EDRC
Energy Demand Research Centre

Exploring the social mandate for reducing energy demand

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Oxford Energy Network

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Coming to you from…

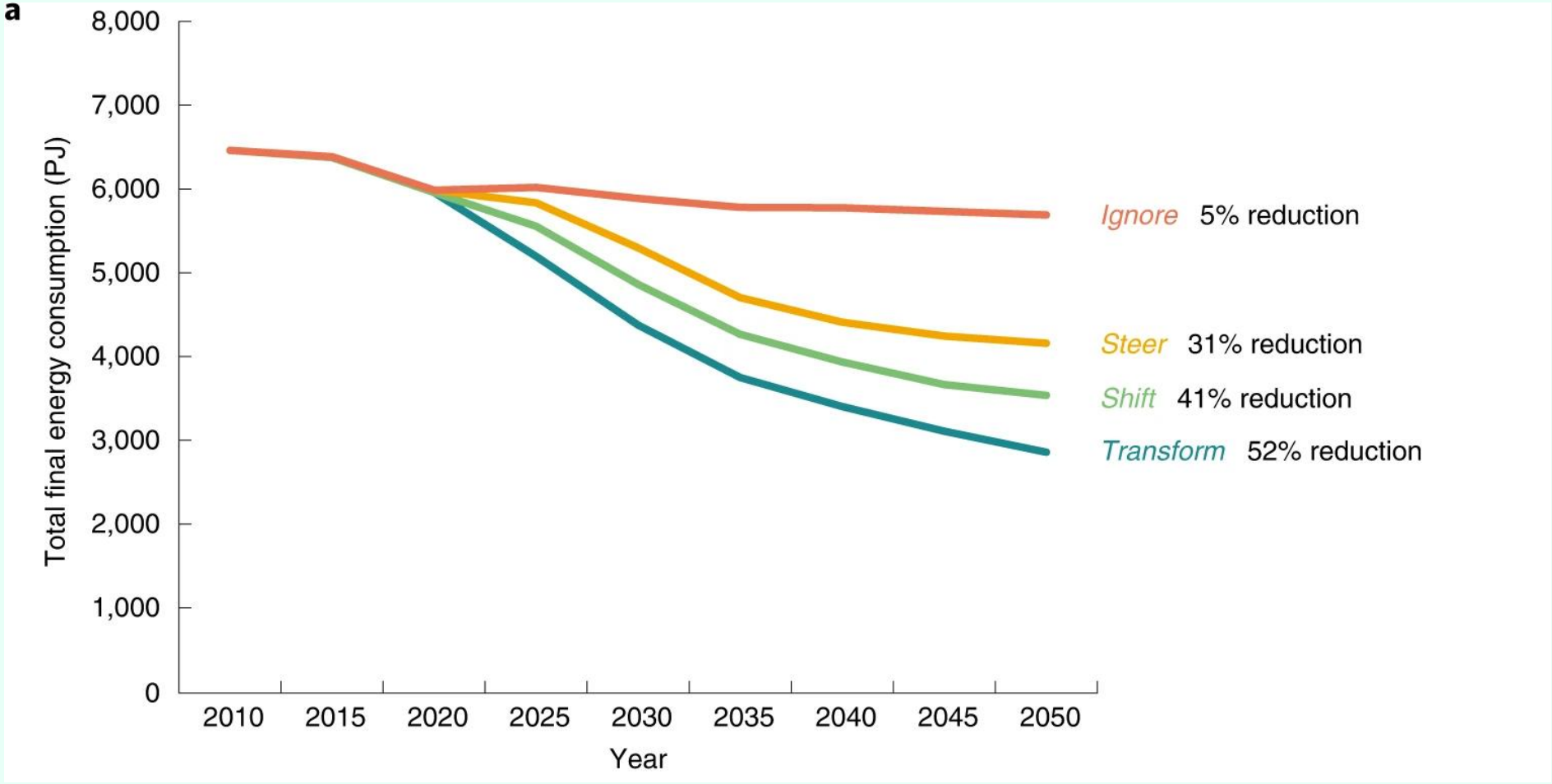
- **Climate Citizens**: meaningfully involving people in the transition to a low carbon economy

- **Tyndall Centre**: socially impactful and policy-relevant interdisciplinary research on climate action

- **EDRC**: addressing the unique opportunity to realise benefits from energy demand reductions in industry, businesses, transport and homes…

  …exploring the delivery of integrated technological and social change to rapidly reduce emissions and improve quality of life.

CREDS Positive Low Energy Futures model – technical possibility



Barrett et al. (2022). Energy demand reduction options for meeting national zero-emission targets in the United Kingdom. https://doi.org/10.1038/s41560-022-01057-y

So, what *could* a low-energy future look like?

better health

less waste

warmer homes

lower costs

cleaner air

energy security

stronger communities

safer streets

new opportunities

Our Energy Futures citizens' panel

Over two years, 40 people took part in the Our Energy Futures citizens' panel.

They broadly reflected the UK population across age, gender, ethnicity, disability, occupation, political views, climate concern, and whether they lived in rural or urban areas.

Panel members heard balanced evidence on a range of topics and took part in facilitated discussions, **drawing conclusions informed by evidence and their own values and experiences.**

Deliberative research:

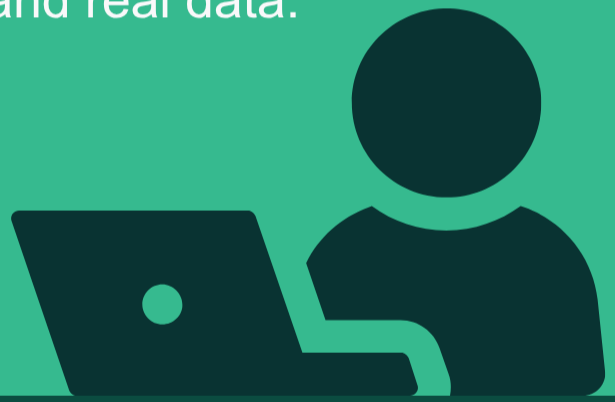
- Representative selection – "mini-publics"
- Learning, questioning & reflecting
- Deliberation – changes, motivations, barriers, **conditions**
- Conclusions

Climate Assemblies:

- ~30 in UK
- ~220 in Europe

Citizen-led energy scenarios

Our approach then combined public deliberation with computer modelling to create “citizen-led scenarios” — possible futures shaped by people’s views and real data.



58%

of the panel thought this level of energy reduction was about right,

16%

thought it went too far

26%

wanted it to go further

In the final scenario, UK energy use fell by **37% and greenhouse gas emissions by ~82% between 2025 and 2050.**

Compared to PLEF Transform scenario of 45% reduction between 2025 - 2050

Most panel members supported changes to everyday life to reduce energy use and emissions including how we →

heat our homes

Widespread shift to **heat pumps and other low-carbon heating**

Phase out new gas boilers **by 2035**

Insulate existing homes with minimal disruption and build new homes to higher standards

More flexible tariffs, while protecting people with inflexible energy use

get around

Better integrated, affordable and reliable public and shared transport

Transport solutions tailored to the **needs of places and communities**

Reversing the trend towards larger cars

Limit growth in flying without unfairly disadvantaging lower-income people

buy products

Buying less but better, saving money, space and waste

Products designed to last, and to be reused, repaired and remade

Share and hire infrequently used items

Develop community initiatives such as repair cafés and car clubs

eat food

Reduce the total amount of **red meat and dairy** eaten in the UK

Individual **diets continue to vary** widely and freely

Eating habits **change slowly over time**

Build local food **communities**

Reform farm subsidies and **reduce food waste**

get to net zero

Prioritise electrification and **clean electricity**

Reduce energy demand through social and technological change

Avoid relying on unproven technologies to remove greenhouse gases from the air

Big increase in **tree-planting**

providing their conditions were met.

Conditionality – example: What we buy

5 opportunities:

- Car clubs
- Journey sharing
- Longer-life electronics
- Buying and using clothes better
- Libraries of things

Product-based – very popular

Car-based – very unpopular

5-stage deliberative-modelling process

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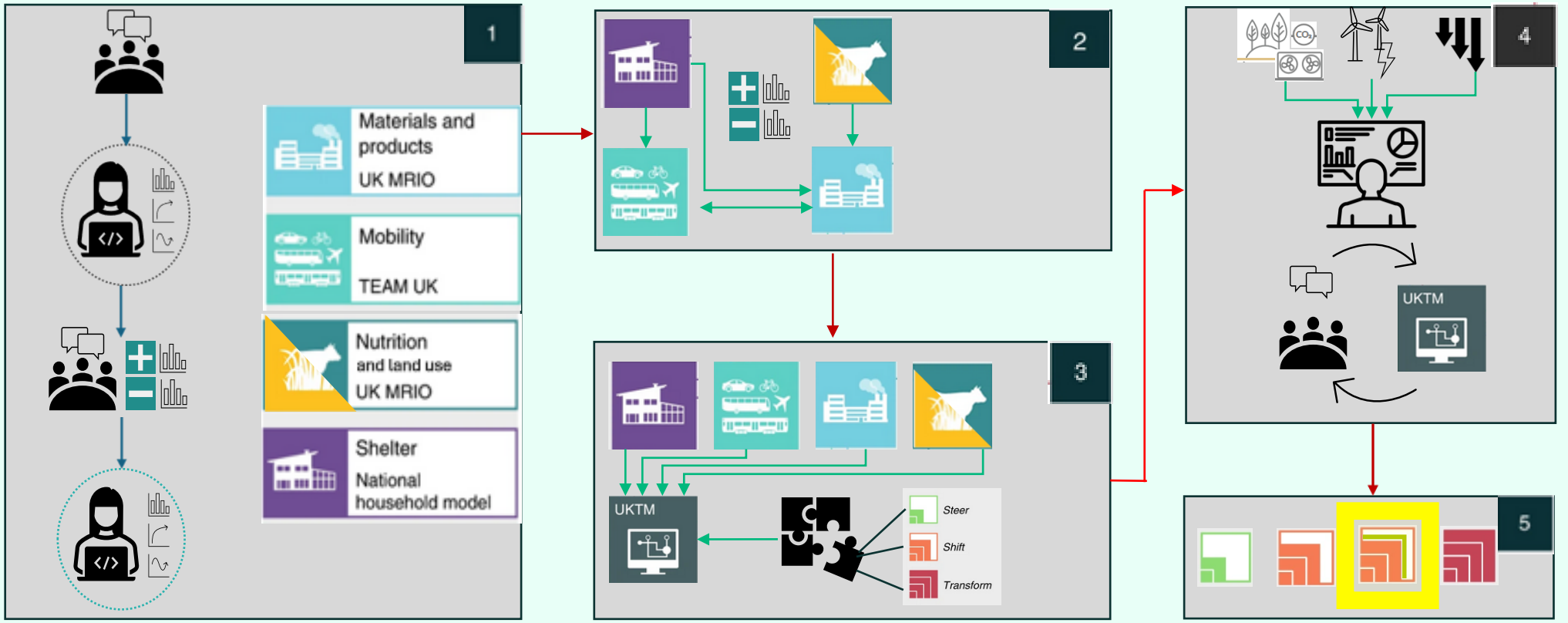
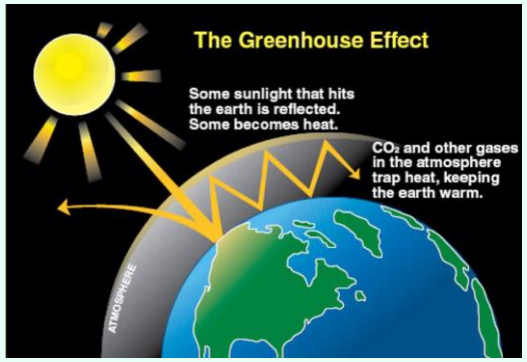
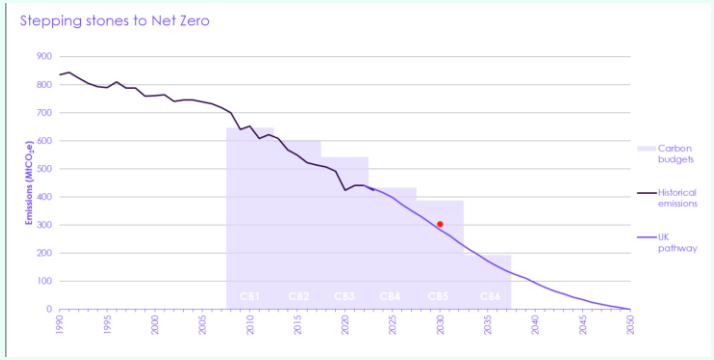
1. Sector specific panel discussions iteratively inform sectoral modelling to derive "more / less" change future pathways.
2. Inter-linkages between sectors are checked
3. Panel views integrated to central modelling. All "other" sectors rely on PLEF
4. Panel discuss electricity supply and CDR implications of six whole-system scenarios at different levels of EDR ambition
5. Final modelling iteration derives panel scenario between PLEF Shift and Transform levels of change



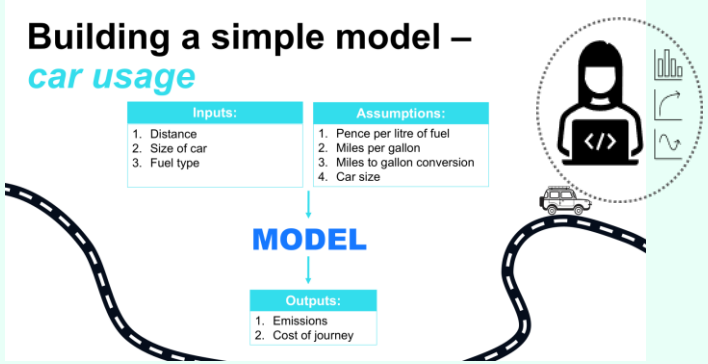
Stage 0 – Introduction



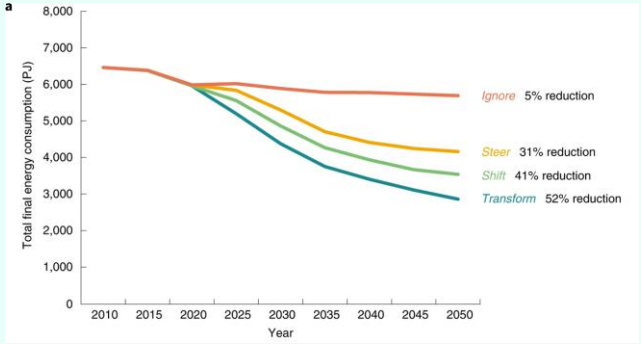
Climate science and impacts



Carbon targets and budgets



Modelling and scenarios



The Positive Low Energy Futures model

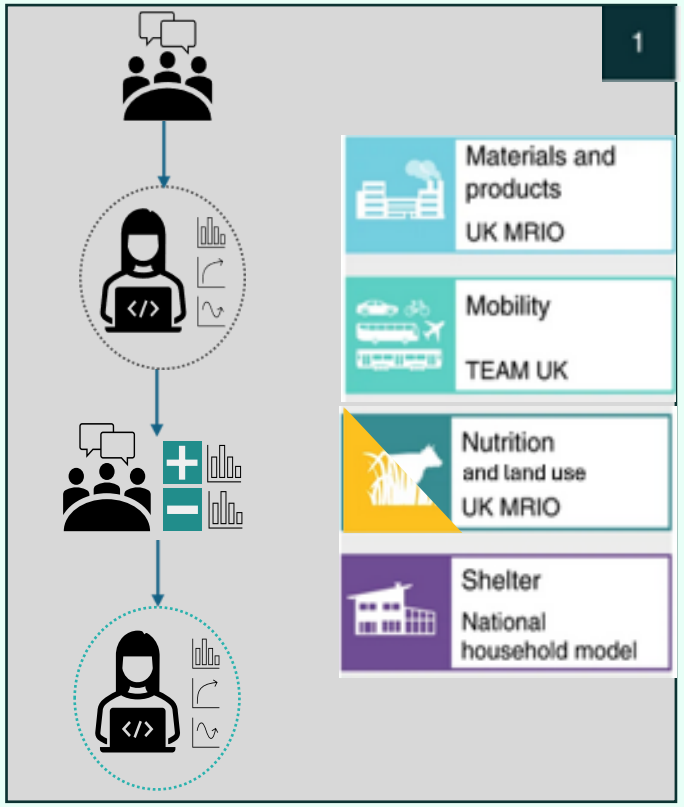
Key sectors

The deliberative process & panel focus

Stage 1

- 4 sector-specific ‘blocks’
  - What we buy
  - How we get around
  - What we eat
  - How we heat our homes
- Deliberative process
  - Evidence - questioning & reflection
  - Deliberation
    - What type of changes members support
    - Motivations and barriers
    - **Conditions** underpinning support
  - Conclusions – voting, ranking, prioritising
- New scenario modelling – more and less change
- Review and feedback
- Scenario refinement

1. Sector specific panel discussions iteratively inform sectoral modelling to derive “more / less” change future pathways.



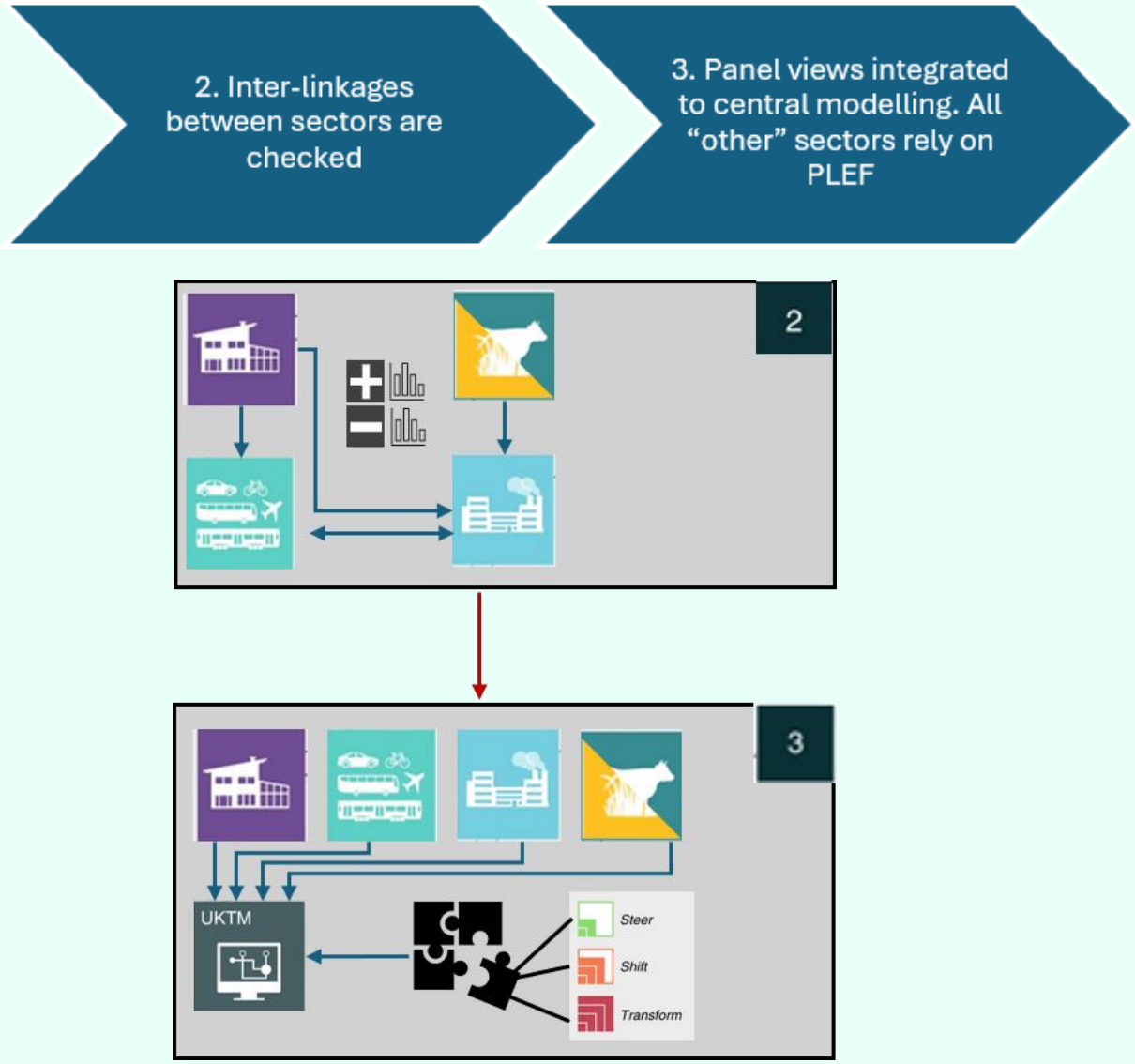
Stage 2 & 3

- Interactions between sector models checked
- 6 new scenarios generated in whole energy system model (UK TIMES)

Panel More and Less Change

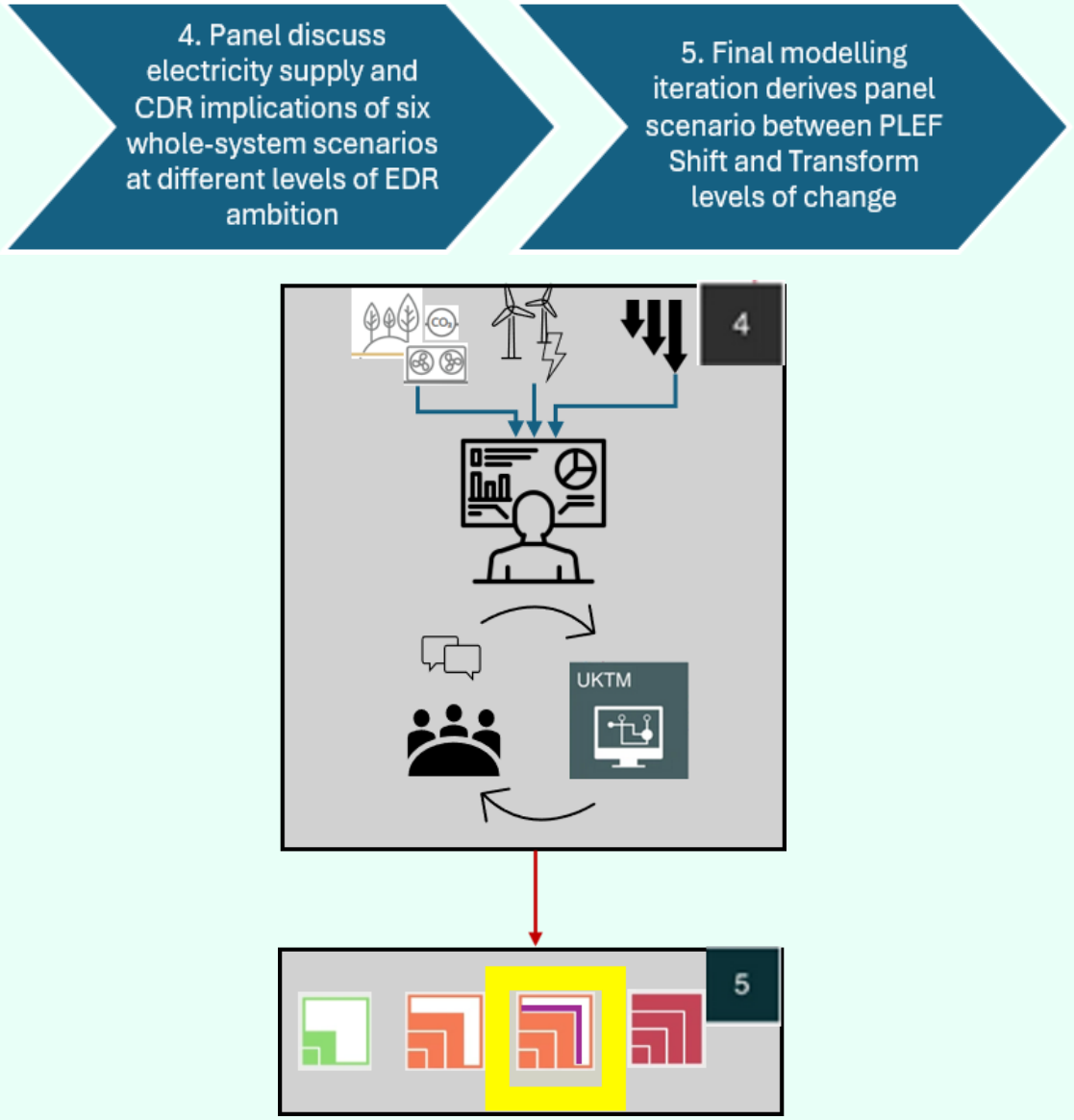
+

PLEF *Steer, Shift* and *Transform* scenarios: ‘background assumptions’



Stage 4 & 5

- Three ‘pillars’ of net zero
  - Energy demand reduction (EDR)
  - Clean power supply
  - Carbon dioxide removals
- Dashboard https://ourenergyfutures.org/
- Deliberation: trade-offs between and within pillars at different levels of EDR
- New scenario modelling
- Review and feedback
- Final panel-led scenario



Citizens' Panel Scenario

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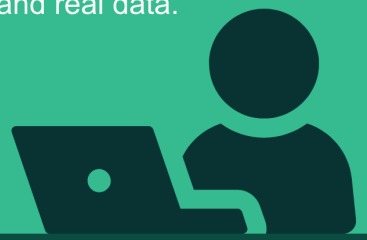

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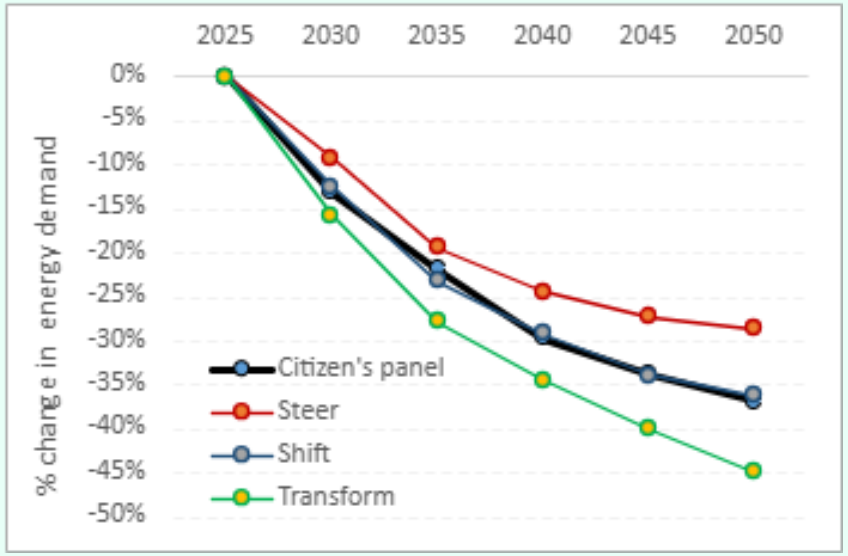
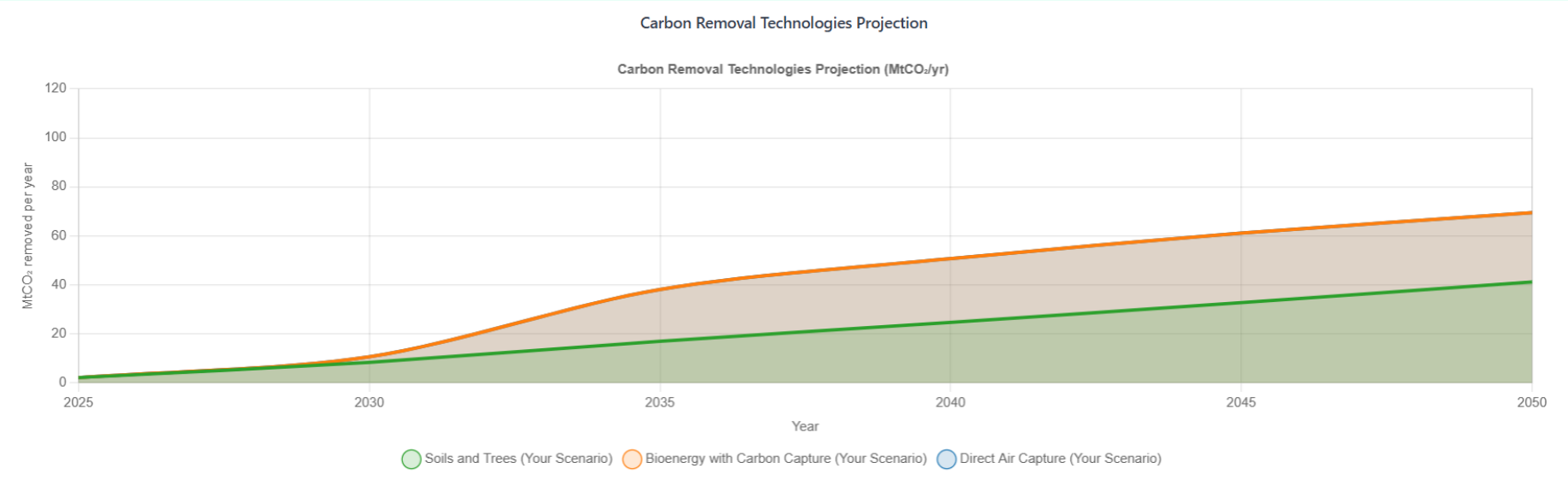
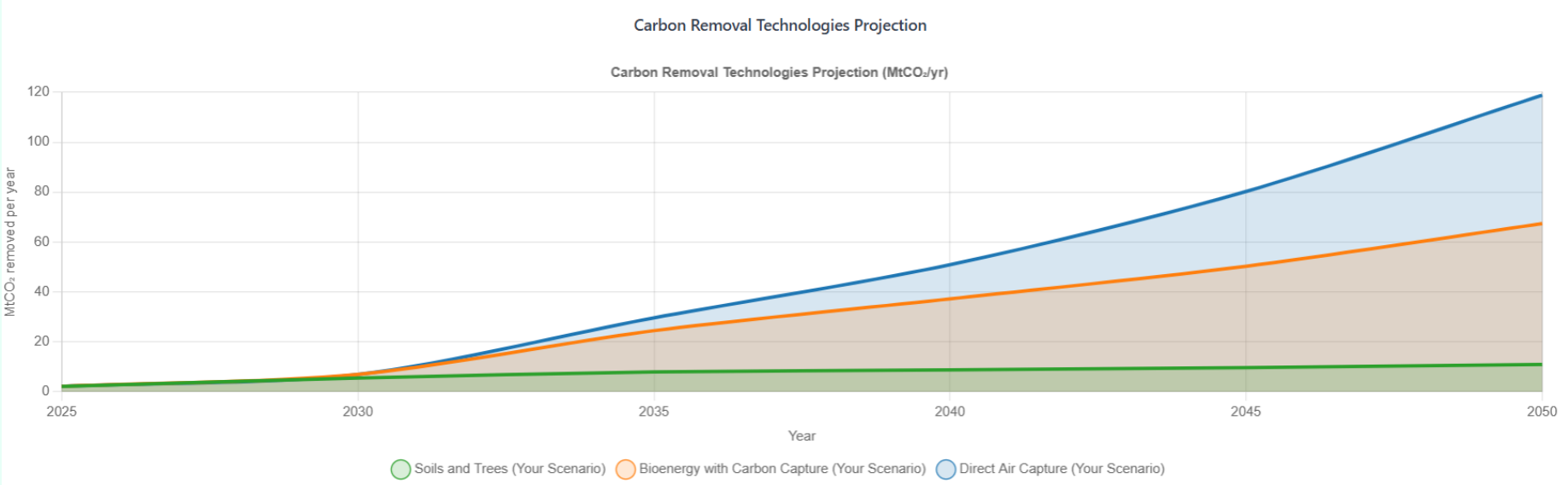


Carbon dioxide removals





These principles sum up panel members' detailed conditions for reducing energy use effectively and fairly:

1. Clear, consistent government leadership
2. Transparent decisions made with public involvement
3. Make low-energy choices accessible and affordable
4. Stronger action from industry
5. Adequate lead-in times for change
6. Fair sharing of costs and benefits
7. Maximise wider benefits for all
8. Better education and communication
9. Support freedom of choice
10. Support research, but caution on unproven technologies

Conclusions

- Combining citizen deliberation with energy systems modelling is both feasible and beneficial
- Social mandate for increased policy focus on energy demand reduction as part of climate strategy and beyond, with quantified outcomes
- Support is conditional on government leadership and how policy is designed, developed, and communicated
- Rich data on conditionality can guide policy decisions in areas that require careful handling

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Questions?

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