


Handouts of presentation: Transition Energy Planning in Penwith, by Charmian Larke, TP, UK



Transition Energy Planning 


Transition Energy Planning

actions so far in Penwith

Charmian Larke
April 2008

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


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

Transition Energy Planning 

TP Energy Group

Actions so far:


- Energy planning
- Series of talks RE and energy efficiency
- Energy Trail Open Day
- Presentation to Penwith DC Planning Department on peak oil and climate change implications
- Application to Big Green Challenge

Transition Energy Planning 

Transition Energy Planning Tasks:

1 Find out :


1. background to your region
2. local energy demand and supply
3. local renewable energy resources

Transition Energy Planning 

2 Decide the future you are planning for to aid scenario thinking


Issues such as:

- o how many people
- o what level of local food production & processing
- o what level of grid security over what % of area
- o how much imported fossil fuels
ie likely % of present demand

Transition Energy Planning 

- 3 Work through options and their implications
- 4 Prepare flexible plans
- 5 Start to implement ideas and plans

All these tasks are iterative.
Start some action in the right direction to give life to the whole process

Transition Energy Planning 

Background information for Penwith 1

Population	63,000	
sick or health not good	22,274	35%
permanently sick or disabled	3,440	5%
age 16-74	45,090	72%

Handouts of presentation: Transition Energy Planning in Penwith, by Charmian Larke, TP, UK

Transition Energy Planning

Background information for Penwith 2

Land use	ha	%
Domestic buildings	244	<1%
Non domestic buildings	135	<1%
Green space	27,850	90%
(agricultural land)	24,235	79%
Domestic gardens	929	3%
Total area	30,798	100%

Transition Energy Planning

Task 1: information sourcing

Penwith local energy demand and supply in GWh

	Commer & industry	Domestic	Transport	Total	%
coal	7	17		24	2%
oil, LPG	75	105	463	643	50%
gas	71	248		319	25%
electricity	122	175		297	23%
Total	275	545	463	1,282	100%

Transition Energy Planning

Renewable energy potential in Penwith

1 Electricity

GWh pa	MW	commerce GWh pa	domestic GWh pa	Total GWh pa
Present electricity demand	Av. 34	122	175	297
Hydro potential	0.72			3
Solar	3.1	9	12	21
Wind potential	174	58	3MW turbines	506
to meet present demand with wind	108	36	3MW turbines at 31% load factor	312

Transition Energy Planning

RE resource in Penwith:

Heat supply: example resource use in priority order

GWh pa	commerce	domestic	Total	% of demand
Heat demand from assumed coal/gas demand	78	265	343	100%
Solar heating potential *	30	93	123	36%
Ground source heat pumps**	15%	12%		
Gshp energy supply	12	32	44	13%
Requirement from biomass	36	140	177	51%

* assumes 30% of roof area
** assumes % which can be met

Transition Energy Planning

Wind Energy potential in Penwith

58 3MW turbines at 700m from houses

174 MW c 500 GWh pa

29 houses with potential noise above 36dBA

Transition Energy Planning

Wind energy potential in Penwith

Landscape Character Areas

Key to appropriate scales of wind turbine development

- single or 2-4 T
- 2-4 or 5-10 T
- 5-10 T

From Land Use Consultants Planning Guidance 2003

Every region will have similar documents

Handouts of presentation: Transition Energy Planning in Penwith, by Charmian Larke, TP, UK

Transition Energy Planning

Heat supply: biomass contribution after solar and gshp

	commerce	domestic	Total
Requirement from biomass GWh pa	36	140	177
Land required at 12 t/ha pa	712	2,921	3,633
% of farmland	3%	12%	15%

Transition Energy Planning

Fuel supply: biofuels

	Ethanol	Biodiesel	Total
Made from	Sugar beet	Oilseeds	
Requirement from biofuels GWh pa	232	231	463
Fuel needed tpa	30,933	22,476	
Fuel yield t/ha	12	1	
Land required ha	3,711	28,095	31,815
% of farmland	15%	116%	131%

Present transport demand 463 GWh pa

Transition Energy Planning

3 Implications of plans

- Land use issues
- Timeframes required
- Use of new technology?
- Do not assume any magic bullets in technology
- costs of implementation
- How to implement
 - » Socially
 - » Institutionally
 - » Planning
 - » Financing

Transition Energy Planning

3 Implications of proposed plans

Land use implications

Land use	ha	%
Agricultural land	24,235	100
Biomass	3,633	15
Ethanol	3,711	15
Biodiesel	28,095	116
Total energy needs	59,674	246
Food needs	25,700??	106
Gardens area	929	

Transition Energy Planning

Major questions:

- What scenarios are expected?
- What could be unexpected?
- How will land use decisions be made?
- What is the main aim of the Plan?