TNO Innovation for life

Denzil Joy| Utrecht, Netherlands





We are TNO

TNO's mission is to create impactful innovations for the sustainable wellbeing and prosperity of society.



Locations & lab facilities

Some lab facilities highlighted:

- Building Innovation Lab (Delft)
- Castel Milieulab (Utrecht)
- Mano Lab (Delft)
- Accelerator Mass Spectrometer (Leiden)
- Brightlands Materials Center







Smart solutions for clients & partners

Knowledge transfer

Knowledge exploitation by spin-offs, licences, in partnership with other companies

Clients & partners

Develop fundamental knowledge

Together with universities

Knowledge application

Contract research for and with clients

Knowledge development

In public-private partnership with partners from the golden triangle





Units







Energy & Materials Transition

The energy and materials transitions are inextricably linked in efforts to achieve the 2050 climate goals.

TNO Energy & Materials Transition connects these transitions through applied research, knowledge, and expertise relating to technologies, circularity, business models, and legislation and regulations. This is how we come up with customised advice and solutions.

Techno-Ecomonic Energy Transition Studies

- Quantitative and technological understanding of energy systems
- Awareness of socio-economic aspects of energy and transition
- Insight into autonomous and policy-driven energy developments
- •Understanding of societal dimensions of the energy transition
- •Familiarity with methods for quantitatively tracking energy system changes

Model framework

FORECASTING / SIMULATION / EQUILIBRIUM





Foreground: circular policies, energy policies, sector-specific policies, technology development

GLOBAL **EXIOMOD TIAM ECN** (Global product demand, (Global energy system, **GLOBIOM** trade) trade) (Soil-based production and land-use) Society global CITS TIMES - Europe 品 **PRISM Member States** (material stocks & flow (material recycling) \ analysis, circularity (energy, process MS industry) strategies) CALLIOPE Society & business EU / MS (energy, selection of Market & business local industry clusters at higher temporal CIMS LOCAL **ELDEST** resolution) (Intra-cluster, local **Agent Based Model** synergy, brownfield (electricity or steel) adaptation)

Scale: global, EU / MS, local;

Perspective: society, market, business

Order:

BACKCASTING / OPTIMIZATION

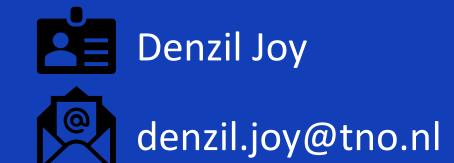
- 1. Society global economy, biobased, energy,
- 2. Society & business EU/MS material & energy,
- 3. Market & business local energy, production & market
 No upward iteration (as a start)

Economy

Energy

Material





THANK YOU



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