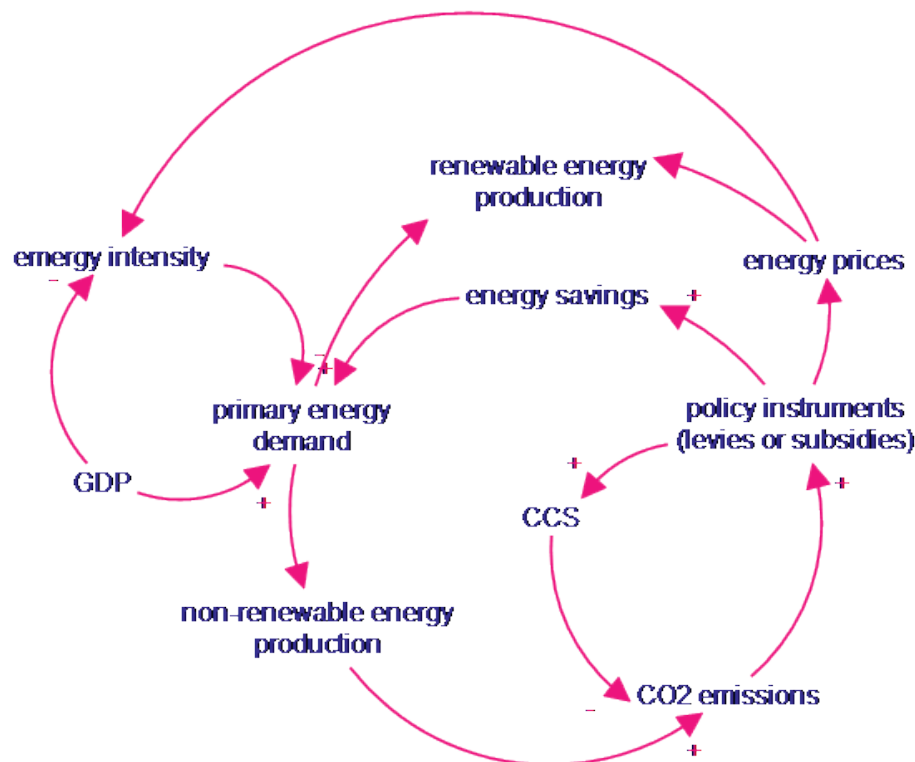


The Netherlands: bio-based and circular economy



Trade-offs between biomass for renewable energy and (food and non-food) resource efficiency

Key findings

1. The perception of biomass for energy is persistently negative among many stakeholders and the usage of biomass for energy is heavily debated.
2. Up until 2020, biomass policy implementation is often seen as fragmented and incoherent.
3. By playing the Dutch Serious Game, stakeholders can learn how the need for different types of biomass as a renewable energy source may conflict or have synergies with the creation of a bio-based and circular economy.
4. There are still knowledge gaps concerning the heterogeneity and sustainability of biomass and the best application of the different types, e.g., imported woody biomass or manure.
5. The Dutch Serious Game allows investigating different pathways towards a low-carbon and resource-efficient economy embedded within separate learning experiences on policies you can apply.

The Netherlands aims for a low-carbon and resource-efficient economy in 2050. The use of biomass for energy was identified as an alternative with a significant potential contribution to the realisation of these goals. Many types of biomass could be used for energy, like wood, manure, wastewater, organic waste, etc. Also, growing biomass for energy or other new uses like bio-based products would require land, which is already scarce in the Netherlands. Moreover, other types of renewable energy require land as well (solar power parks, and wind power turbines). These competing claims lead to trade-offs between land used for food and non-food production and land used for renewable energy production. The key question addressed is: what is the potential role of biomass in the pathway to a low-carbon and resource-efficient economy in the Netherlands?

Outputs

[Linderhof, V., N. Polman, J. Susnik, S. Masia, K. Dekkers & M. Witmer \(2019\) How to achieve a low-carbon economy in the Netherlands in 2050: the system dynamics model approach. Presentation at the 2nd International Conference on Energy Research and Social Science: "Energy and Society in Transition", Arizona State University, Tempe \(AZ\), USA, 28-31 May 2019.](#)

[Brouwer, F., L. Vamvakeridou-Lyroudia, E. Alexandri, I. Bremere, M. Griffey & V. Linderhof \(2018\) The Nexus concept integrating energy and resource efficiency for policy assessments: A comparative approach from three cases. Sustainability, 10\(12\), 4860.](#)

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