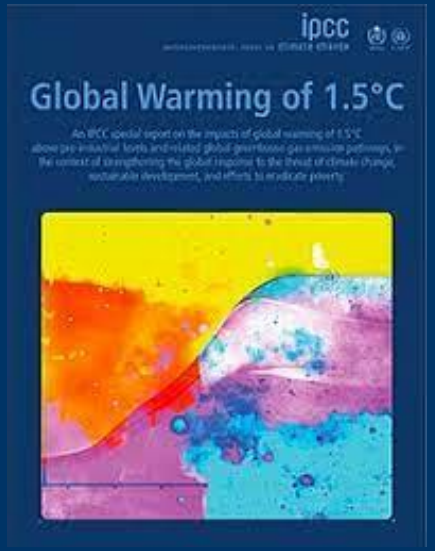
Versnellen van systeemtransities

En de rol van ‘sufficiency

Heleen de Coninck
TU/e & RU

TNO symposium, Den Haag
26 januari 2023

ipcc



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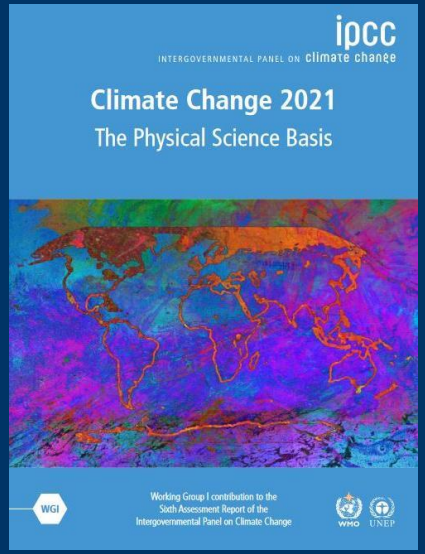

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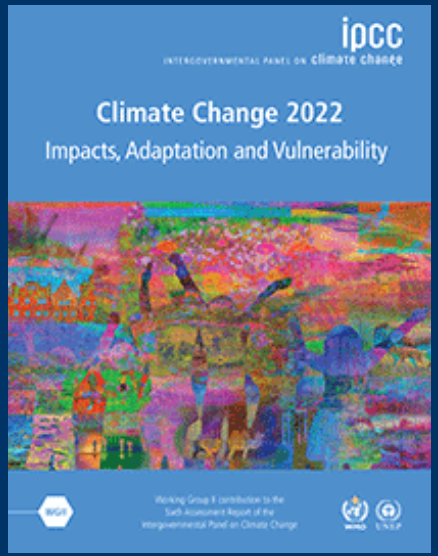

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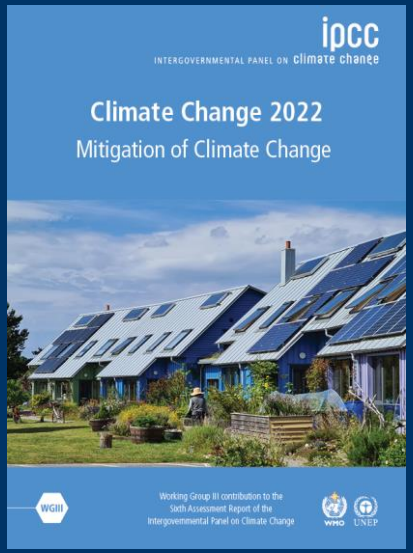

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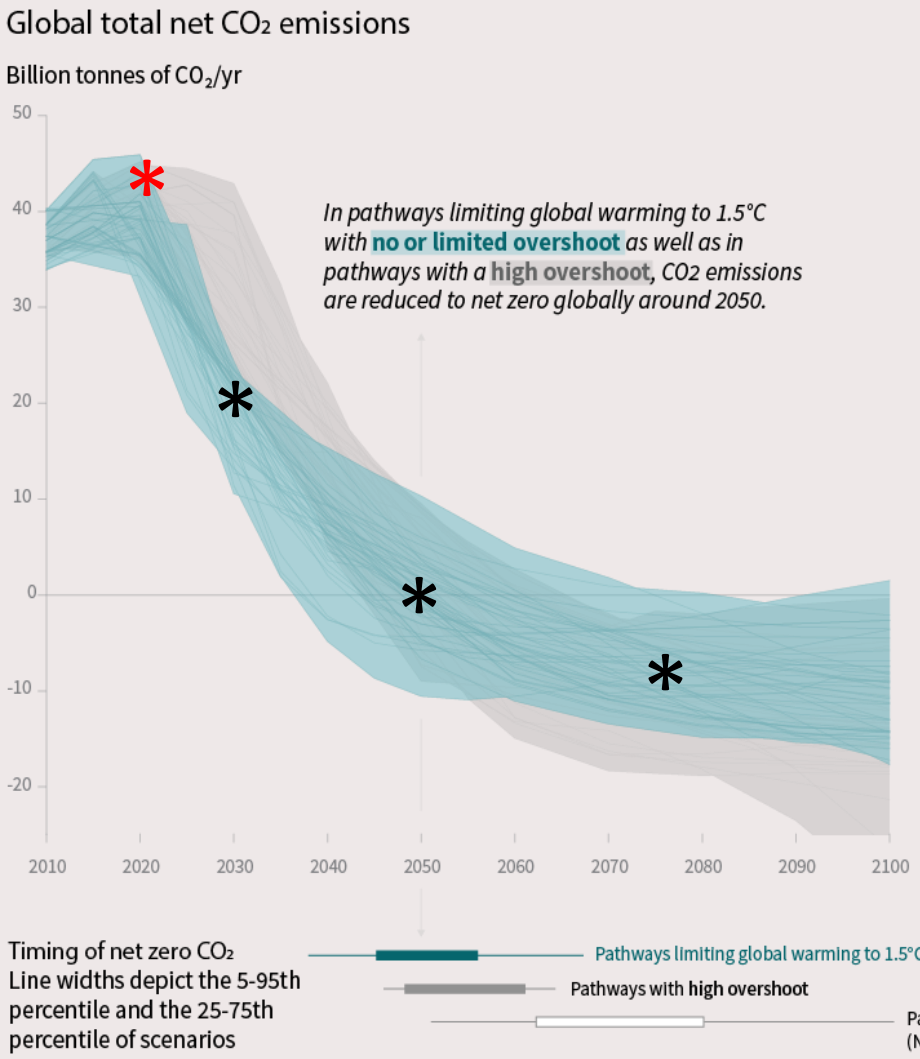

Peak GHG emissions before 2025

Halving CO_2 in 2030

Net zero CO_2 in 2050

Carbon dioxide removal

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INTERGOVERNMENTAL PANEL ON climate change

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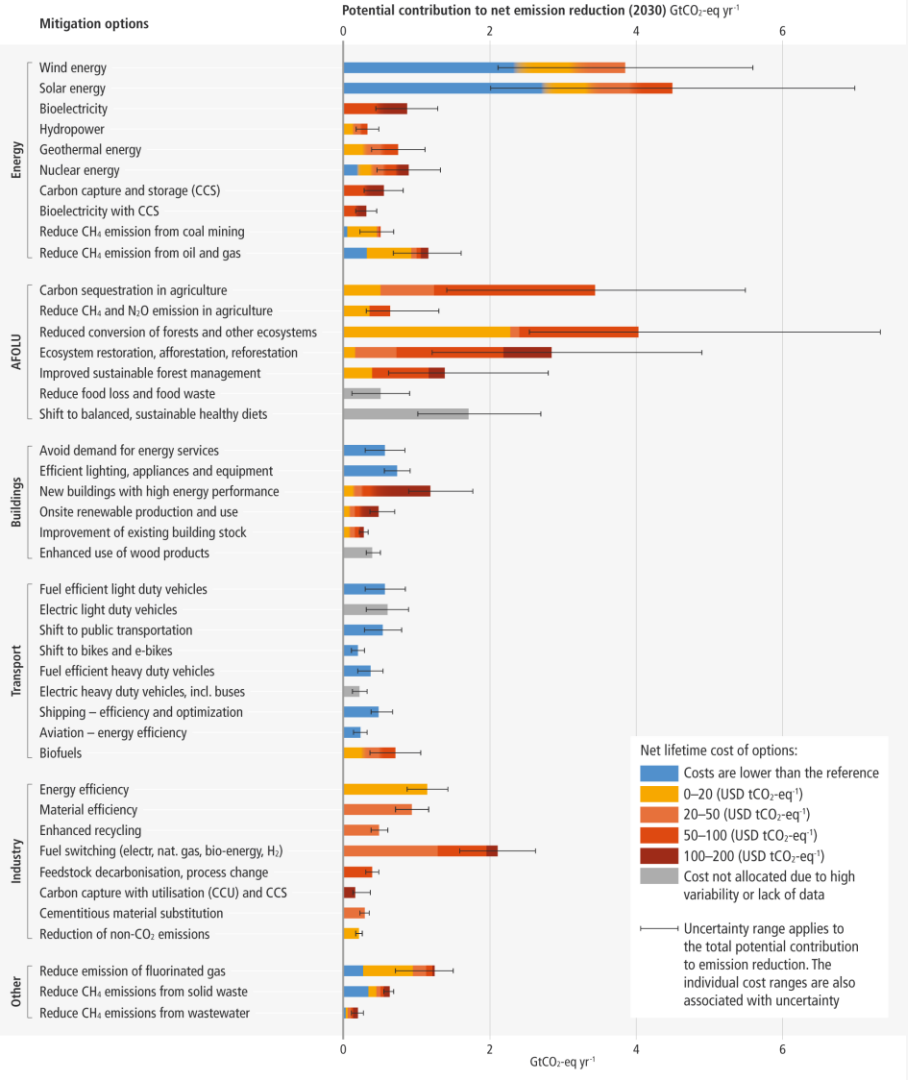

Veel acties op de korte termijn zijn haalbaar

Mondiale emissies kunnen in 2030 worden gehalveerd met opties die minder kosten dan 100 USD/tCO_2e

‘Sufficiency’-opties komen positief uit de bus:

- Kosten-efficient
- Synergie met SDGs

Maar bijna alle opties hebben institutionele barrieres

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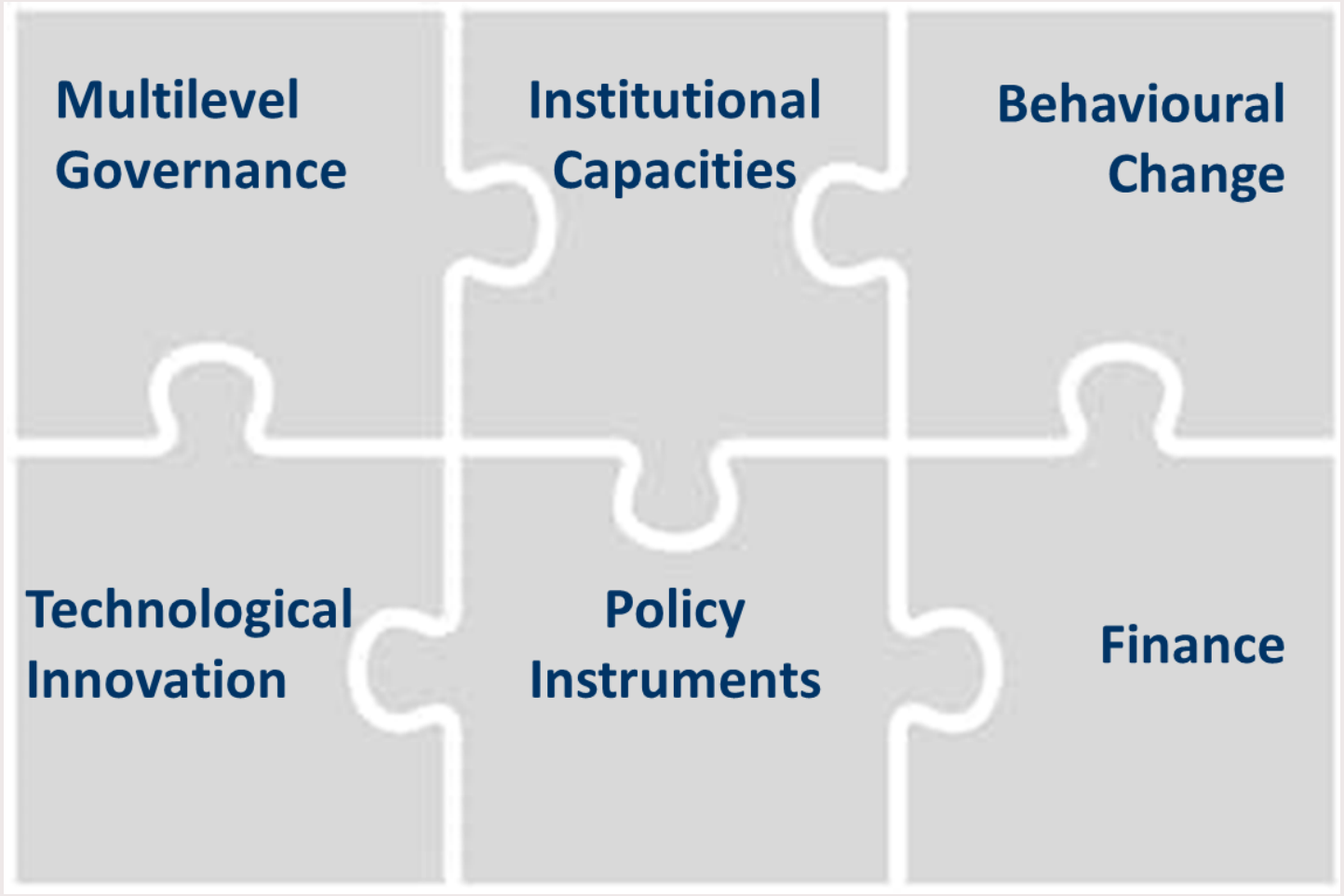
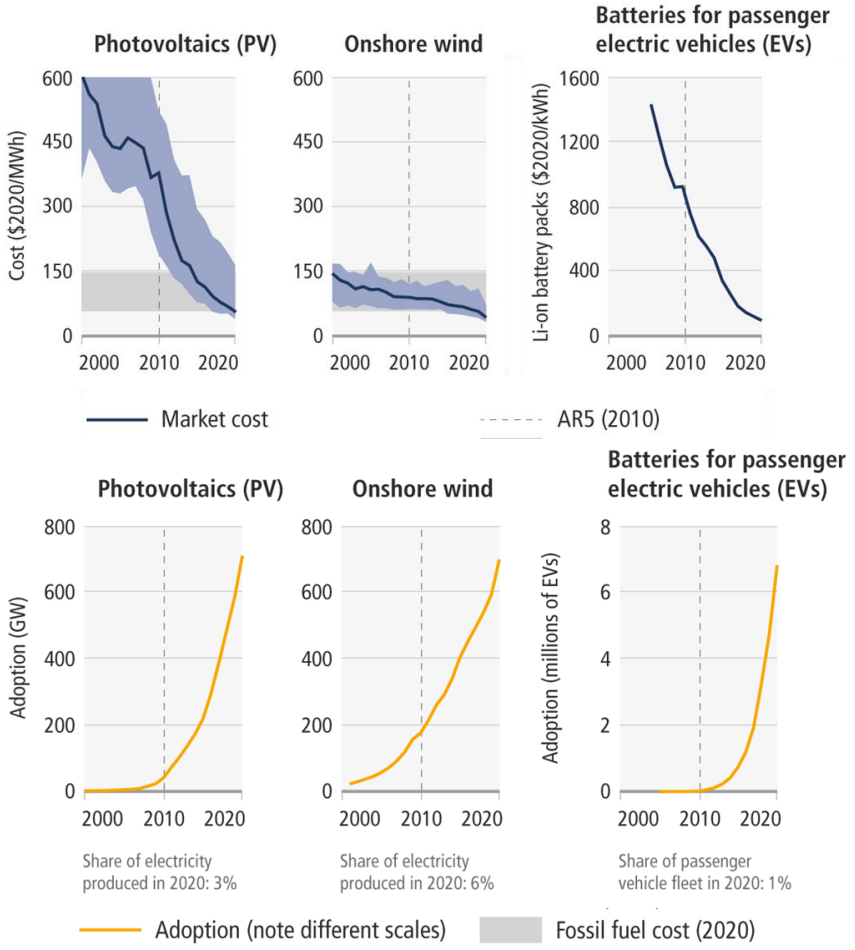

Multilevel Governance
Institutional Capacities
Behavioural Change
Technological Innovation
Policy Instruments
Finance

Technologie en innovatie

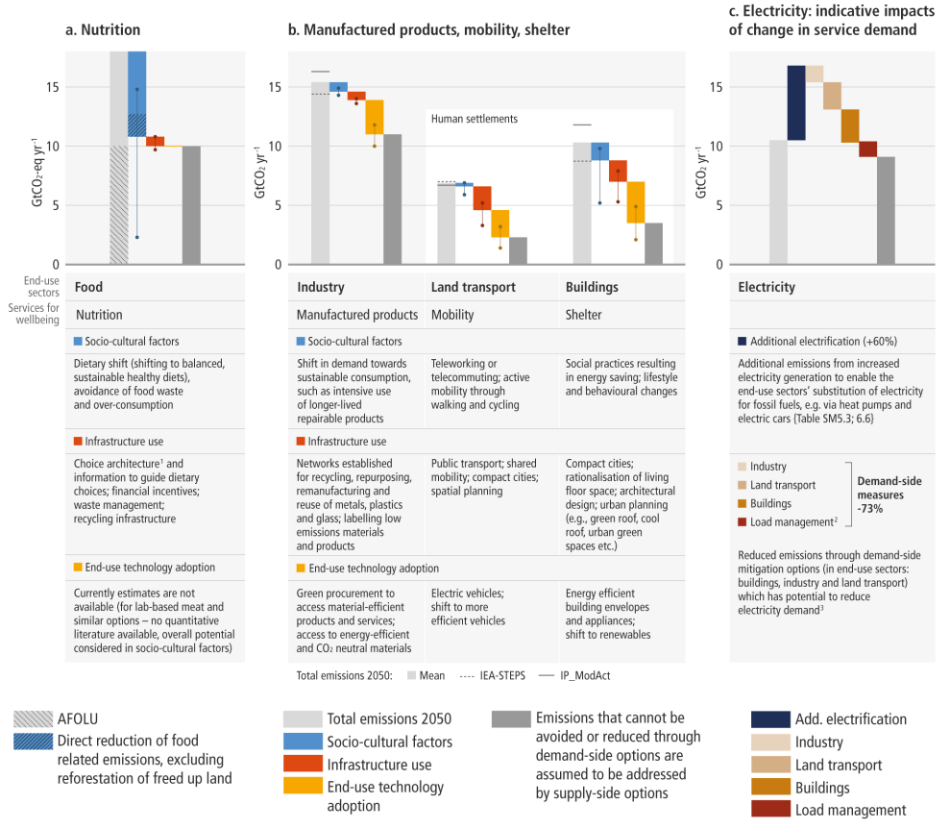
- **Investeringen en beleid** hebben voor technologische innovatie gezorgd
- **Sommige opties zijn** technisch haalbaar en kosteneffectief en geliefd bij het publiek, maar gebeuren toch niet vanwege institutionele barriers
- Technologie is ongelijk verdeeld: **langzamer** in de meeste ontwikkelingslanden, met name de armste landen
- Terugveereffecten voorkomen met CO_2 beprijzing



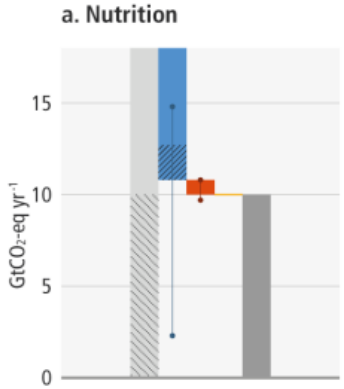
Gedragsverandering en vraag

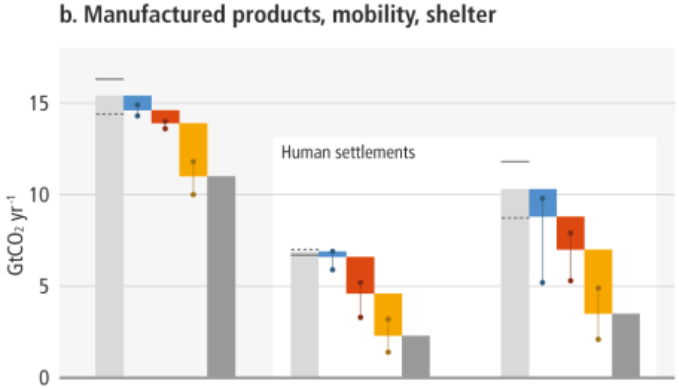
- Kan mondiaal emissies in 2050 reduceren met **40-70%**
- Wandelen, fietsen, elektrisch (openbaar) vervoer, verminderen vliegverkeer, en aanpassingen in huizen leveren grote bijdragen
- **lifestyleverandering** vergt **systeemverandering** door de hele maatschappij
- Sommige mensen hebben nog extra woonruimte, energie en hulpbronnen nodig

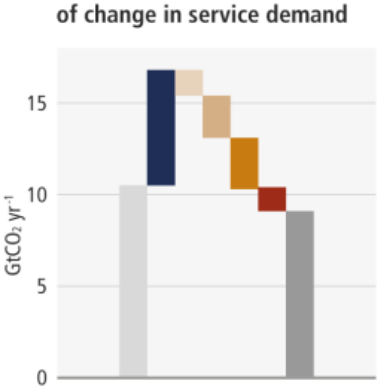
Demand-side mitigation can be achieved through changes in socio-cultural factors, infrastructure design and use, and end-use technology adoption by 2050.



[1] The presentation of choices to consumers, and the impact of that presentation on consumer decision-making.
[2] Load management refers to demand-side flexibility that cuts across all sectors and can be achieved through incentive design like time of use pricing/monitoring by artificial intelligence, diversification of storage facilities, etc.
[3] The impact of demand-side mitigation on electricity sector emissions depends on the baseline carbon intensity of electricity supply, which is scenario dependent.







End-use sectors	Food	Industry	Land transport	Buildings	Electricity
Services for wellbeing	Nutrition	Manufactured products	Mobility	Shelter	
Socio-cultural factors	Dietary shift (shifting to balanced, sustainable healthy diets), avoidance of food waste and over-consumption	Shift in demand towards sustainable consumption, such as intensive use of longer-lived repairable products	Teleworking or telecommuting; active mobility through walking and cycling	Social practices resulting in energy saving; lifestyle and behavioural changes	Additional emissions from increased electricity generation to enable the end-use sectors' substitution of electricity for fossil fuels, e.g. via heat pumps and electric cars (Table SM5.3; 6.6)
Infrastructure use	Choice architecture[1] and information to guide dietary choices; financial incentives; waste management; recycling infrastructure	Networks established for recycling, repurposing, remanufacturing and reuse of metals, plastics and glass; labelling low emissions materials and products	Public transport; shared mobility; compact cities; spatial planning	Compact cities; rationalisation of living floor space; architectural design; urban planning (e.g., green roof, cool roof, urban green spaces etc.)	Industry; Land transport; Buildings; Load management[2] — **Demand-side measures -73%**
End-use technology adoption	Currently estimates are not available (for lab-based meat and similar options – no quantitative literature available, overall potential considered in socio-cultural factors)	Green procurement to access material-efficient products and services; access to energy-efficient and CO_2 neutral materials	Electric vehicles; shift to more efficient vehicles	Energy efficient building envelopes and appliances; shift to renewables	Reduced emissions through demand-side mitigation options (in end-use sectors: buildings, industry and land transport) which has potential to reduce electricity demand[3]

Total emissions 2050: Mean ---- IEA-STEPS — IP_ModAct

Wat kunnen we met de enabling conditions for sufficiency?