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Towards zero carbon emissions -climate policy instruments for energy intensive industries, materials and products

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Characteristics of energy intensive industries (EIIs)

- High carbon and energy intensity
- Most of the industries under strong international competition
- Few options for radical emission reductions are commercially available
- Zero emission options often result in higher costs without providing improvements in product characteristics



Criteria for evaluation of policy instruments

- Effectiveness
 - Cost-efficiency
 - Risk for carbon leakage/competitiveness issues
 - Legitimacy (the potential for implementation)
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- The economic impact on industries is key for the instruments practical feasibility -> a focus on economic resource allocation important when analysing policy instruments

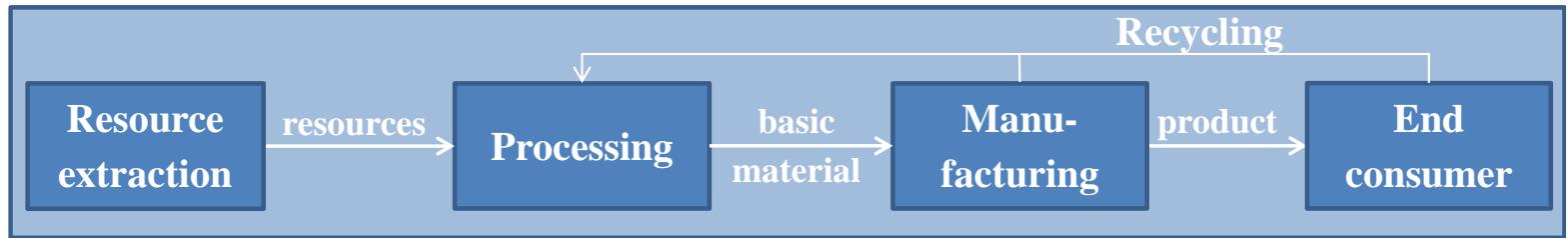


A resource-based typology for policy instruments

- Sticks
 - Carrots
 - Sermons
 - Cushions
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- The three first categories relates to eg. Vedung whereas the fourth is our own contribution



Interventions along the value chain



- The location of intervention has impact on
 - Preciseness
 - Incentives for action
 - Equal treatment of different producers (domestic/foreign)



Examples of instruments of the various types – more examples in the paper

	Resource extraction	Processing industry	Manufacturing industry	End-use
Sticks	Extraction fees Carbon pricing IED-regulation	Carbon pricing IED-regulation	Carbon pricing Material tax IED-regulation	Consumption tax Recycling regulation
Carrots	Support for electrification	R&D support Investment subsidies Risk sharing	R&D support Investment subsidies Risk sharing	Refund schemes (eg. packaging)
Sermons	Visions and roadmaps Voluntary agreements	Visions and roadmaps Voluntary agreements	Visions and roadmaps Voluntary agreements	Eco-labelling Quality standards
Cushions		Border tax adjustment Prod. subsidies		Economic compensation



Conclusion

- A transformation of EIs requires change across value chains and policy instruments applied accordingly
- An approach to policy analysis with a focus on the allocation of economic resources seems fruitful
- A combination of sticks, carrots, sermons and cushions seems necessary
- Without international agreements, policy packages need to balance more towards carrots. Sticks need to be combined with cushions
- Broader approaches for policy evaluation are needed – focusing on packages rather than on single instruments





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