

# The Oxford Martin Programme on Integrating Renewable Energy

Energy Day, 23<sup>rd</sup> March 2022

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# The origins of Integrate

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Integrate was a response to the Oxford Martin School's call on  
"Global Commons, Collective Responsibilities and Market Failures"

Started October 2015 : pre-Paris, pre-Brexit, pre-Net Zero, pre-Covid, pre-Ukraine

Research question:

"In the context of the critical 21st Century challenge of the low carbon energy transition, what are the combined technical, economic and governance challenges of integrating high levels of variable renewable energy sources into electricity systems?"

# People are the critical resource

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The operating philosophy we developed for Integrate emerged from

- A mix of researchers & external partners working across economics, social sciences, engineering, materials, law and regulation.
- An inter-disciplinary ethos and working method
- “Bottom-up” initiatives encouraged
- Regular seminars with internal and external speakers
- Oxford Martin School as our ‘home building’



# Addressing multi-disciplinary challenges

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- Recognising that that no single theory or knowledge base is adequate
- Exploring the rich meaning of concepts across disciplines.
- Aspiring to practical solutions – often meaning that 'good enough' is more realistic than optimisation.
- A whole systems approach.





# Whole system thinking

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## Options for integrating renewables

Resource

Storage

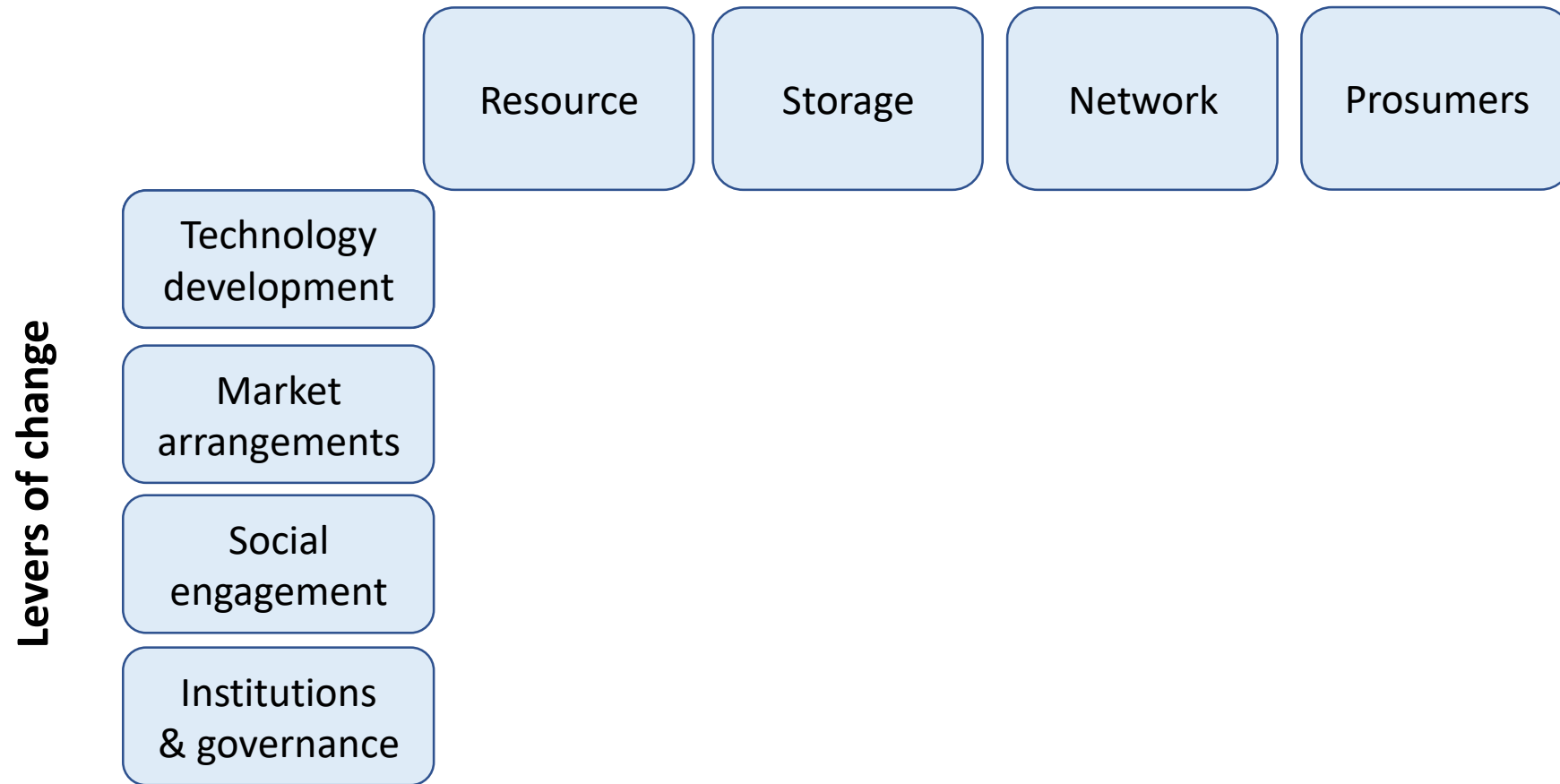
Network

Prosumers

# Whole system thinking

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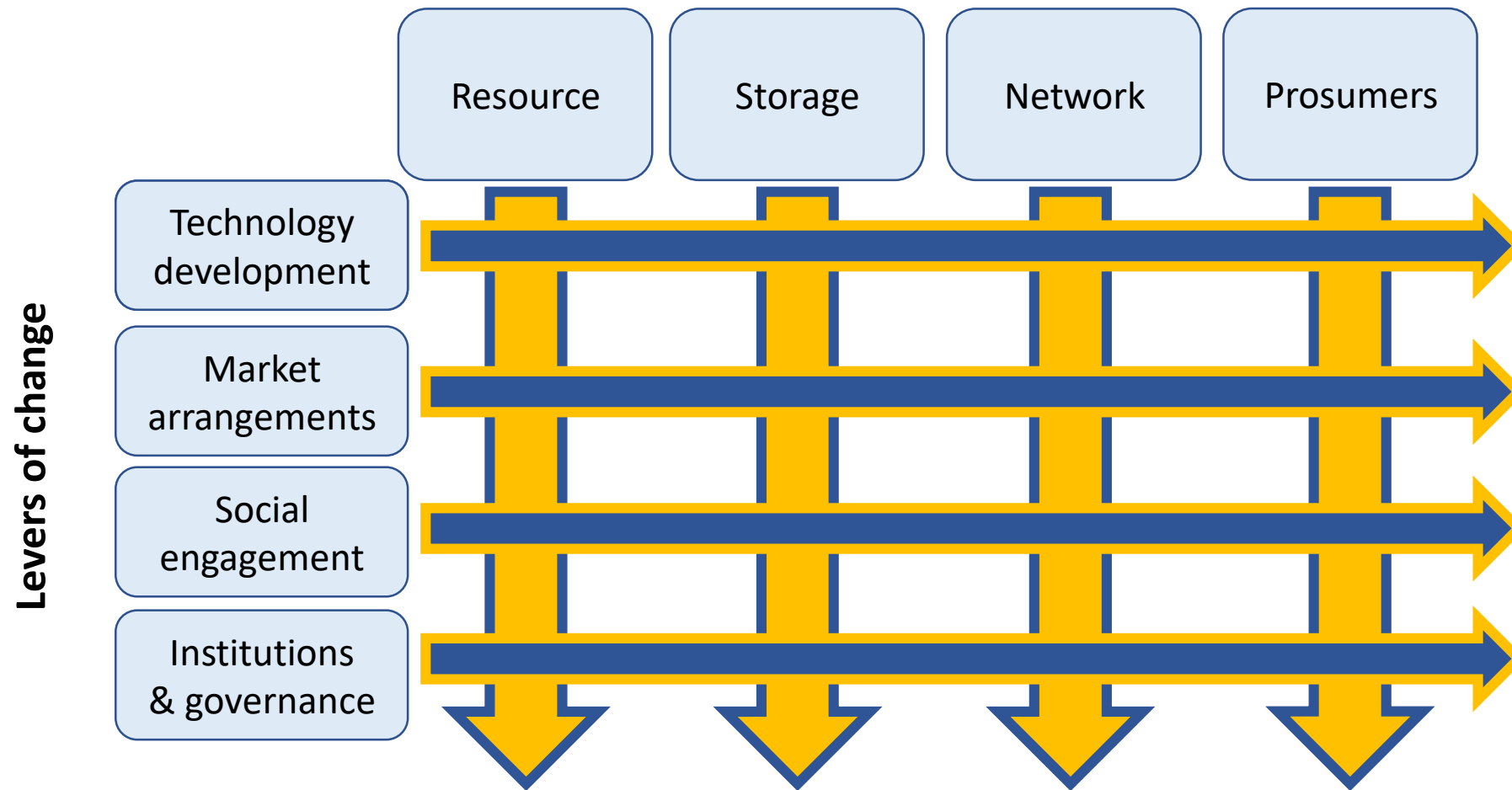
## Options for integrating renewables



# Whole system thinking

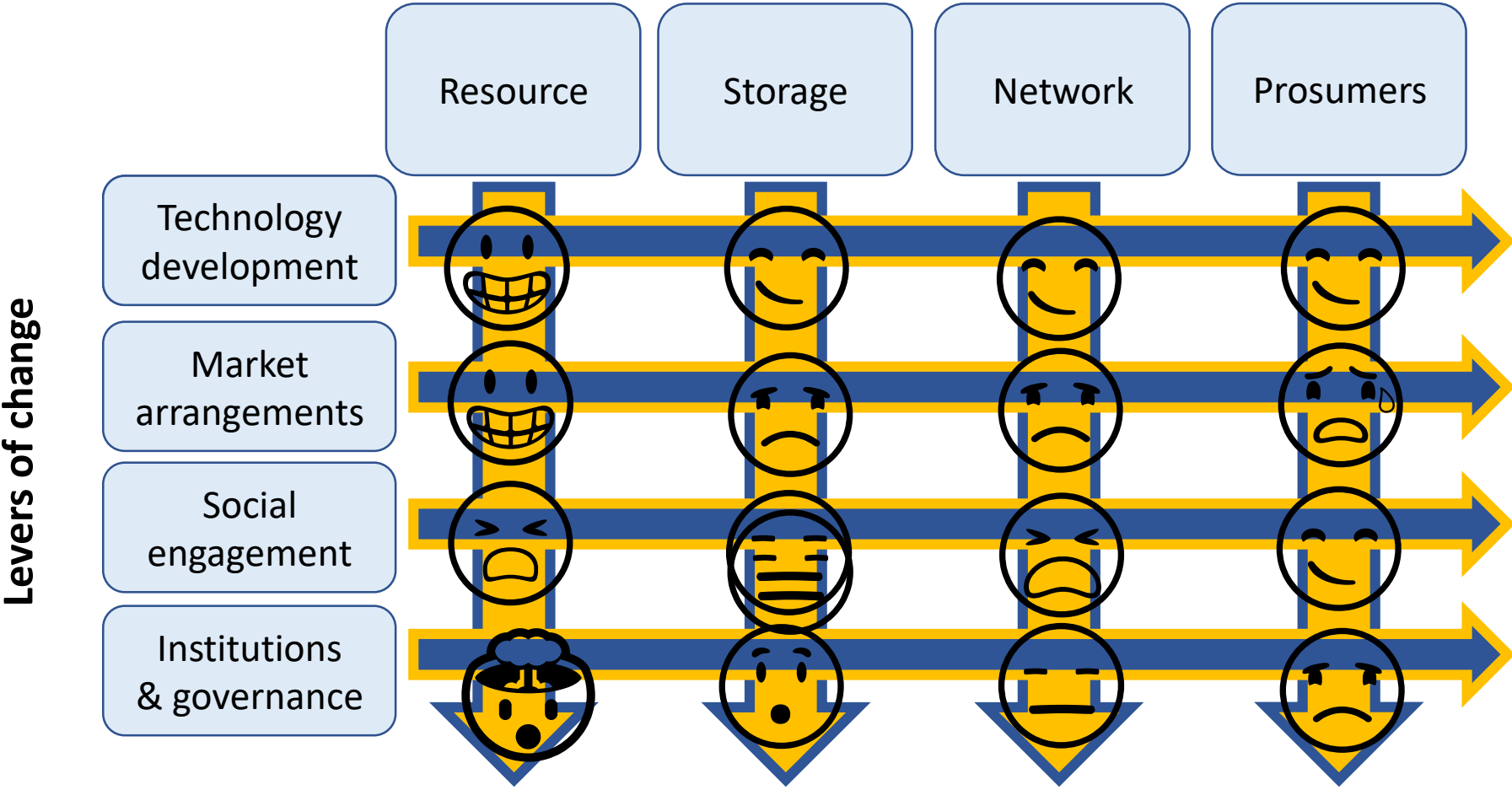
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## Options for integrating renewables



# Whole system thinking

## Options for integrating renewables



## High quality multi-disciplinary research

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### Integrate seminars:

Learn the underpinning concepts of each speaker.

### Language as a barrier:

Glossary of terminology

### High quality research outputs:

97 papers

### Multi-disciplinary research:

>50% papers joint authorship

### Engaging wider audience:

22 videos, 121 blogs, 220 newsletters subscribers.

## Inspired and/or contributed to the following large programs:

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1. Oxford Martin School Program on the Future of Cooling
2. Project LEO
3. Faraday Institute
4. CREDS
5. Relcon
6. ZI



With special thanks to...

