Transition Plan Workshop
Towards a future of sustainable heating practices in Irish households

Trinity College Dublin | Long Room Hub | 11th October 2011

Consensus Team
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TCD Geography Department
Consensus all-Ireland research project

- **ConsEnSus**: Consumption, Environment, Sustainability
- Environmental Protection Agency (EPA) funded, 4 year project
- Trinity College Dublin & National University of Ireland Galway
- Consumption in Irish households

- SCRN – Sustainable Consumption Research Network
Participatory backcasting process & steps

**Backcasting:** Dreborg (1996) “normative” future visions

**Goal:** To design, explore and evaluate future visions integrating socio-technical innovations to develop transition plans for more sustainable home heating practices in Irish households

**Research Phases**

- 2050 Visioning workshop
- Scenario elaboration
- Scenario feedback (online)
- Scenario sustainability assessment
- Citizen-consumer workshops x3
- Transition Workshop
- Transition Plan consolidation

**Stakeholder Engagement**

**Back-office**
Energy consumption issues

- **Fossil fuel dominance**: import dependency (+90%)
- **Residential sector**: 25% of total primary energy consumption (NI 33%)
- **Space heating**: 60% - focus of Consensus research
- **Fuel poverty**: 20% (ROI) 34% (NI)
- **Inefficient housing stock**: 60% (ROI) and 90% (NI) fail to meet basic energy efficiency standards
- **Trends**: larger houses, fewer occupants, individualization, rebound effect
- **Climate change targets**: EU 20-20-20 | 90% reduction in emissions by 2050 (based on 1990 levels)
<table>
<thead>
<tr>
<th>Current response</th>
<th>Consensus approach</th>
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<tbody>
<tr>
<td>Fragmented</td>
<td>System innovation</td>
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<tr>
<td>Incremental improvements</td>
<td>Fundamental change</td>
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<tr>
<td>Simplified model of behaviour</td>
<td>Social practice theory</td>
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<tr>
<td>Efficiency</td>
<td>Sufficiency (limits)</td>
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<tr>
<td>Predict &amp; provide</td>
<td>Manage demand</td>
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<td>Short-termism</td>
<td>Long-term view</td>
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<td>Non-interventionist</td>
<td>Intervention &amp; regulation</td>
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<tr>
<td>Top down</td>
<td>Co-creation</td>
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<td>Growth</td>
<td>Wellbeing</td>
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(Key references: Kemp et al. 2006, Meadowcroft 2005; Shove, 2005; Seyfang, 2006)
Delivering warmth through time...

...In the future?
Visioning Question
What social, organisational and technological innovations might fulfill the NEEDS of home heating more sustainably in the year 2050?

1. **Community Core**: high levels of cultural change with reductions in home space & community biological heating sources

2. **Carbon Control**: tighter regulation combined with the engagement of householders in energy management through smart technologies and renewable energy generation.

3. **Heat Layer**: high levels of technological change – advancement bioclimatic architecture complemented by direct body heating solutions.
2050 Vision sample (Community Core)

- **Internal modularisation**: Householders easily add/adjust room size to maximise efficiency of space heating.
- **Communal recreational spaces**: Compensate for smaller house size & reduces overall energy consumption.
- **Green works**: Voluntary eco-responsibility courses on DIY, GIY, upcycling and core maintenance. Participants awarded eco-points.
- **Biological core**: Fed by households with waste/algae/organisms, produces biogas to power heating.
- **Biological district heating**: for homes that cannot be retrofit with biological core.
- **Regulation of space**
- **Insulating paint**: in key living rooms.
- **Cosy/durable clothing**: popular in cold weather (inside home and at work).
- **Shared facilities**: e.g. shared equipment in basement. Low VAT for group purchasing.
From 2050 visions to “Promising Practices”

Promising Practices:
- Combine innovations from the three visions
- Take into account results of sustainability assessment & public feedback
- Permit focused development of Transition Plan

1. **Shaping our energy use** – building fabric solutions
2. **Adapting thermal comfort** – personal changes
3. **Managing carbon** – consumption within limits
2050 Vision sample (Community Core)

**Internal modularisation:**
Householders easily add/adjust room size to maximise efficiency of space heating.

**Communal recreational spaces:**
Compensate for smaller house size & reduces overall energy consumption.

**Biological core:**
Fed by households with waste / algae / organisms, produces biogas to power heating.

**Biological district heating** for homes that cannot be retrofit with biological core.

**Insulating paint in key living rooms.**

**Regulation of space**

**Green works:**
Voluntary eco-responsibility courses on DIY, GIY, upcycling and core maintenance.

**Adapting thermal comfort**

**Cosy / durable clothing:**
Popular in cold weather (inside home and at work).

**Shared facilities:**
e.g. shared equipment in basement. Low VAT for group purchasing.

**Managing carbon**

**Participants awarded eco-points**
The aim of today’s workshop is to use the ‘Promising Practices’ as a basis for which to develop a long-term Transition Plan for sustainable heating.

The Transition Plan should contain recommendations for policy, educational and business measures.
In the year 2050… “My new home is fully equipped with the latest **space adjusting interior** and is encased in a beautiful ‘**second skin**’. This is a permeable outer membrane that maintains a comfortable, healthy indoor temperature. Many of my friends’ old homes have also been retrofit with these features. I’m lucky enough not to have to use heating at all. My **space is a bit tighter but communal spaces for socialising and eating compensate for this**”

- **Home ‘second skin’**
  - Ventilation membrane for passive heating & natural cooling (bio-climatic architectural principles)
  - Intelligent façade & solar cells for generating electricity
- **Adaptable internal space / modular home units**
  - Modification of space according to number of occupants (long / short-term)
  - Reduction in home floor size.
- **Compact communal living**
  - Increase in shared spaces and live-work spaces to reduce overall energy use
Shaping our energy use – Today

What’s mine is yours

Solar Ivy

Space-saving Hong Kong flat

Architect Gary Chang has found a novel way to create space with sliding wall units and fold-away furniture.

- Fold-up bed: Sofa appears in place when bed put away.
- TV wall:
- Main windows: With pull-down projector screen for movies, Sepia tinted windows for sunlight effect.
- Refrigerator: Laminated worktop, minibar.
- Bath: Spare bed covers bath when not in use.
- Washing machine.
- CD rack.
- Toilet.
- Entrance.
- Shower: Doubles as steam room.
- Cabinet: Contains control system for aircon etc.

Size: 32 sq metres
Value of flat: HK$1.3 million.
Adapting thermal comfort – personal changes

In the year 2050… “we’re actively engaged in adjusting our personal temperature and the energy use of our homes. I keep cosy through a combination of additional layers or by activating my ‘smart-vest’. I maintain tight control over energy use through checking room temperature indicators and actively adjust space heating and all our appliances”.

- **Cosy clothing**
  - Warmer, ‘practical’ clothing accepted at home and at work
  - Awareness and educational campaigns on behavioural adaptation strategies
- **Smart vest**
  - Provides direct on-body heating
- **Heating controls & energy monitor**
  - Enhanced controllability of indoor temperature & appliances
  - Live electricity grid information permits smart use
Japan ‘Super Cool Biz’ campaign urges businessmen to shed suits & save energy

Environment Minister Yuriko Koike holds up a panel showing how to wear a suit fashionably without a necktie at the Environment Ministry on Wednesday.

Adapting thermal comfort – Today
In the year 2050… “I keep a tight rein on my carbon quota. It’s easy to do this as every time I use energy to heat my home or I purchase any product / service I can see the exact environmental costs associated. I make great savings from being careful about my consumption and I’m rewarded for keeping within my carbon budget”.

- **Individual carbon quotas**
  - Shapes how people use energy in their home and all their other resource consuming activities (purchase of products, use of services)
  - Sale of excess credits

- **Carbon transparency**
  - Labeling / ICT for consumers to allow smart choices

- **Consumption rewards & visibility**
  - Publicising consumption levels
  - Individual & community rewards for low carbon use
Managing carbon – Today
Transition Plan potential measures

**People**
- Education
- Community initiatives
- Social marketing
- Information & consumption visibility

**Policy**
- Binding targets
- Design regulations
- Planning legislation
- Subsidies / grants
- Eco-taxes

**Technology / Business**
- Product development
- R&D plans
- Voluntary codes of practice
- Demonstration projects
- Investment

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Brainstorm!

What policies, educational initiatives, business & technology plans could help pave the way to the ‘Promising Practices’ of sustainable heating use in Ireland?

3 sub-groups
1) Shaping our energy use – building fabric solutions (green)
2) Adapting thermal comfort – personal changes (pink)
3) Managing carbon – consumption within limits (orange)

Timing
Start: 11:00 | Finish: 12:15 | 20 minutes in each sub-group

Rules
1. Unusual ideas welcome
2. Quantity of ideas favoured
3. Limited criticism
4. Combine ideas
## Transition Workshop Tuesday 11 October

<table>
<thead>
<tr>
<th>TIME</th>
<th>ACTIVITY</th>
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<tbody>
<tr>
<td>10:30</td>
<td>Introductory presentation</td>
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<tr>
<td>11:00</td>
<td><strong>Promising Practice brainstorm</strong> – 3 sub-groups</td>
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<tr>
<td></td>
<td>1. Managing carbon – consumption within limits <em>(orange)</em></td>
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<tr>
<td></td>
<td>2. Shaping our energy use - building fabric solutions <em>(green)</em></td>
</tr>
<tr>
<td></td>
<td>3. Adapting thermal comfort <em>(pink)</em></td>
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<td>- 20 minutes in each group, then attendees re-shuffle</td>
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<td>12:15</td>
<td>Lunch</td>
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<td>12:40</td>
<td><strong>Transition Path</strong></td>
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<td>- 3 subgroups</td>
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<td>- Development of timeline to 2050 – key ‘actions &amp; actors’</td>
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<td>13:20</td>
<td><strong>Evaluation</strong></td>
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<td>- Feedback on research and workshop process</td>
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<td>13:30</td>
<td><strong>Event close</strong></td>
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Transition Path – Key actions & actors

Goal:
Elaborate key measures
Plot over time
Identify barriers, enablers, actors

Timing: 12:40 – 13:10

<table>
<thead>
<tr>
<th>Short-term (2020)</th>
<th>Medium-term (2030)</th>
<th>Long-term (to 2050)</th>
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<td>- Key ‘Measures’ &amp; ‘Actors’ over time.</td>
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Thank You!

Please complete the ‘evaluation form’ before leaving
(Takes c. 5 minutes)