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## Quantifying energy transition pathways: an integrated framework approach

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## Prepositions:

- 1- To bridge some major energy modeling gaps a modeling framework is required that comprises highly detailed bottom-up approaches consistent with top-down economic equilibrium methodologies. (This Thesis)
- 2- Dutch energy system models should incorporate different weather years as the high share of offshore wind from the North Sea region can greatly affect cost-effective flexibility requirements. (This Thesis)
- 3- The deployment of sustainable biomass with carbon capture and storage ensures an affordable and effective energy transition, while its availability and social acceptance remains highly uncertain. (This Thesis)
- 4- A minimum of hourly temporal resolution, instead of time-slices, is required to assess the system-wide cost-effectiveness of flexibility options, e.g., storage and demand response. (This Thesis)
- 5- The economic feasibility of a power generation technology should be evaluated on an energy system-wide scale, rather than mere Levelized Cost of Electricity analyses. (This Thesis)
- 6- Investing objectively and without bias in all cost-effective options, including nuclear energy, is key to an affordable and reliable energy transition. (This Thesis)
- 7- We cannot correctly analyze the economic effects of climate policy if the energy and macro-economic models are not linked, leading to inconsistent outcomes. (This Thesis)
- 8- Energy and material trade assumptions should get heightened attention when modeling national energy systems, particularly for the Netherlands as it is highly integrated into the energy and material markets at both the European and global level. (This Thesis)
- 9- Energy transition would be simpler if the Dutch included their commitment to diversity and inclusion in their decarbonization options.
- 10- The key to powering the Dutch energy transition lies in croquettes - and a delectable side of patat.
- 11- Nearly every decision we make now is based on an assumption of how we expect to feel in the future.
- 12- The egg came first, then the chicken.