



NL Agency
*Ministry of Economic Affairs, Agriculture and
Innovation*

Incumbents in Transition

How the gas regime accelerates
radical innovation in the gas
supply

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» *Focus on sustainability,
innovation and international*



Overview en key findings

- We've done research on a transition in the Dutch Natural gas sector – the substitution of natural by green gas
- We've taken a 'lifetime' point of view on innovation instead of 'fire and forget' a single R&D program
- We've found that Incumbents can champion change
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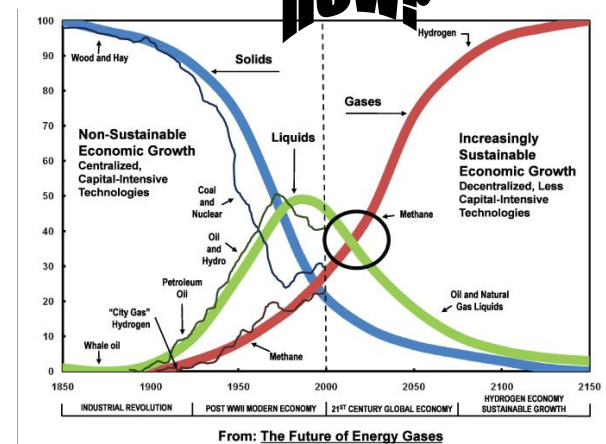
Energy Transition



Why?

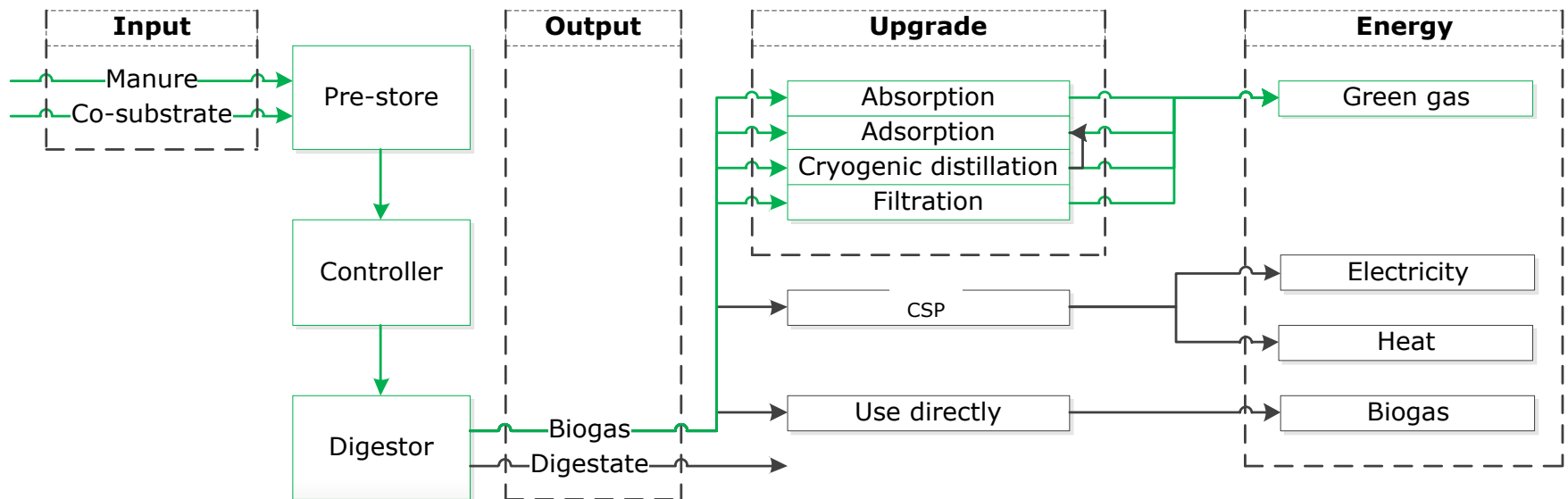


How?





The case: production of biogas





Challenges in research

- How to define incumbency?
- How to define progress of innovation?
- How to measure progress?



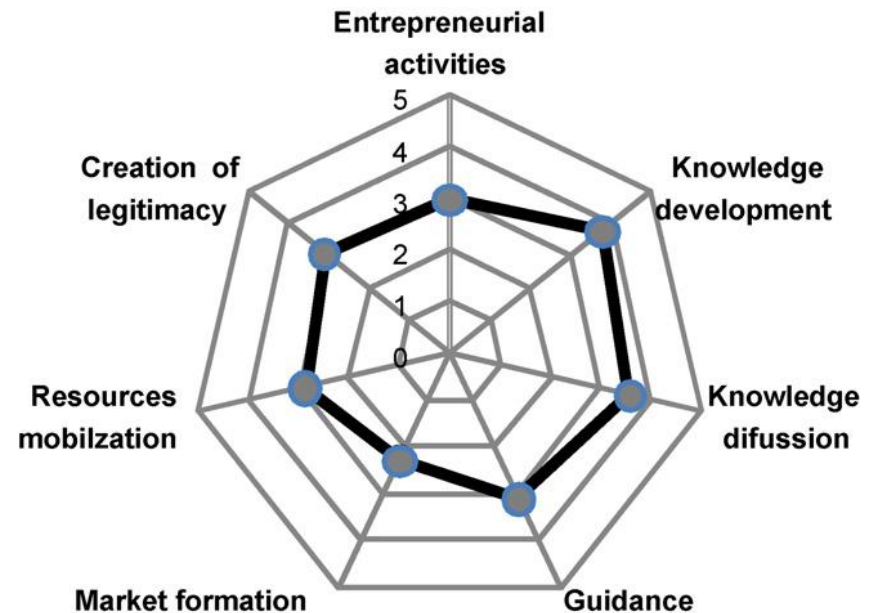
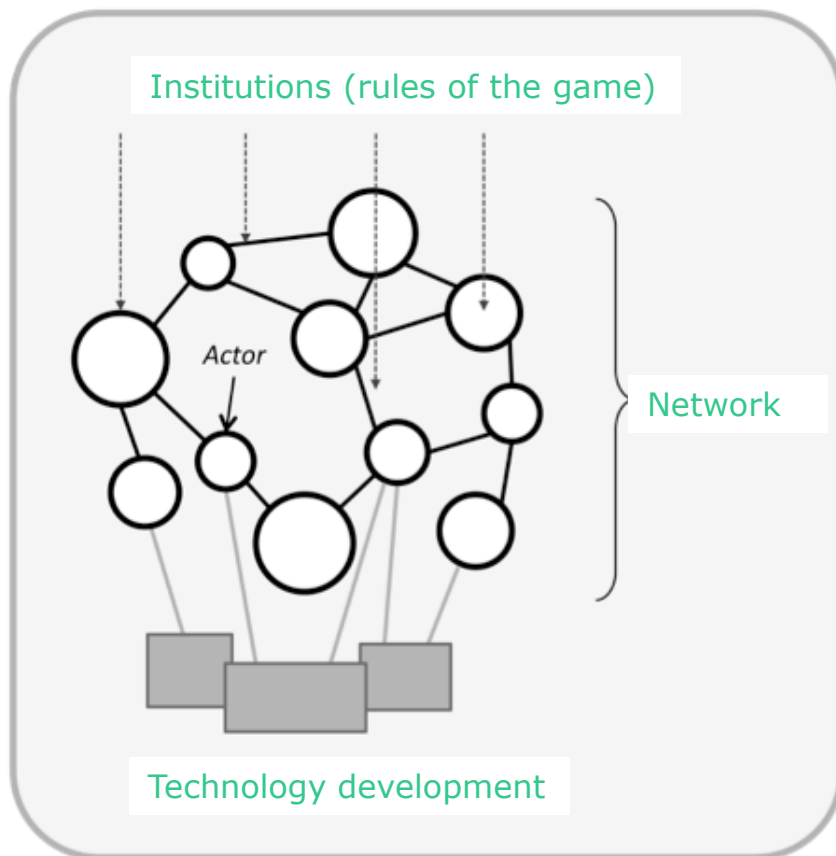
How to define incumbency?

Incumbency: the quality or condition of being incumbent
(Incumbent: holding an indicated position in manufacturing or selling a product)

| # Firms involved in gas supply in year x | Incumbent | New entrant |
|--|-----------|-------------|
| Small (<50) | | |
| Medium (50-250) | | |
| Large (>250) | | |



How to define progress of innovation?



Technological Innovation System (TIS)

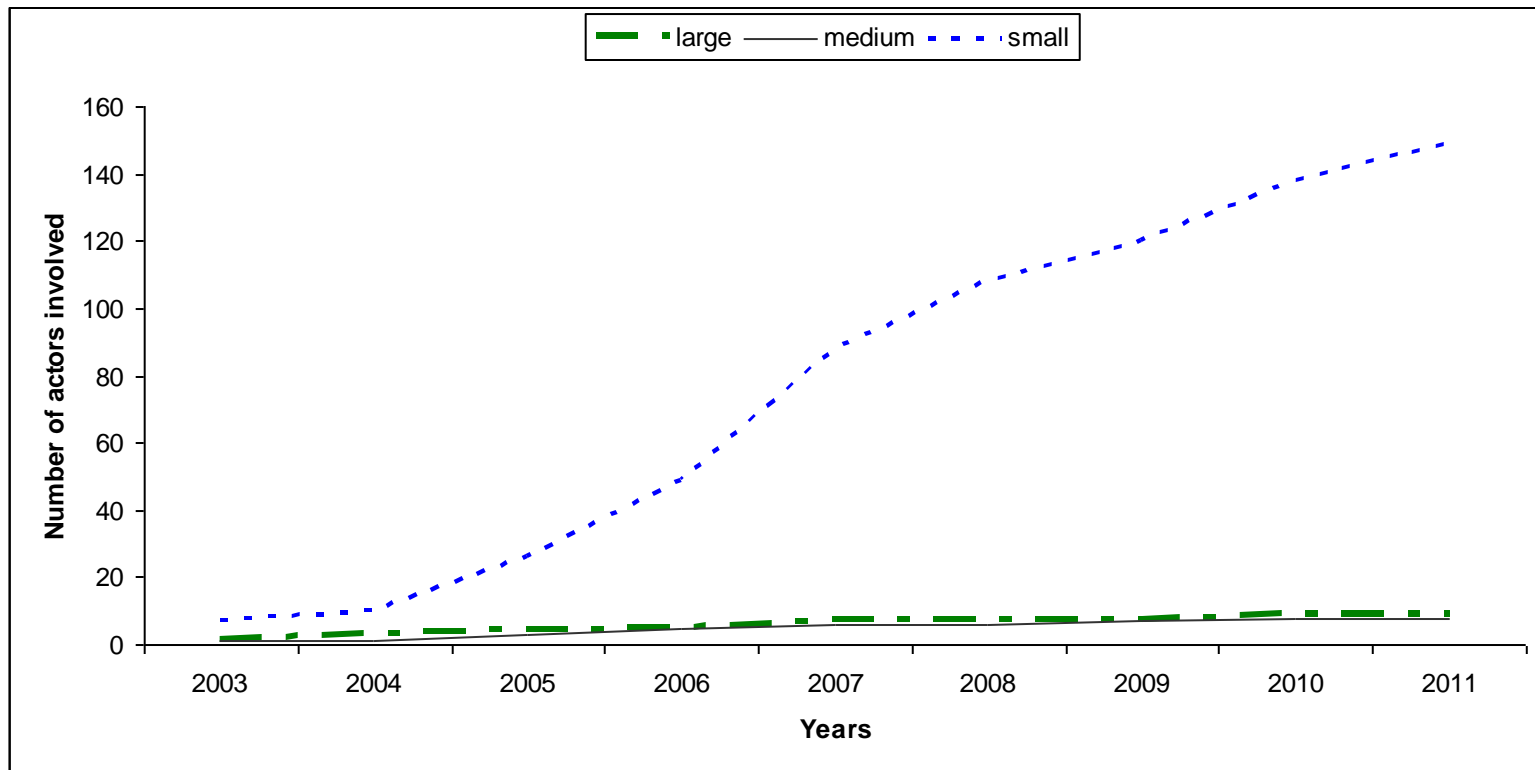


How to measure progress?

| Innovation process | Indicator |
|---------------------------------|--|
| F1 - entrepreneurial activities | Project with a commercial purpose started/stopped |
| F2 - knowledge development | R&D projects, Investment in R&D, desktop/feasibility studies |
| F3 - knowledge diffusion | Network, coalition <i>Brochures, instructions, Best practices</i> |
| F4 - guidance of the search | Positive/negative expectations Regulations by the governance Expressed deficit of regulations |
| F5 – market formation | Specific favourable tax regimes and environmental standards Expressed lack of favourable tax regimes and environmental standards |
| F6 – resource mobilization | Subsidies, investments Feedstock allocated to the project Expressed lack of subsidies, investments Shortage of biomass streams allocated to the project |
| F7 – advocacy coalition | Support by government, industry Expressed lack of support by government, industry, dissent |

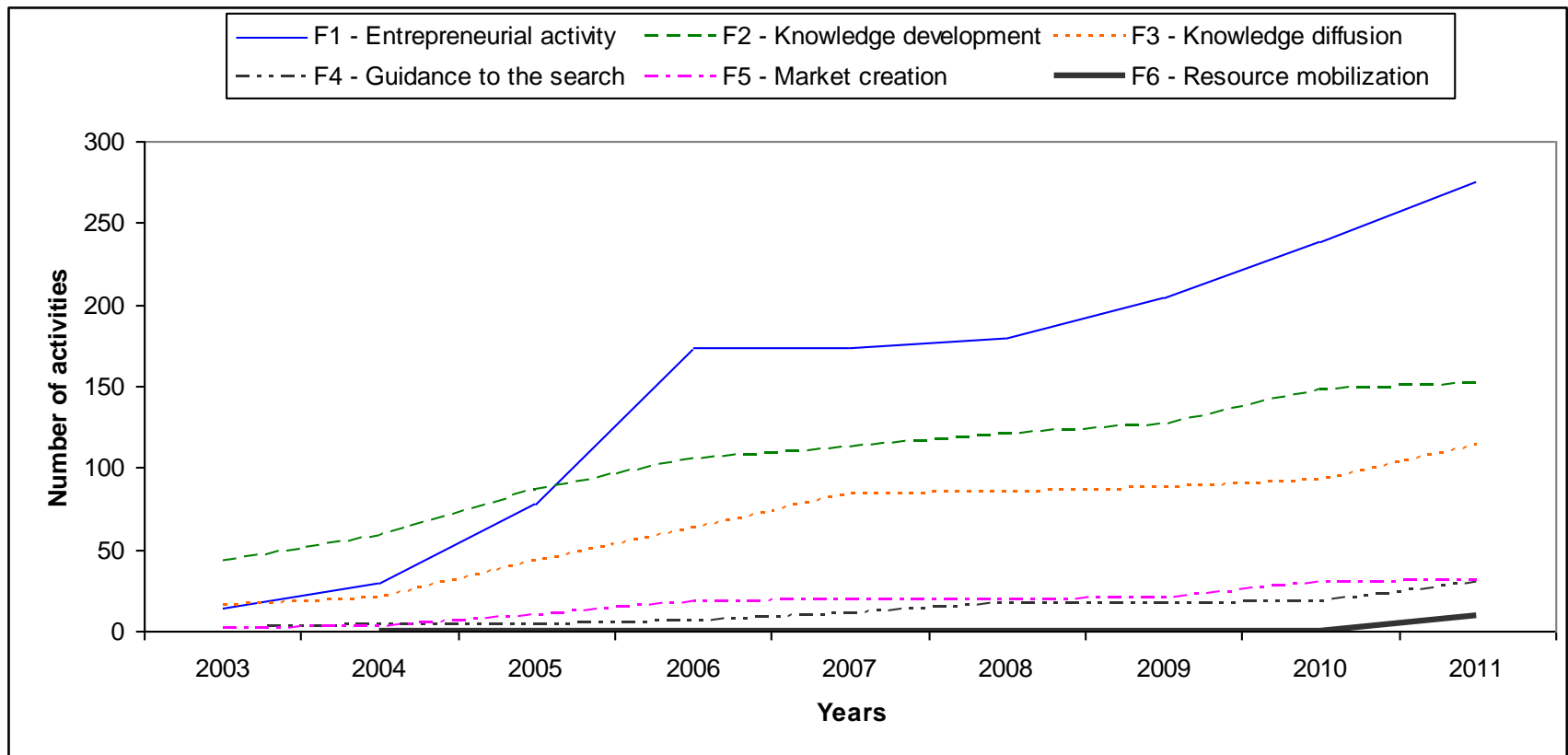


Measuring *F1 - Entrepreneurial activities...*



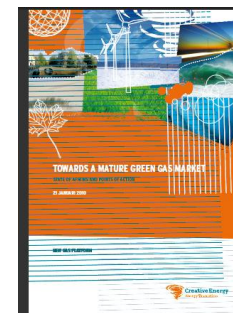
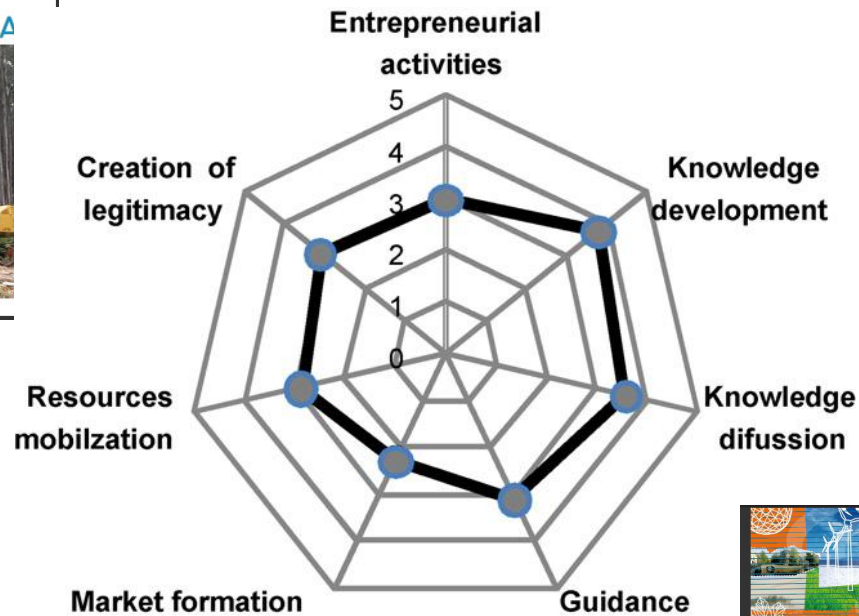
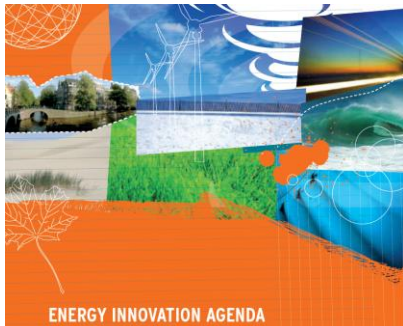
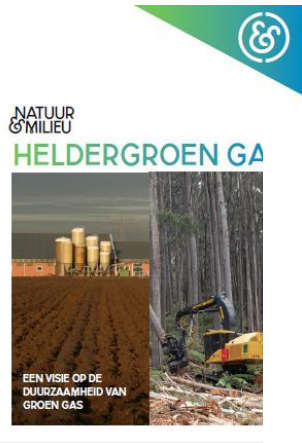


Performance of the Biogas Innovation System



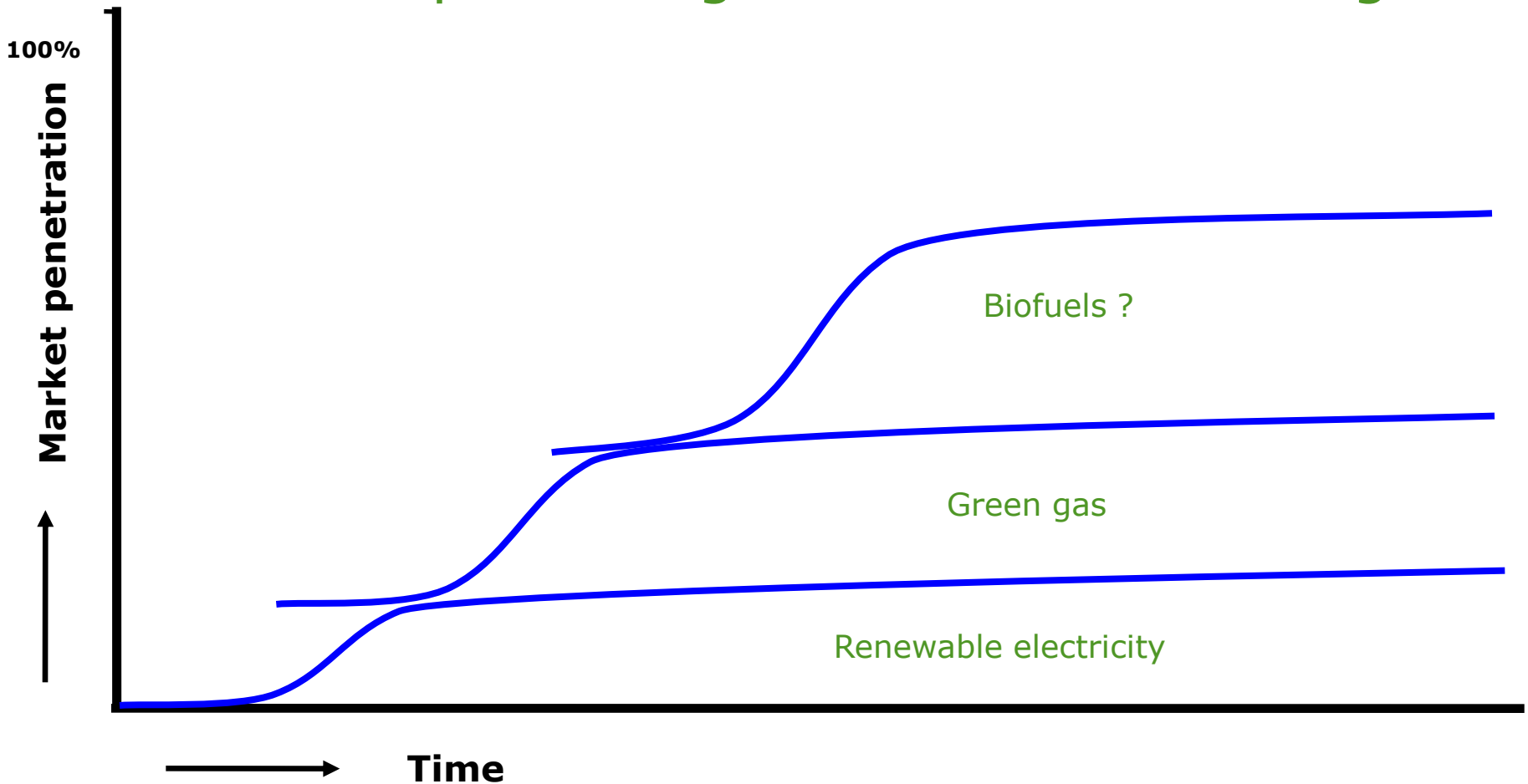


...and the other innovation processes...





.....to develop a new 'growth' market for biogas





What did we learned?

- you need Entrepreneurs to experiment with radical innovation
- To evaluate the contribution of policy a 'lifetime' point of view is needed
- To transform markets you need the Government *and* Incumbents



Questions?

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