

Handouts of presentation Community Initiatives in the Dyfi Valley by Peter Harper, CAT, UK

POTENTIAL COMMUNITY INITIATIVES IN THE DYFI VALLEY

Energy 21 – ‘Community Energy Transition’ Seminar  
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By Peter Harper, CAT, UK

INFORSE-EUROPE  
International Network for Sustainable Energy

[http://www.inforse.org/europe/seminar08\\_Energy21.htm](http://www.inforse.org/europe/seminar08_Energy21.htm)

### Dyfi Valley Energy Economy

- About £4 million spent on energy annually
- Commercial wind farms produce about as much *electricity* as is consumed locally
- Most energy for *heating* is still imported
- Potential for a great deal more production of both electricity and heat
- Aspiration for large net export of energy
- Climate change/energy security agendas combined with economic regeneration

### RE-FORGING LOCAL LINKS

External links dominant

Internal links dominant

### ECONOMIC IMPLICATIONS

EXOGENOUS MODEL:  
Big tranches of external funding.  
Fast but fickle  
Money flows out of the area  
A few people get very rich.  
Easily uprooted!

ENDOGENOUS MODEL:  
Fine tissue of local connections and commitments makes development impossible to uproot.  
Nobody gets very rich.  
But money stays in the area.  
Prosperity spreads slowly and widely

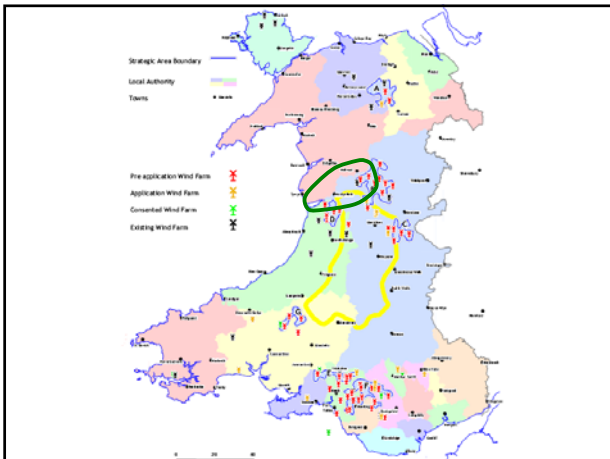
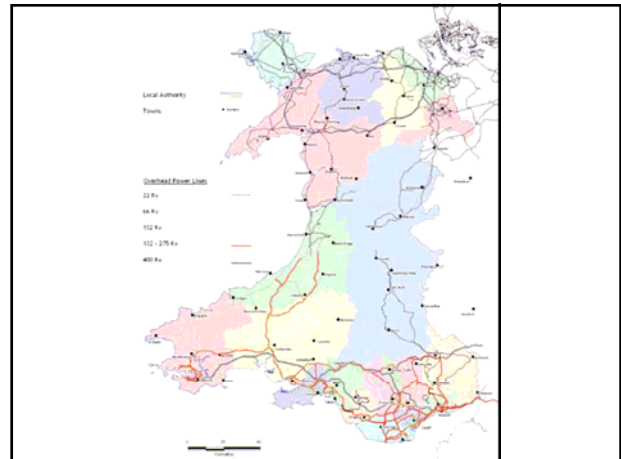
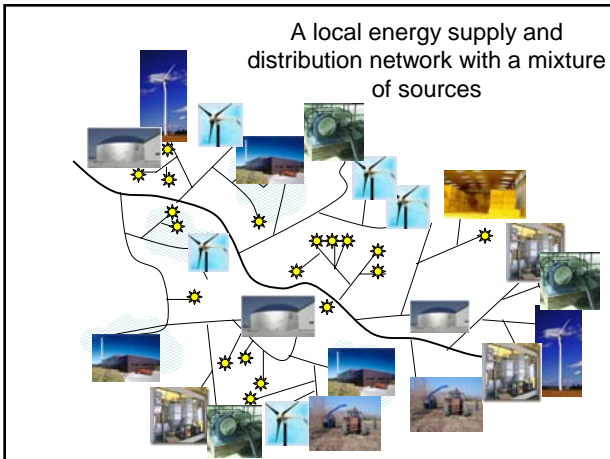
### LOCAL ENERGY SCHEMES LED BY ACTIVE ECO-COMMUNITIES (+ savvy universities?)

- Relatively insensitive to costs
- Concurrent reductions in demand
- Willingness to adapt to supply fluctuations
- Carbon Taxes, Quotas, Rationing, or simply rising prices would favour essential uses, especially public transport
- Cut across sub-community barriers
- Inspiring demonstration
- Creative innovations all round, new enterprises
- Concentration of research topics on a big theme

### WHAT SOURCES?

- Let's take demand measures for granted (!!)
- Wind is the clear leader in terms of potential output, dominated by commercial scale
- Biomass also important, with adjunct technologies
- Revival of micro-hydro
- Tidal an interesting outlier
- Modest but increasing role for solar

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### LAND-BASED ENERGY SYSTEMS

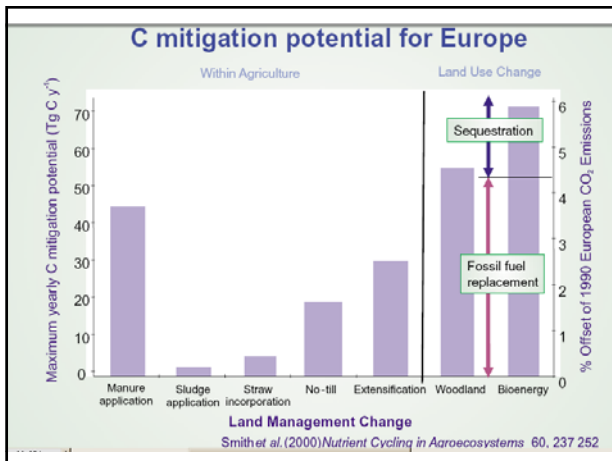
Annual Energy yields in kWh/m<sup>2</sup>

- Rapeseed oil 1.2
- Willow coppice 2.3
- Grass via anaerobic digestion 2.5
- Wind, good site 22
- Photovoltaic, good site 100
- BUT bio-energy is storable—an essential component of the mix

An interesting combination?



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### A BIOFUEL ENTHUSIASTS' SOCIETY IN THE DYFI VALLEY?

- Grow our own?
- Recruit bored farmers
- Or import oilseeds, press them on a demo and hobby basis
- Wacky vehicles
  - Using bio-alcohol, bio-butanol
  - SVO modifications
- Methanol and charcoal, black-carbon sequestration
  - Trials with 'terra preta': does it work here?
- Trials and experiments to synergise biodiversity
- Recycling of sewage and other nutrients to fuel crops
- Competitions between systems
  - E.g. biodiesel and electric cars



### LOCAL PRODUCTION FOR LOCAL CONSUMPTION?

A worked example, regional community of 5000 households (Dyfi Valley)

USE SECTOR	CONSUMPTION LITRES PER YEAR
TRAINS	555,000
BUSES	305,000
TAXIS	80,000
CAR SHARE AT TYPICAL USAGE	750,000
<b>TOTAL</b>	<b>1,685,000</b>

### ENERGY CSA? SLOW ENERGY?

- Increasing reasons for reducing lengths of transport legs
- Personal relationships between farmers and their energy clients?
- Farmers could produce their own added-value products, some for their own use, some for sale



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### Projects in the pipeline

- Low energy building with photovoltaic array for post-16 Learning Centre in Machynlleth
- Wood-chip fuelled district heating for Dinas Mawddwy?
- Hydro serving 6 off-grid properties in forestry above Aberangell?
- Biomass-fired CHP for forestry enterprise using process waste
  
- ...imitations, developments
- ...pellet-making
- ...second-generation biofuels

