

## CAUSE 2003 Travel Overview

### Energy and Society: Industrial Revolution to Industrial Ecology

**Emergency Contact:** [Calling from UK] **0.7866.498.654**; and [Calling from USA] **011.44.7866.498.654**

#### **Outbound/Return Travel**

**Depart:** Baltimore-Washington International Airport. 8:45pm Sunday May 11<sup>th</sup>, 2003.  
Icelandair 642 Arrives Reykjavik. 6:25am Monday May 12<sup>th</sup>, 2003.

**Transit:** Reykjavik. 7:45am Wednesday May 14<sup>th</sup>, 2003.  
Icelandair 450 Arrives London Heathrow. 11:45am Wednesday May 14<sup>th</sup>, 2003.

**Return:** London Heathrow. 1:00pm Tuesday May 27<sup>th</sup>, 2003.  
Icelandair 451 Arrives Reykjavik. 3:00pm Tuesday May 27<sup>th</sup>, 2003.  
Depart Reykjavik 4:40pm Tuesday May 27<sup>th</sup>, 2003  
Icelandair 643 Arrives Baltimore-Washington. 6:40pm Tuesday May 27<sup>th</sup>, 2003

#### **Emergency Numbers**

My cell number in the UK is: [Calling from UK] 0.7866.498.654; and [Calling from USA] 011.44.7866.498.654. You may give this number and my e-mail to your family members as an emergency contact. It may also work during the period we are in Iceland (not sure?).

Alternatively, your family can contact Rhonda Stoner [[rqs8@psu.edu](mailto:rqs8@psu.edu)] or Karen Royer [[klr9@psu.edu](mailto:klr9@psu.edu)] at 814.865.7659. I expect to be in phone and e-mail contact with them, at [elsworth@psu.edu](mailto:elsworth@psu.edu). Finally, telephone numbers are given for the hostels – these would enable a message to be left for someone to call-back to the US.

#### **Clothing**

From the itinerary, you will get a feel for the kinds of activities we will undertake. Remember that we will be actively walking and in transit for much of the time, so wear comfortable footwear and clothes – perhaps not much different to what you wear on campus. Both Iceland and the UK have maritime climates and unpredictable weather. Average May temperatures in Iceland are 283K daytime highs, with mild nights down to 279K. Iceland is on the Arctic Circle, and has 17 hours of daylight in May (0400-2200). In the UK, mean May daytime temperatures are in the range 288K daytime to 280K overnight. Long pants, and polypro/fleece would be appropriate. Few people wear shorts in the UK, so if you want to blend in.....

We will be spending our overnights in hostels, usually with dormitory accommodation. The only secure location for baggage and valuables will be in the vehicles or on your person. A fanny-pack, or money belt is useful for your money and travel documents. I usually keep my passport in my front jean pocket – for the duration. It is sometimes useful to keep a **photocopy of your passport** in your baggage, and to leave one at home [on our last CAUSE trip, two students, on two separate occasions lost their wallets containing all their ID – one was lucky to recover it, one did not].

Other notes. Pack in soft bags, as these pack most easily in vehicles. Remember sunscreen, hat (sun), and sunglasses, if needed. Be able to dress in layers. Iceland will still be emerging from winter in May.

I plan to wear jeans, light hiking boots, shirt and fleece for most of the trip, and to bring swimming shorts, and a towel. Since we are not staying in hotels, **bring your own towel** to augment your toiletries.

#### **Passport**

You **MUST** have a valid passport. If you are traveling on a US passport, you will not need visas for either Iceland or the UK. See notes above about keeping your passport secure.

#### **Your Out-of-pocket Expenses**

We will pay for your accommodation (hostel fees), and for air and land travel. You will need cash for your meals and other incidentals. Most hostels will have self-catering facilities, and you will have the opportunity to pool resources to group-cook, should you wish.

#### **Miscellaneous**

Remember to bring a small notebook to keep a journal. One that fits into your pocket or pack may be most convenient. An ATM card or Visa/Mastercard/Amex/Diners will likely be the best method to transport cash. If you have any electrical gear, you will need an outlet converter. UK power is 240V, 50 Hz, and a three pin plug [we have a couple]. Most current 12-19V DC transformers accept both 240V/120V input.

You can purchase International direct-dial phone cards in the UK – at any Post Office and many newsagents.

If you bring a pocket knife (I recommend it. You can eat quite well, and inexpensively, on sandwiches, fruit, etc.) remember to pack it in your checked baggage.

## CAUSE 2003 Travel Itinerary

### Energy and Society: Industrial Revolution to Industrial Ecology

Key: Scheduled, Potential, and Canceled activities; [Sample background research](#); [Background researcher](#).

		Activity		Overnight	
May 11	Su		<b>Depart Baltimore for Reykjavik</b> Hertz conf # - C1544683661 Land Cruiser for Elsworth & Eser	Airplane	
12	M	<b>Arrive Reykjavik 6:25am</b> Hertz conf # -C15416638D0 – 2 Vans Iceland - <a href="#">Geology</a> Reykjanes peninsula - Mid-Atlantic rift  Kriuvik geothermal region: 0930 <a href="#">Svartsengi</a> power plant ( <b>Jen</b> ) Thorsteinn Jónsson Kynningarstjóri / Director of public relations Tel.:+354-422-5200 Private tel: 354-422-5650 Mobile tel: 354-840-5650 E-mail: thorsteinn@hs.is <a href="http://www.newenergy.is">http://www.newenergy.is</a> <a href="http://www.orkustofnun.is/IDDP/">http://www.orkustofnun.is/IDDP/</a> <a href="http://www.iceland.org/">http://www.iceland.org/</a> <a href="http://www.travelnet.is/journey/sv_rn/reykjanes.htm">http://www.travelnet.is/journey/sv_rn/reykjanes.htm</a> <a href="http://www.norvol.hi.is/~amy/rnes_fieldtrip.html">http://www.norvol.hi.is/~amy/rnes_fieldtrip.html</a>	<i>Teams Daedalian and Viking</i> Energy Audit for Reykjavik Hydrogen <a href="#">1 2</a> ( <b>Katie</b> )	<a href="#">Njardvik</a> 354.421.8889 Confirmed – \$762 for 2 nights.	
13	Tu	1030 <a href="#">Nesjavellir</a> geothermal plant ( <b>Jen</b> ) Júlíana Guðmundsdóttir Public relations Geysir geothermal field	0100 Hydroplants – <a href="#">1 2</a> ( <b>Lara</b> ) Irafoss 45MW hydroplant - <a href="#">R. Sog</a> <a href="#">Burfell</a> 270 MW - R. Thjorsa Thorsteinn Hilmarsson <a href="#">Landsvirkjun</a>		
14	W	<b>Depart 7:45am Reykjavik for London 11:45am</b> Crown Holiday Cars – LCH-49971 Sheraton Skyline, Bath Road, Heathrow Ph:(not from a mobile) 0800 018 0207 for pick-up  UK Background - <a href="#">1</a> <a href="#">British-Authors-Painters-Composers-Films</a> Authors: <a href="#">1 2</a> Energy: <a href="#">DTI</a> - <a href="#">UK Renewables</a> – <a href="#">Case Studies</a>  <a href="#">New &amp; Renewable Energy Enquiries Bureau - News</a> <i>ETSU, Harwell, Didcot, Oxfordshire</i> Tel: 01235 432450 Fax: 01235 433066 <a href="mailto:NRE-enquiries@aeat.co.uk">NRE-enquiries@aeat.co.uk</a>	<a href="#">Eversley PV</a> <a href="#">IT Power (Tel: 01256 392700)</a> <a href="#">Rolf Oldach, e-mail: rolf.oldach@itpower.co.uk</a>  0300 PV Applications Fred Treble, Farnborough <a href="mailto:fredtreble@freeuk.com">fredtreble@freeuk.com</a> 01252 542 037  Travel to Winchester	<a href="#">Winchester</a> 0870.770.6092 Confirmed	
15	Th	<a href="#">Southampton Geothermal Project</a> 1000a. West Quay opposite John Lewis. Mike Zorab, Heat Station Supervisor; Tel 02380 235 134  Eling Tidal Mill ( <b>Lauren K</b> )	<a href="#">Kimmeridge Bay Oil Field – Wytch Farm BP</a> (Morgan)  Somerset Market Towns – Street, Ilminster, Chard, Axminster (Kelsey)  Ilminster - <a href="#">Wind</a> (Josh) (Cudworth)	<a href="#">Dartington</a> 0870.770.5788 Confirmed - \$305	
16	F	<a href="#">Newcomen Engine, Dartmouth 1</a>  <a href="#">Kelbechan House PV</a> , Capton, Dartmouth - Client: Rob Adams  <a href="#">Hunter's Moon PV</a> , Totnes Devon.  Salcombe/Totnes tidal potential ( <b>Canute</b> )  Kingsbridge – <a href="#">Biogas-to-electric</a> ( <b>Amish</b> )	Bodmin – <a href="#">Wind</a> – <a href="#">Colliford Reservoir</a> ( <b>Lauren Z</b> )  Dartmoor – Clapper Bridge ( <b>Matt</b> )  <i>Teams Daedalian and Viking (All)</i> <a href="#">Energy Audit for Cornwall</a>  0300 Haydn Scholes Tel +44 (0)1209 717724 Mobile +44 (0)7050 646843 Director, Renewable Energy Group CSMA		

17	Sa	<p><i>Teams Daedalian and Viking</i>  <a href="#">Energy Audit for Cornwall</a> - Truro</p> <p>Cornish Mines and Engines  Camborne mine – flyash storage underground  Wheal Jane &amp; AMD spill  Pendeen Tin Mine museum  Tin mines &amp; tramway trails  Gwynnepp copper district and John Wesley  Wheal Martyn clay mines &amp; Eden Project</p>		<a href="#">Penzance</a> 0870.770.5992 Confirmed - \$690 for 2 nights. Reservation # 026544
18	Su	<p>Exergy Activity</p> <p>0100 Camborne HDR &amp; ABB  Andy Jupe  <a href="mailto:andrew.j.jupe@gb.abb.com">andrew.j.jupe@gb.abb.com</a> 01209-860141  Bob Pine <a href="mailto:r.j.pine@csm.ex.ac.uk">r.j.pine@csm.ex.ac.uk</a> 01209 714866</p> <p>Camborne Beam Engine</p> <p><i>Team Icarus</i>  Wind energy sites (Josh &amp; Brad)  Carland Cross</p>	<p>Travel to Bath</p> <p><a href="#">Marine Turbines – Micro-hydro</a>  Caroline Shoveller 01256 403120  (Lauren K)</p> <p><a href="#">Wimbleball Reservoir</a> (Lauren Z)</p> <p><a href="#">Westernzolyland Pumping Station</a>  (Kelsey)</p> <p><a href="#">Severn Barrage</a> (Rebecca)</p>	<p><a href="#">Bath</a>  0870.770.5688  Confirmed - \$447</p>
19	M	<p>National Canal Museum  Droitwich Roman saltworks</p> <p>SS Great Britain (Marielle)</p> <p>Clifton suspension bridge (Matt)</p> <p>Oldbury and Berkeley Nuclear Power Plants (Peter)</p> <p>Severn Bridge (Matt)</p>	<p>South Wales – <a href="#">1</a></p> <p>Risca</p> <p>Aberfan (Kelsey)</p> <p>Merthyr Tydfil (Marielle)</p> <p><a href="#">Blaenavon</a> (Marielle)</p> <p>Carew Tidal Mill (Rebecca)</p>	<p><a href="#">St. Briavel's Castle, Gloucs</a>  0870.770.6040  Confirmed - \$343</p>
20	Tu	<p><a href="#">Elan Valley Hydro</a> (Jen)</p> <p><a href="#">Centre for Alternative Technology</a></p> <p>Travel to Ironbridge</p> <p>Ironbridge World Heritage Site</p> <p>Iron and Steel Museum, Tile Museum, Tar Tunnel, Canal museum, Geology</p>	<p>Ironbridge World Heritage Site</p> <p>0300p-0500p Powergen Plant  Denise Smith 01952 435 509</p>	<p><a href="#">Cynwyd</a>  0870.770.5786  Confirmed - \$478  for 2 nights</p>
21	W	<p>North Wales – <a href="#">1</a></p> <p><a href="#">Dinorwig Pumped Storage Scheme</a>  (Lauren Z)</p> <p>Slate Quarries</p>	<p>Chirk Viaduct &amp; Llangollen Canal</p> <p><a href="#">Dolwyddelan Run-of-river scheme</a>  (Lara)</p> <p>Garnedd Pen y Bont, Dolwyddelan,  Gwynedd -Tyn-y-ddol River</p> <p><a href="#">Menai Straits Bridge</a> (Matt)</p> <p><a href="#">Parys Mountain copper mines</a></p>	

22	Th	<p>Shell Stanlow Oil Refinery</p> <p>Chester</p> <p>Canal Museum Port Sunlight (Kelsey) Albert Docks (Ferry ride) Liverpool maritime museum</p>	<p>Chester</p> <p>1500a Cumbria – <a href="#">Micro-hydro</a> – <a href="#">Wind-co-op</a> (Josh) <b>Annette Heslop of Bay Wind</b> Harlock Hill Wind Cluster, commissioned in 1997. Bought by the <a href="#">Bay Wind</a> community co-operative. Most of the £620,000 investment derived from small investors in the local area.</p>	<p><a href="#">Kendal</a> 0870.770.5892 Confirmed GBP 266 Breakfast pre-paid</p>
23	F	<p>Haverigg Wind Site</p> <p>Carlisle</p> <p><b>Need to split groups to do each of these?</b> 1. Sellafield Nuclear Reprocessing Plant? 2. Robert Owen – Lanark? (Kelsey) 3. Forth Rail Bridge? (Matt) <a href="#">Wavegen – Inverness</a></p>	<p>Blyth Offshore Wind (<b>Brad</b>)</p> <p>National Rail Museum - York</p>	<p><a href="#">Edmundbyers</a> 0870.770.5810 Confirmed GBP 171</p>
24	Sa	<p>Travel to Wakefield</p>	<p>National Coal Mining Museum – Wakefield</p>	<p><a href="#">Lincoln</a> 0870.770.5918 Confirmed GBP 179</p>
25	Su	<p>Spalding Energy Project</p> <p><a href="#">Alkane Methane Capture</a> Cameron Davies <a href="mailto:cdavies@alkane.co.uk">cdavies@alkane.co.uk</a> T 01623 827927 Edwinstowe House, High Street Edwinstowe, Nottinghamshire</p>	<p>Cambridge</p>	<p><a href="#">Cambridge</a> 0870.770.5742 Confirmed GBP304 Breakfast pre-paid</p>
26	M	<p>Travel to London</p> <p>Three Mills Tidal Mill (<b>Lauren K</b>) Thames Barrage (<b>Rebecca</b>) London bridges – Albert; Battersea; London; Millennium; Waterloo; Tower, etc. (<b>Matt</b>) Kew pumping station and steam museum National Gallery (Monets etc.) Post-war housing Tower Hamlets (<b>Kelsey</b>) BBC Mark Hedgecoe 011442087526558</p>		<p><a href="#">Hampstead Heath</a> 0870.770.5846 Confirmed GBP 387 Breakfast pre-paid</p>
27	Tu	<p><b>Depart London 1:00pm for Baltimore</b></p>	<p><b>Arrive Baltimore 6:40pm</b></p>	

## PARTICIPANT DELIVERABLES

### Pre-Trip

1. Review the Itinerary, inclusive of hotlinks, as an overview.
2. Research the background of your book. If it is fiction, research the details of the author – where and when they were born, lived and died, the geographic setting for the book, and its relevance to us as we travel. If it is biographical, understand the setting for the subject. If it is non-fiction, enjoy your read, and use your review to help us plan our activities. You may wish to enlighten us all, as we travel.
3. Complete background research for some of the venues (**as assigned in red**). In locales where we have a guide, this is less crucial. In locales where we do not, you should have enough information to be a resource for your peers – What do they need to know about the locale? How is it relevant to the theme of our course? Is there an historical significance or context? Where is it (geographically)? And in some cases, is there someone we should contact locally to find out more (do we have their phone number)? Is there something related that we should see, either in addition or in preference?
4. With our overnight accommodations now-finalized, make your final plans for your group or individual research activities. **Particularly note the days that are loosely scheduled, apparent in green**. We have the flexibility to accommodate your proposed interviews, filming, photography, and various forms of data gathering. All we need to know is... what... when... why... and where. We may also split the party, if desired (into a maximum of 2 groups, constrained only by the number of vehicles (two), and the reality that our nightly destinations are fixed). Some potential activities are probably apparent from the itinerary, and others will emerge. As ideas emerge, your team needs to propose these activities to the group.

### During-Trip

1. Keep a journal of your activities and observations, related both to your research and to our daily activities. We'll ask to review these journals in September. The journal that you keep as you travel will be adequate for this purpose, or you may choose to submit something else. Bring a notebook that you can comfortably carry in a pocket or pack.
2. On an assigned day, complete a brief electronic dispatch as a summary of that day's activities – it may be both text and photos. We will post these to our web-site, as feasible when we travel, and certainly upon our return. See some examples for prior CAUSE trips at [www.ems.psu.edu](http://www.ems.psu.edu).

Daedalian:	<i>Amish(Tu 13<sup>th</sup>pm), Jen(Sa24), Lara(Fr16), Katie(Mo12)</i>
Diapositive:	<i>Kelsey(Th15), Marielle(Mo19), Matt(Mo26)</i>
Canute:	<i>Lauren K(Su25), Peter(Th22), Rebecca(Su18)</i>
Viking:	<i>Duane(Tu13a), Eric(We14), Lauren Z(Sa17), Morgan(We21)</i>
Icarus:	<i>Brad(Fr23), Josh(Tu20)</i>

### Post-Trip (By July 1 or September 1)

1. Submit your final electronic dispatch for posting.
2. Submit your journal.
3. Update your research proposal (Objectives, Method, & Expected Results) in light of the impressions, knowledge, footage, and data you have gathered. Update your proposal with tasks already completed, and provide a plan for your individual and group activities for the Fall semester.

### Post-Trip (By September 1)

1. Upload your desired syllabus for the Fall semester, to the prescribed drop-box on the Angel website.

## WHAT YOU MIGHT THINK ABOUT AS WE TRAVEL

### Thought Exercises

1. **Reykjavik.** What are the current modes of energy supply in the city of Reykjavik. How does this mix for the city compare to the rural surrounding areas? Is the energy use sustainable? If so, are there analogs for other communities in other countries, or is this picture peculiar to its geographic setting? How has energy supply changed over time? What were the impacts of the industrial revolution in Iceland? What are Icelanders' knowledge and perceptions of energy production and consumption in their country, and overseas?
2. **Evaluate the total energy and power capacities for Iceland.** What are the major energy resources? How is the magnitude of this resource base quantified? How do potential power and actual electrical power outputs differ? What is the actual energy production, and energy potential for Iceland from its major energy resources? How does this compare with Iceland's needs? What economic or strategic opportunities or vulnerabilities exist for Iceland.
3. **Quantification.** How are the potential energy recoveries from wind, wave, tidal, geothermal, hydro, solar, fossil, and nuclear sources computed? Can we transform these simple quantifications into robust estimates of energy potential, as we visit various locales? What parameters do we need to know to make or to refine these estimates?
4. **Compare the energy resources available in the UK with those in Iceland.** What are the differences and similarities? What are the principal methods of energy conversion, at present, and proposed for the future? How do political, cultural and social conditions dictate favored methods of energy conversion, rather than available resources? How are these choices conditioned by the magnitude of the energy resource and reserve base? What are the relative magnitudes of the reserve-base and production of geothermal and hydropower energy in Iceland and the UK?
5. **Define optimal methods of energy production in the UK, by region.** How do current and future modes of energy production vary between regions. How distinct are the regions in their potential: Cornwall, S. Wales, the Midlands, N. England, etc.?
6. **Compare and contrast methods of energy production in Iceland and the UK, with those in the United States.** What are the similarities, and why? What are the major contrasts, and why?
7. **What are the broader impacts?** How has art, literature, music, history, politics, social organization, transportation, medicine, defense, the environment, and the built environment, been shaped by these agents? Phew!!
8. **Did we leave anything out?**

## COMMUNITY LIBRARY

- Acton, Bob. 2000. *Exploring Cornwall's Tramway Trails, Volume 2, The Coast-To-Coast Trail Portreath to Devoran -& Beyond*. Landfall Publications.
- Austen, Jane, edited by Vivien Jones. 2003. *Pride and Prejudice*. Penguin Books.
- Brontë, Charlotte, edited by Michael Mason. 2003. *Jane Eyre*. Penguin Books.
- Brown, Kenneth & Bob Acton. 1995. *Exploring Cornish Mines, Volume 2, Seven Guided Tours*. Landfall Publications.
- Christie, Agatha. 2002. *The Golden Ball and Other Stories*. St. Martin's Press.
- Dickens, Charles. 2001. *Hard Times*. The Modern Library, New York.
- Doyle, Sir Arthur Conan & Anne Perry. 2001. *Sherlock Holmes, The Hound Of The Baskervilles*. Signet Classic.
- Du Maurier, Daphne. 1999. *Jamaica Inn*. Avon Books, HarperCollins Publishers.
- Du Maurier, Daphne. 1967. *Vanishing Cornwall*. Penguin Books.
- Greene, Graham. 1998. *The Tenth Man*. Washington Square Press.
- Guthrie, A. 1994. *Cornwall in the Age of Steam*. Tabb House.
- Hardy, Thomas, edited by Rosemarie Morgan & Shannon Russell. 2000. *Far From The Madding Crowd*. Penguin Books.
- Hardy, Thomas, edited by Tim Dolin & Margaret Higonnet. 1998. *Tess of the D'Urbervilles*. Penguin Books.
- Marsh, Terry and Julie Meech. 1999. *Severn Way, The Longest Riverside Walk in Britain*. Futura Design.
- Shakespeare, William, edited by Stephen Orgel. 2000. *Macbeth*. Penguin Books.
- Shakespeare, William, edited by Peter Holland. 2000. *The Tragedy of King Richard the Third*. Penguin Books.
- Thomas, Dylan. 2003. *Dylan Thomas Selected Poems, 1934 – 1952*. New Directions Publishing Corporation.
- Trinder, Barrie. 1996. *The Industrial Archaeology of Shropshire*. Phillimore & Co. Ltd.
- Winchester, Simon, 2002. *The Map That Changed The World, William Smith and the Birth of Modern Geology*. Perennial, HarperCollins Publishers.
- Wordsworth, William, edited by Nicholas Roe. 1992. *William Wadsworth Selected Poetry*. Penguin Books.
- Map:  
*Worcester & Birmingham Canal with the Droitwich Canals*. 2001. GEO Projects.

## ENERGY INDEX

Mode	Iceland	United Kingdom
<b>1. Solar Energy</b>		
• Active		
i. Thermal	-	-
ii. PV	-	F'boro, Totnes, Dartm'th.
• Passive		
iii. Domestic/residential	-	-
iv. Industrial/commercial	-	-
<b>2. Hydropower</b>		
• River		
i. Generation	Irafoss, Burfell	-
ii. Pumped storage	-	Dinorwig
iii. Run-of-river – micro hydro	-	Winchester, Dolwyddelan
• Tidal power		
i. Barrage	-	Eling, Salcombe, Severn +
ii. Turbines	-	Lynmouth
• Wave power		
<b>3. Nuclear Energy</b>		
• Energy production	-	Sellafield
• Waste disposal	-	Sellafield
<b>4. Coal</b>		
	-	Ironbridge, Alkane
<b>5. Petroleum</b>		
	-	Wytch Farm, Kimmeridge
<b>6. Biomass</b>		
	-	Kingsbridge, Ironbridge
<b>7. Wind</b>		
• Large scale farms	-	Cornwall, Cumbria, Blyth
• Residential generators	-	Cudworth, Bodmin, +
<b>8. Geothermal</b>		
• Large scale		
i. Conventional	Svartsengi, Nesjavelir	Southampton
ii. Hot Dry Rock	-	Camborne
• Small scale – heat pumps	-	-
<b>9. Fuel Cells</b>		
	Reykjavik	-