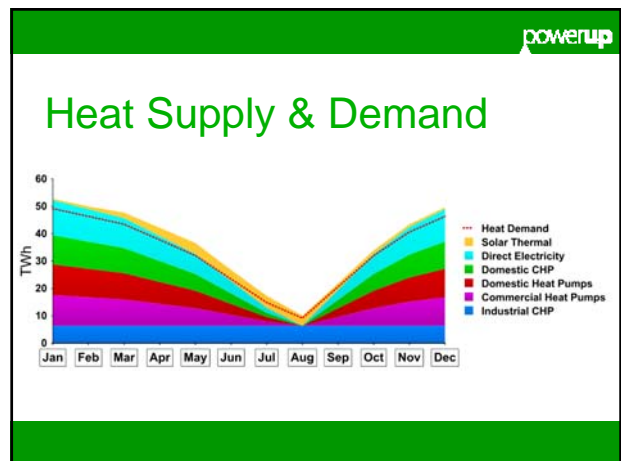
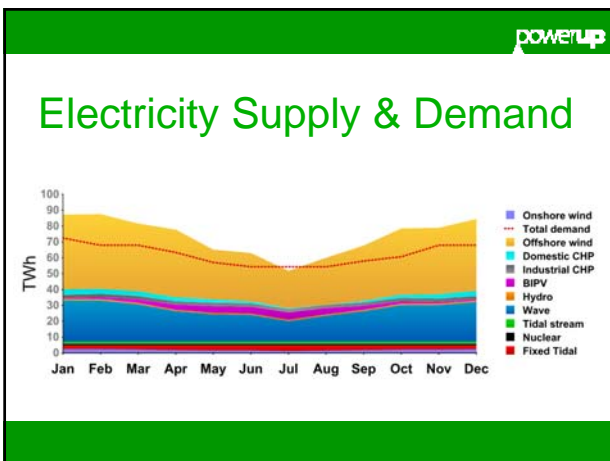
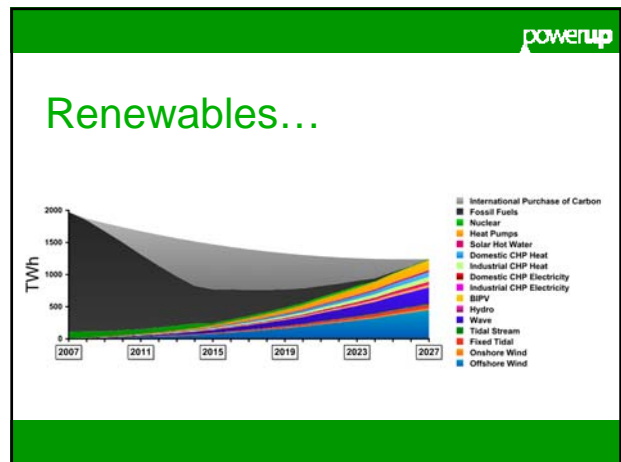
## Agriculture

- Switch to organic
- Significant land-use changes
- More biomass
- Reduction in livestock
- Relocalisation

powerup

## powerup

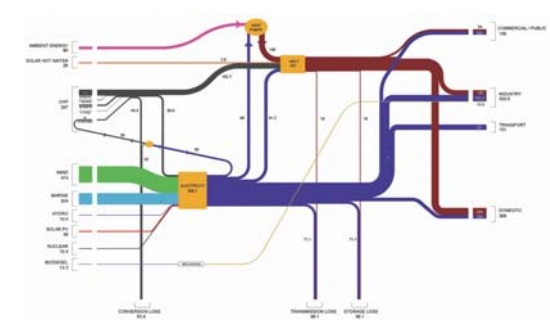
- 100% Renewable!
- Electric Britain
- Diverse mix



## Dealing with variability

- Demand
  - Reduced overall
  - Intelligent demand management
- Distributed generation
- Storage - e.g. V2G, Vanadium
- **European Integration for next scenario...**

UK Potential Energy Flows 2027  
(terawatt hours)



## Vital Catalysts

- Increased climate research
- Accelerated technology research & development
- Investment in new skills & training
- National public awareness campaign
- Robust cross-party consensus

## WISE: Opens 2008



## Conclusions

- Scientifically inescapable
- Economically unavoidable
- Technically possible
- It now has to become...  
**politically & socially thinkable**

## Sooner than expected.....

- The Liberal Democrats have launched a policy called 'Zero Carbon Britain – Taking a Global Lead', 6 weeks after the CAT report was presented to all the major political parties at various events in Westminster.
- Lembit Opik, MP for Powys and Montgomeryshire, and Shadow Secretary of State for Business and Enterprise said:
- *"These proposals were largely inspired by the Welsh based Centre for Alternative Technology and I would like to thank them for the ground-breaking work."*

