The Community Energy Transition

Energy 21 – ‘Community Energy Transition’ Seminar
August 16-18, 2008, CAT, Wales, UK

By Paul Allen, CAT, UK

http://www.inforse.org/europe/seminar08_Energy21.htm

Our wellbeing depends on:

• Climate Security
• Energy Security
• International Security

Climate Security

• We release over 8 billion tonnes of CO₂ into the atmosphere each year, but only half of it stays there.
• Roughly equivalent in ability, two major natural ‘carbon sinks’ - the oceans & the land based biosphere take up the rest.
• Carbon sinks buffer us from the worst effects of our emissions, slowing climate change.

Climate Security

• Record CO₂ levels
• 0.8°C average global rise to date
• Earth has an enormous thermal mass
• 30-40 years until a new equilibrium is reached
• Locked into at least another 0.6°C temp rise

Climate Security

• IPCC 4th Assessment Report
• 2°C / 550ppm tipping point
• Runaway feedbacks begin
• Lessons to date
• Systems are more sensitive
• Conservative position
Arctic ice melt

- “The loss in summer of all eight million square kilometres of Arctic sea-ice now seems inevitable, and may occur as early as 2010, a century ahead of the Intergovernmental Panel on Climate Change projections.”
  (Climate Code Red)
- “Targets of 550ppm must become 350ppm if humanity wishes to preserve a planet similar to that on which civilization developed”
  (James Hansen NASA Goddard Institute for Space Studies)

Failing Sinks

- In September 2007, the University of East Anglia presented a ten-year study that gauged CO₂ absorption through more than 90,000 measurements from North Atlantic merchant ships equipped with automatic instruments.
- The results show ocean CO₂ uptake halved between the mid-90s and 2005.
  (20 October 2007, BBC News)

Failing Sinks

- Land based sinks are also increasingly under threat from mass logging, industrial agriculture and soil degradation
- Rising CO₂ levels and rising temperatures are both increasing the pressure on the Earth’s natural carbon sinks.

Climate Security

- Triggering runaway feedbacks in climate change could entail massive agricultural losses, widespread economic collapse, international water shortages, massive rises in sea levels, a decrease in the Gulf Stream, refugee problems on a scale not yet experienced.
- Basically a global catastrophe on a scale that would dwarf recent climate chaos and run for tens of thousands of years.

Energy Security

- Fossil Fuels are incredible!
- 1 Gallon = 6 weeks labour
- US daily use = 20,000,000 person years of labour
  (Heinberg 2007)

Energy Security

- The way oil depletion affects industrial society is not the way running out of petrol affects a car
- This problem doesn’t happen when you’re just about to run out of oil
- It happens when it’s half gone
- Beyond this point, the oil is slower flowing and of a lower quality - so it takes more cash, more energy and more time to bring it to market
Energy Security

There are currently 98 oil producing countries in the world, of which 64 are thought to have passed their geologically imposed production peak, and of those 60 are in terminal production decline. (David Strahan www.energybulletin.net)

Energy Security

- ‘Peak oil’ is about running out of easy-to-get, easy-to-refine cheap oil.
- That means that just as energy demand is exploding across the globe, world production is nearing its ‘peak’
- So, for the first time in human history, we will no longer able to increase the rate at which we can pull oil out of the ground, refine it and bring it to market.

Energy Security

Saudis warn on oil capacity Carola Hoyos, April 22

- In unusually frank remarks, Ali Naimi, the kingdom’s oil minister, said: “Limited capacity along the entire supply chain is the real source of current global supply tightness and represents the greatest threat to ensuring adequate energy to fuel future economic growth.”
- King Abdullah, the country’s ruler, put it more bluntly: “I keep no secret from you that, when there were some new finds, I told them, ‘No, leave it in the ground, with grace from God, our children need it.’”

Energy Security

- Production rates will become limited by the geology
- Causing under investment in extraction and refining capacity
- Preceded by political limitations to support domestic demand?
- Increasing international tension?
- A 3rd and final energy crisis
- Urgent need for preparation!
Energy Security vs Climate Security

- Under business as usual, the impending peaks in oil and gas can only serve to push us down the road to conflict over remaining dirtier reserves, plus the coal, oil shale and tar sands, further accelerating climate change!
- The only option is a controlled global carbon descent strategy

International Security

- The world’s 360 wealthiest people have combined income of the poorest 45% of the world’s population (2.3 billion people).
- Britain’s GDP = £17,200 per capita
  Tanzania’s GDP = £420 per capita
- A Britain = 10 Tonnes CO$_2$
  An Afghani = 0.01 Tonnes CO$_2$
- Food riots in 37 countries so far in 2008
- Decreasing international security!

Global Equity

A global carbon descent strategy must recognise countries start from very different places

An integrated solution

So what do we do?

The carbon descent transition must happen across all levels of society:
  - international
  - nation
  - regional
  - city / town / village
  - community
  - home
  - individual

Transition at all levels

- International level: Join campaigns for action
- UK & EU level: Lobby our MPs & MEPs for action
- Change attitudes across society
- Local level: Inform ourselves and others
  - Assess available resources
  - Assess technology options
  - Training and up-skilling
  - Take action on a town, community & personal level
Transition Technologies
National, regional, community & domestic scale

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

The resources are out there

Britain is the Saudi Arabia of wind power

Electricity supply & demand

100% Renewable!
Electric Britain
Diverse mix of generation
No new nuclear power

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Heat supply & demand

Conclusions

- Scientifically inescapable
- Economically unavoidable
- Technically achievable
- It must now become **socially & politically thinkable**
- Time for action - at all levels!

Conclusions

- We stand at a time where we still have the power to make the right choices.
- Only by dealing with the full scale and urgency of the problem at all levels of society can we create a realistic path back to a safe-climate, energy secure, equitable world.

Conclusions

- It is now time for radical action at a local & community level
- This is the challenge to be addressed by CAT, Energy 21 & INFORSE.

Conclusions: Governments

- We can’t wait for governments, but we can’t ignore them either
- They will get better (EU drivers)
  - 20,20,20
  - Green Revolution
Conclusions: Technologies

• PV
• Solar Hot Water
• Wind
• Hydro
• Biomass
• Combined Heat and Power
• Anaerobic Digestion
• Others?

Conclusions: Economics

• Increasingly attractive
• Fossil fuels prices rise
• New technology options mature
• Economies of scale
• Green New Deal

Conclusions: Support

• CAT, Energy 21, INFORSE
• CSE, EST, OU, Post Carbon Institute
• Transition network
• Local Authority
• Others…

Conclusions: Support

Post Carbon Cities
- Planning for Energy and Climate Uncertainty
   Daniel Learch, www.postcarboncities.net

It’s transition time…

• Change is coming, ready or not
• Our choice is between a future where we have been proactive and acted ahead of events, and a future where we have let events overtake us.

Full report available free from www.zerocarbonbritain.com

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