

## Mapping Ireland's Energy Pathways: Characterizing and Catalyzing Transition

Curry, R., Ellis, G., Barry, J., & Hume, T. (2016). Mapping Ireland's Energy Pathways: Characterizing and Catalyzing Transition. Paper presented at 3rd Energy and Society Conference, Leipzig, Germany.

### Queen's University Belfast - Research Portal:

[Link to publication record in Queen's University Belfast Research Portal](#)

#### Publisher rights

Copyright 2016 The Authors

#### General rights

Copyright for the publications made accessible via the Queen's University Belfast Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

#### Take down policy

The Research Portal is Queen's institutional repository that provides access to Queen's research output. Every effort has been made to ensure that content in the Research Portal does not infringe any person's rights, or applicable UK laws. If you discover content in the Research Portal that you believe breaches copyright or violates any law, please contact [openaccess@qub.ac.uk](mailto:openaccess@qub.ac.uk).

# Mapping Ireland's Energy Pathways: Characterizing and Catalyzing Transition

Robin Curry. Queen's University  
Belfast



**CC Transitions**  
**Catalysing and Characterising**  
**Transitions**  
**A project funded by the Environmental**  
**Protection Agency Ireland**

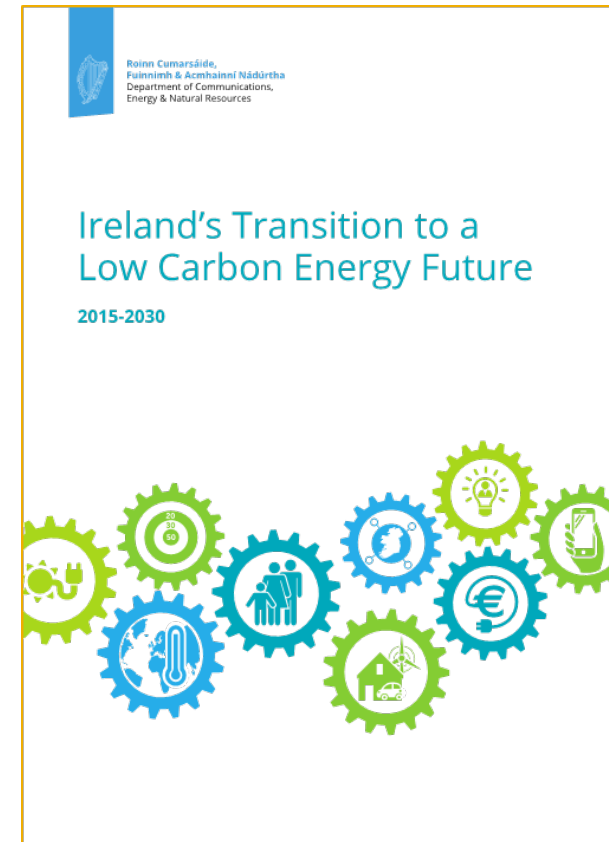
# Catalysing and Characterising Transition

- 18 month (mostly) desk-based study at Queen's University Belfast funded by the Irish Environmental Protection Agency (EPA).
- Core Aim: to *develop an analytical framework through which to direct and integrate further research on advancing energy transition in Ireland.*
- Approach: series of working papers examining theory and international experiences ( policy and technologies), and pilot case studies providing an exploration of the use of different framings of transition in an Irish context.

# Policy Context: Energy White Paper (2015)

“Our vision in Ireland is equally clear and equally ambitious. We will **transform Ireland's energy production and consumption patterns** so that, by 2050, our system is largely decarbonised.” Alex White, Oct 2015 (emphasis added)

“The ambitious energy transition outlined in this document requires the **active engagement of Ireland's citizens, communities, businesses, academics and experts**, and local and national State agencies. It will also require better public awareness of the nature and scale of the challenges we face, and a robust consensus about the broad policy measures required to meet those challenges.”  
(DCENR 2015:7)



Wind Energy in Ireland:  
Building Community Engagement  
and Social Support

No. 139 July 2014



An Chomhairle Náisiúnta Eacnamaíoch agus Shóisialta  
National Economic & Social Council

# Conceptualising Society-Wide Energy Transition

How can we frame a complex and dynamic energy system in a way that enables catalysts needed (to drive) or capacities needed (to enable) society-wide transformative change to be identified, thus informing policy?

- Need to consider:
  - Energy as a socio-technical system (governance, innovation, economy behavioural change....);
  - The deep inter-linking of the energy system with other societal systems;
  - A complexity of actors and sectors, operating at multiple levels;
  - Long term dynamics and a need to steer *not* control;
  - Dangers of conceptually mapping very complex systems...

# Perspectives



- 1. Multi-level Perspective** : used as a broad frame at a national scale to identify landscape forces, characterise regimes and identify key niche experiments (Rotmans and De Haan 2011, Franzeskaki and De Haan 2009, Smith and Raven 2012).
- 2. Technological Innovation Systems** ('systemic instruments') : used to examine barriers and opportunities in the development of particular 'niche' technologies in more detail (Wieczorek and Hekkert 2012)
- 3. 'Transformation System Failures'** used in reflection on findings to identify and benchmark capacities needed to engender transformation (Weber and Rohracher 2012).

# Methods

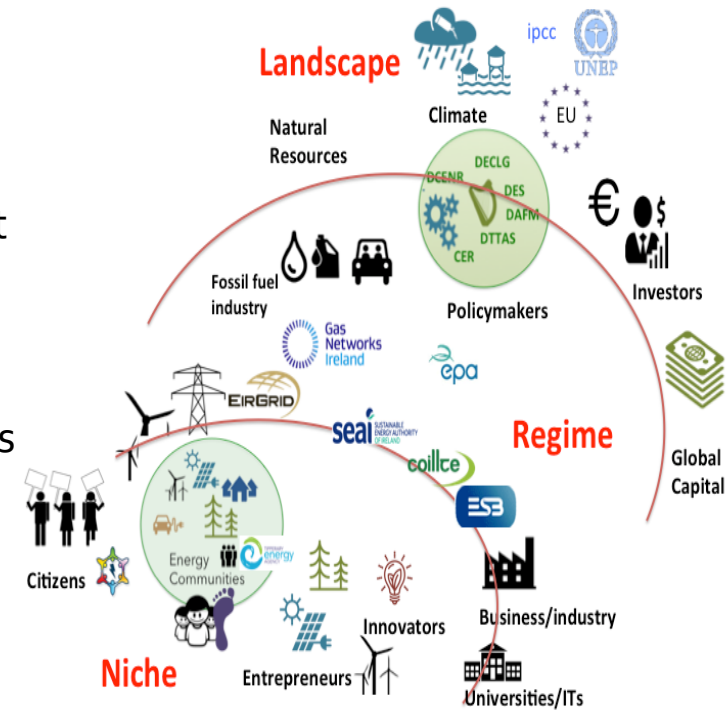
- **Data sources:** Academic and 'grey' literature, including EU and national policy documents and reports, websites, events, 12 interviews (policy makers, industry actors, social activists), 2 workshops.
- **Workshops** involved structured discussions using questions and insights derived from perspectives used. These served as pilots to both collect data and as fora for networking and knowledge exchange.

# Applying the Multi-Level Perspective to the Irish Energy System

**Energy transition** : emergent result of changes in dominant structures, cultures and practices of the **energy regime**

Multi-level **processes of transformative change** including technical, cultural, social, economic, political, behavioural (collective and individual) elements.

- **landscape** forces-differing levels of influence at different times- e.g.compliance with EU legislation, highly vulnerable to oil prices, economic shocks, Brexit etc.
- **Regimes** 'lock in' to less sustainable technologies and practices through path dependent structures, worldviews and habits- consumerism, transport, planning,
- **Niche-regime** - 'big wind' energy in the electricity system, with significant regime adaptation to incorporate this - though this has raised social acceptance issues.
- **Niches** 'protective space' for innovative social and technical experiments – electric vehicles, bioenergy, community energy, micro-grids, novel business models, ecovillages, social change movements etc.





# Technological Innovation Systems (EV, Bioenergy)



EVs slow to diffuse (mainly) due to user acceptance issues.

## TIS functions

entrepreneurial activities  
knowledge development,  
knowledge dissemination  
guidance of search  
market formation  
resources mobilisation  
creation of legitimacy



Biomass for heat – slow to diffuse due to policy uncertainties. Lack of DH infrastructures. Barriers to grid access.

'Systemic Instruments Approach' - Actors, Infrastructures Institutions, Interactions  
(Wieczorek and Hekkert 2012)



# Transformation System Failures

(Weber and Rohracher 2012)

## **Directionality:**

An emerging vision but constrained by trust, awareness and a governance capacity for participation

## **Reflexivity:**

Some important experiments, (People's Energy Charter, Cultivate), but disengaged from state activity, requires more focussed process

## **Policy Coordination:**

*Largely in silos, sometime contradictory (expansion of Agri-Food industry), poor policy mix.*

## **Issues identified included:**

- Social Acceptance
- Lack of Awareness
- Need for vision, conversation
- Lack of Trust, need for trusted information
- Energy security and future demands on the system
- Energy equity
- Sustainability, Climate Justice
- Policy delays
- Policy coordination



Created by James Featon from Swan Project



Created by gillies Project



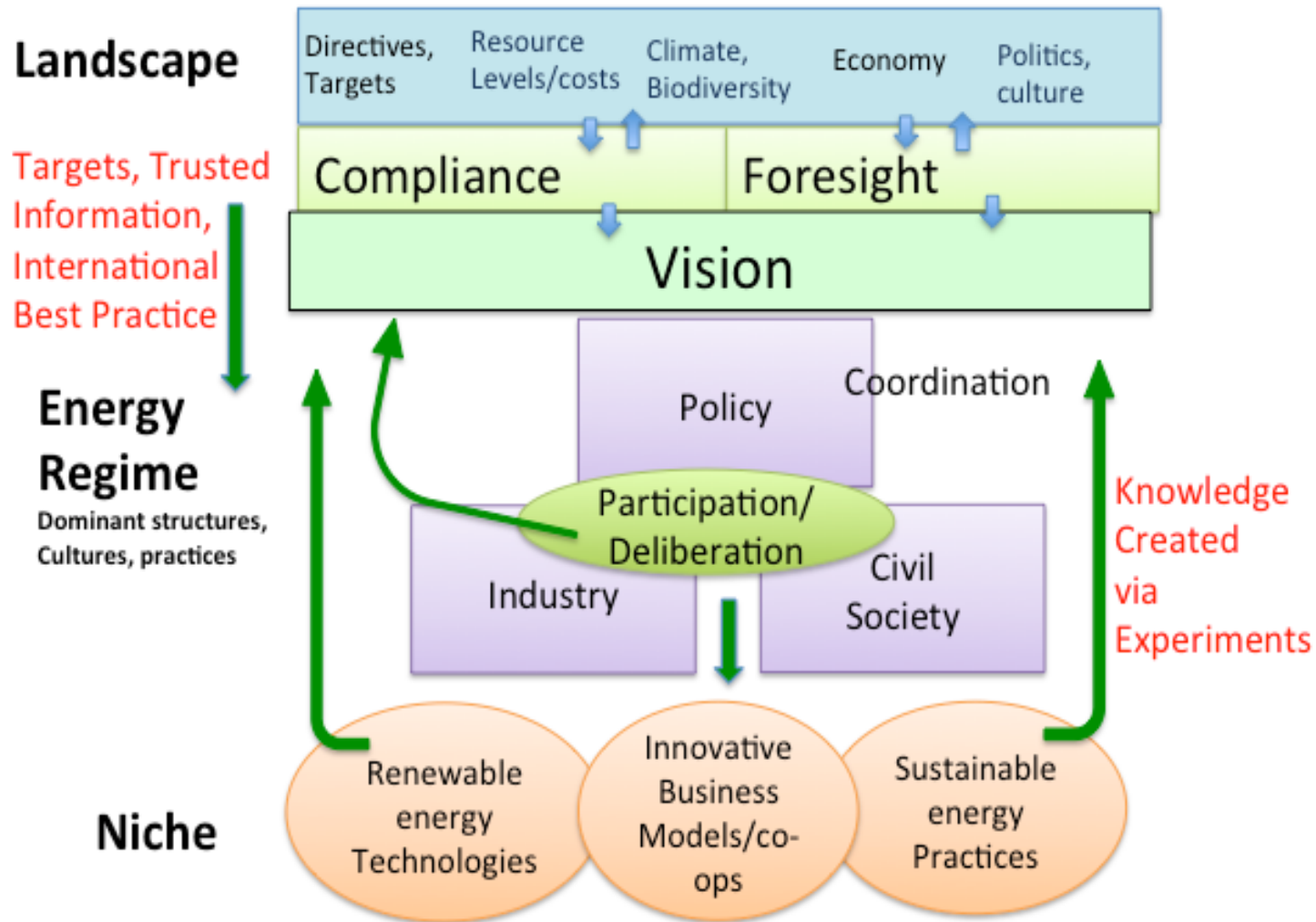
Created by Benjamin Martin from Swan Project

*Reflecting – Envisioning - Learning – Networking – Mobilising - Persuading*

# Emerging Criteria for designing benchmarking to catalyze transition at National, Regional or Community level

- Benchmarking should be viewed as a **reflexive process**. Reflexivity (reflection and adjustment if necessary) should be built into processes i
- Benchmarking processes should exist for use at different **scale levels**
- These can be used to construct (or can incorporate), an **orienting vision**, based on a set of core values.
- Processes used for setting benchmarks should involve the **deliberative engagement** with multiple stakeholders/actors<sup>5</sup>.
- Both **qualitative and quantitative** benchmarks are important.
- Qualitative or quantitative Indicators, including **metrics and/or rubrics** (to indicate best practice) that will indicate whether benchmarks are being realised can also be set.

# Mapping Capacities for Irish Energy Transition. An Analytical Framework?



# Conclusions:

- TIS- systemic instruments : useful for “finer grained’ assessment of particular TIS and for identifying where data may be needed to monitor change processes.
- Technical/market-based focus shifts emphasis from social practices and a more holistic approach to addressing problems.
- MLP- useful as a frame to demonstrate dominant landscape forces and persistent problems in interlinked regimes.
- Exploring niche dynamics provides exemplars of change processes –catalysts, capacities, ideas - as well as obstacles
- ‘Transformation System Failures’ aid in evaluating /identifying capacities for system transformation (foresight, direction, co-ordination, reflexivity, participation)
- Project now being finalized with recommendation for research, policy and an agenda for a national transition process.

Thank you, any questions?



E-mail: [r.curry@qub.ac.uk](mailto:r.curry@qub.ac.uk)

*Project website:*

<https://www.qub.ac.uk/research-centres/TheInstituteofSpatialandEnvironmentalPlanning/Impact/CurrentResearchProjects/CCTransitions/>