

Innovation Fund Denmark Climate Solutions Panel

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 Innovation Fund Denmark

Copenhagen Institute for **Futures** Studies
Instituttet for Fremtidsforskning

Project objective

To develop a **thought leadership platform** anchored in **Danish expertise within the climate field**, which in conjunction with the funds allocated by Innovation Fund Denmark, will provide a substantial starting point for **Danish innovation in a sustainable future.**

Key Questions

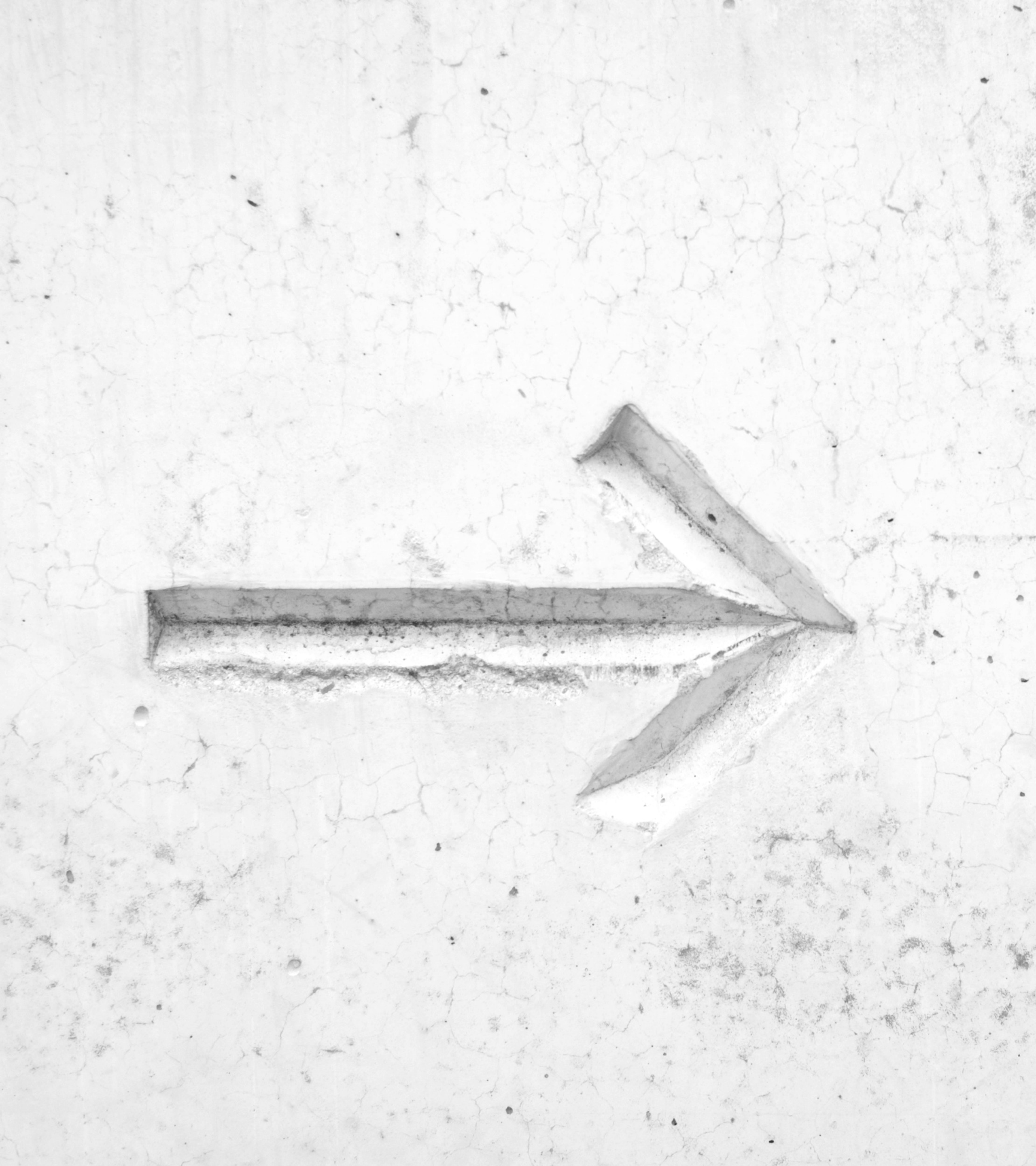
- What are the most **important areas where Denmark is well positioned** to shape and drive alleviation of the global climate change challenge?



Output

Summary of the most important areas, where IFD can effectively contribute to driving change and value.

Strategic recommendations to inspire IFD's Climate Investment Strategy, including targeted solutions for maximising value added from supporting innovation.



Climate Solutions Panel

Experts and advocates of climate change mitigation from:

- Academia
- Industry
- Businesses
- Regulatory bodies
- NGOs

Rank	Solution	Red Arrows	Blue Arrows	Green Arrows
1	Refrigerant Management		1	1
2	Wind Turbines (Onshore)	1	2	
3	Reduced Food Waste	1		1
4	Plant-Rich Diet			2
5	Tropical Forests			1
6	Educating Girls			1
7	Family Planning			1
8	Solar Farms		1	
9	Silvopasture			1
10	Rooftop Solar		1	
11	Regenerative Agriculture	1		1
12	Temperate Forests			1
13	Peatlands			1
14	Tropical Staple Trees			1
15	Afforestation			1
16	Conservation Agriculture	1		1
17	Tree Intercropping			1
18	Geothermal		1	
19	Managed Grazing			1
20	Nuclear		2	
21	Clean Cookstoves		2	
22	Wind Turbines (Offshore)	1	1	

The key solutions are a combination of innovation, technology and behavioural change

PROCESS OVERVIEW








Workshop I (26 May 2019)

- The panel mapped and validated **240 possible** climate solutions across the following **5 sectors**: Industry, Food & Agriculture, Buildings, Energy and Transport.



Solutions are ranked based on estimated potential impact in reducing GHG emissions

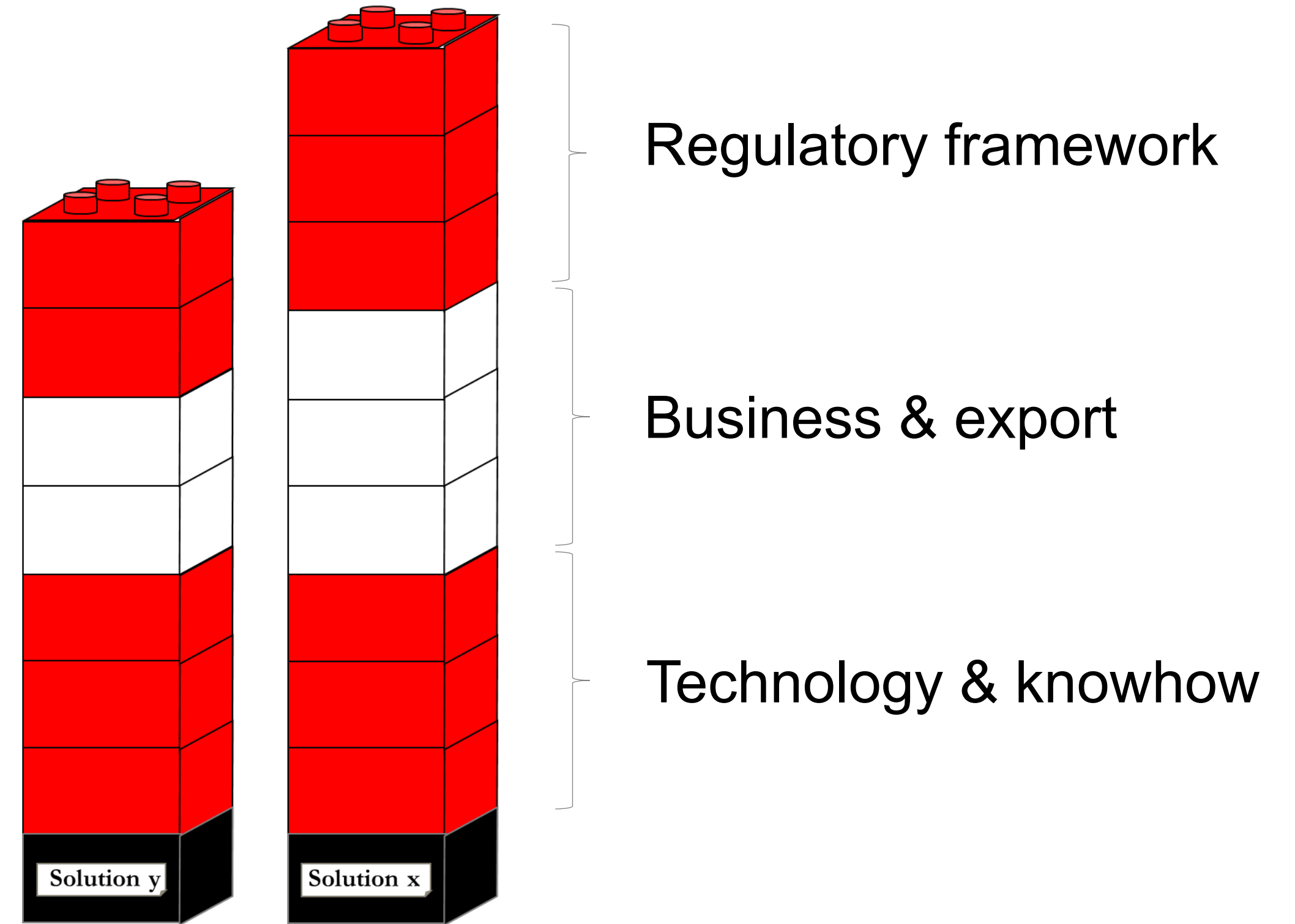
Level of Impact (Potential gigatons CO ₂ e avoided towards 2050)	 Agriculture & Food (16 plausible solutions)	 Buildings (10 plausible solutions)	 Energy (13 plausible solutions)	 Industry (12 plausible solutions)	 Transportation (11 plausible solutions)
Very High (9 - 102 GTCO ₂ e)	Afforestation, Deforestation and Reduced Food Waste Plant-Rich Diet Regenerative Agriculture Managed Grazing	Rooftop Solar LED Lighting	Wind (Onshore) Solar Farms Wind (Offshore) Concentrated Solar	Refrigerant Recycling	Electric Vehicles
High (4 - 9 GTCO ₂ e)		Insulation Solar Water Heating and Cooling Smart Buildings	District Heating Methane Digesters Biomass	Alternative Cement Waste Recycling Heat Pumps	Maritime and Propulsion Mass Transit Truck Design Airplane Design
Significant (0.3 - 4 GTCO ₂ e)	Irrigation Biochar	Water Saving - Residential Smart Thermostats Smart Glass Green Roofs	Cogeneration Waste-to-Energy	Bioplastic Telepresence Water Distribution	Bike Infrastructure High-Speed Rail Electric bikes Ridesharing
Impact varies across sources due to different assumption	Biofuels (2 nd generation) Protein Upgrade Ocean Farming Microbial Farming Lab Grown Meat Precision Farming Crop Optimisation Livestock Feed Vertical Farming	Building with Wood	Bioenergy with CCS Green Hydrogen (Power2X) Grid Flexibility Storage	AI, Blockchain & Data Carbon Capture Storage Carbon Capture Utilisation Circular Economy Industrial Energy Efficiency	Pyrolysis to Jetfuel Autonomous Vehicles

For a full and more detailed description of the individual solutions, please refer to the catalogue serving as pre-read for WS2.

Source: UNEP, Drawdown.org

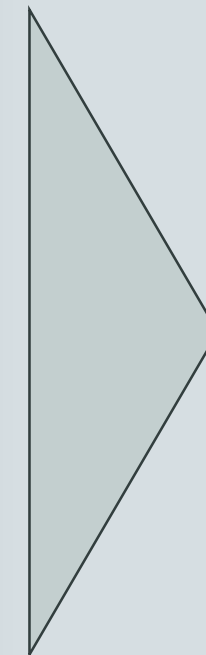


Danish Solution Strongholds



THERE ARE PLENTY OF OPPORTUNITIES FOR DANISH CONTRIBUTION

Level of Impact (Potential gigatons CO ₂ e reduced or avoided towards 2050)	Agriculture & Food (16 plausible solutions)	Buildings (10 plausible solutions)	Energy (12 plausible solutions)	Industry (11 plausible solutions)	Transportation (9 plausible solutions)
Very High	Afforestation, Deforestation and Restoration Reduced Food Waste Plant-Rich Diet Regenerative Agriculture Managed Grazing	Rooftop Solar LED Lighting	Wind (Onshore) Solar Farms Wind (Offshore) Concentrated Solar	Refrigerant Recycling Industrial Energy Efficiency	Electric Vehicles
High		Insulation Solar Water Heating and Cooling Smart Buildings	District Heating Methane Digesters Biomass	Carbon Capture Storage Carbon Capture Utilization Alternative Cement Circular Economy and Waste Recycling Heat Pumps	Ship Design Mass Transit Truck Design Airplane Design
Significant	Composting Irrigation Biochar	Water Saving - Residential Smart Thermostats Smart Glass Green Roofs	Cogeneration Waste-to-Energy Bioenergy with CCS	Bioplastic Telepresence Water Distribution	Bike Infrastructure High-Speed Rail Ridesharing
Immature technologies or uncertain impact	Protein Upgrade Ocean Farming Microbial Farming Lab Grown Meat Precision Farming Crop Optimization Livestock Feed Vertical Farming	Building with Wood	Power2X Grid Flexibility	AI, Blockchain & Data	Autonomous Vehicles

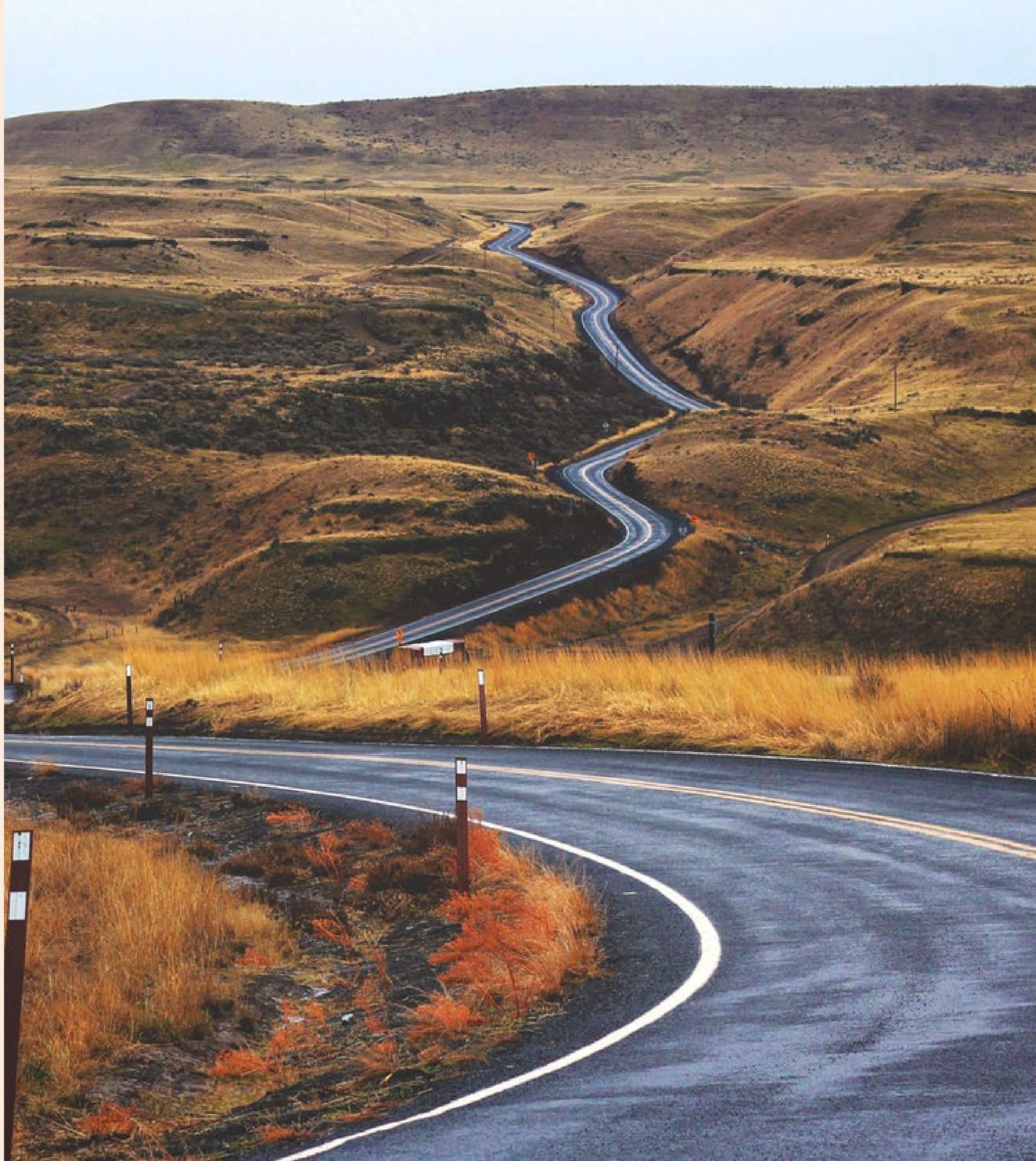


Danish Solution Strongholds

“LEGO CITY OF SOLUTIONS”



Way forward, Danish position and potential



**Connected through
5 key initiatives**

**Supported by 2
overarching themes**



Industry energy & materials efficiency.



Energy & storage.



Alternative fuels & transportation.

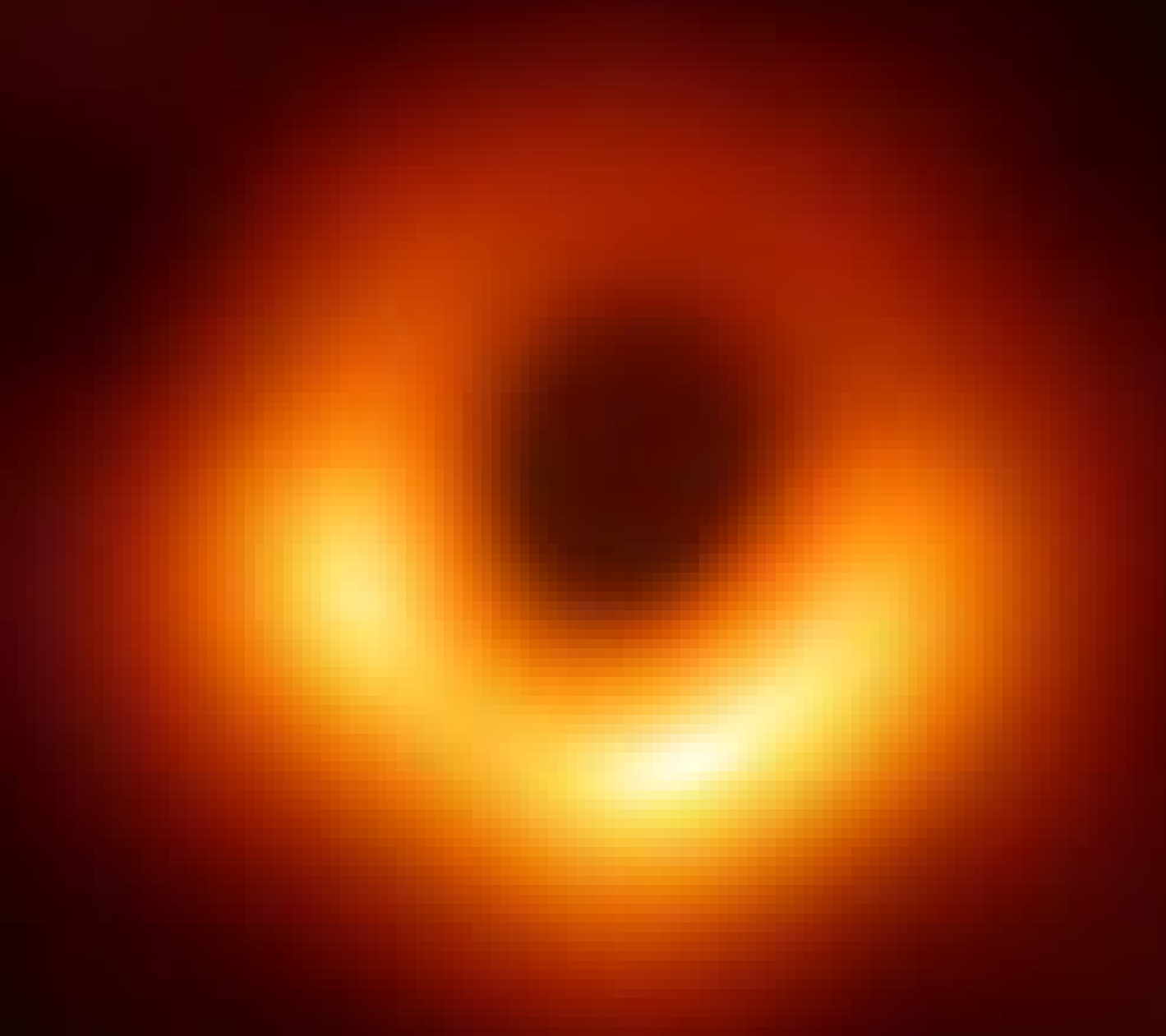


Smart buildings, cities & infrastructure.



Sustainable agriculture & food value chains.

Data, AI, IoT
Circular Economy



Event Horizon



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