Greening transport

Seeking employment-friendly sustainability

UNECE

November 7, 2017

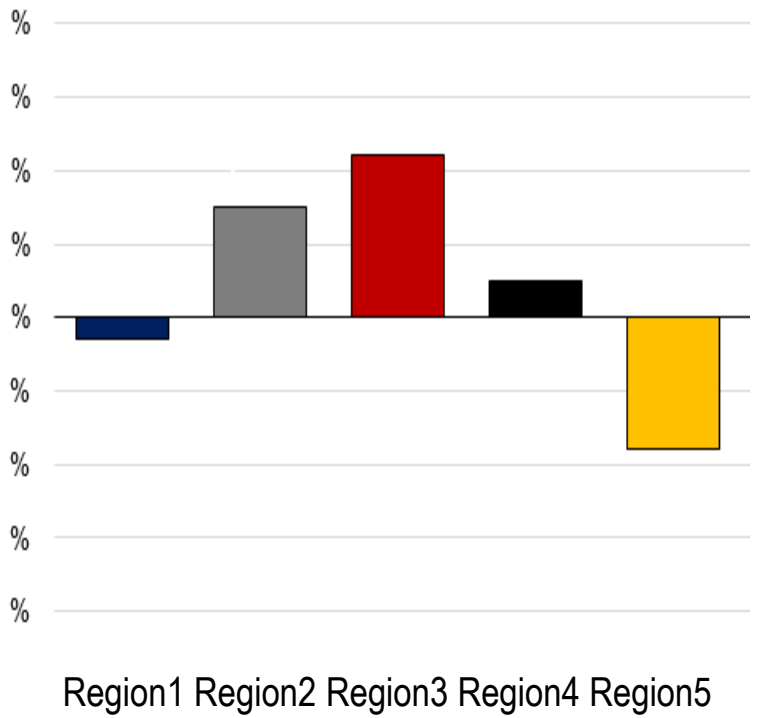
WESO 2018: Estimating the employment impact of a green transition

What will employment look like in a green economy? (direct + indirect)

- Energy scenario
  - Electricity, industry, electric vehicles, construction
- Agriculture scenario
  - Organic and conservation agriculture
- Circular economy scenario

The logic can be extended to other sectors

Employment in a green energy scenario, 2030, compared to BAU, by region.



Source: ILO calculations based on Exiobase and IEA scenarios

Exiobase and MRIO scenario analysis

Data: Exiobase

- Multi-regional input-output table: Models the world economy through linkages across industries
- 43 countries (most UNECE) + 5 RoW regions
- 163 industries & 200 products
- Maps international and national value chains
- Direct and indirect effects
- Satellite accounts: CO2, PM2.5 employment, skills, gender

Methods

- Technological change:
  - Change the input structure of the goods and industries
- Change in demand
  - Change the final or intermediate demand for the goods and industries
- Projections to 2030 using IMF (GDP) and ILO (employment)
- Assumptions

The transport sector in Exiobase

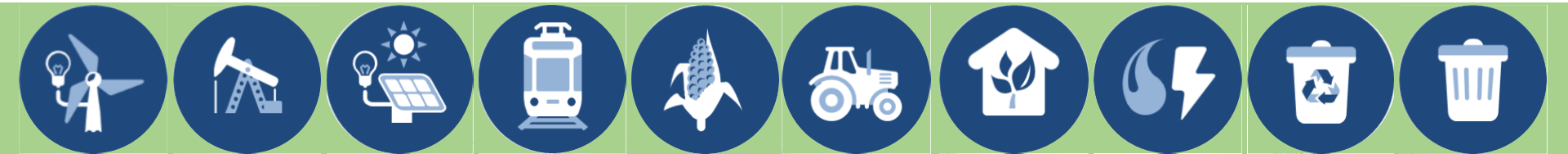
Direct

- Transport via railways and other land transport
- Transport via pipelines
- Sea and coastal water transport
- Inland water transport
- Air transport

Indirect

- Sale, maintenance, repair of vehicles
- Retail sale of fuel
- Manufacture of motor vehicles
- Manufacture of transport equipment

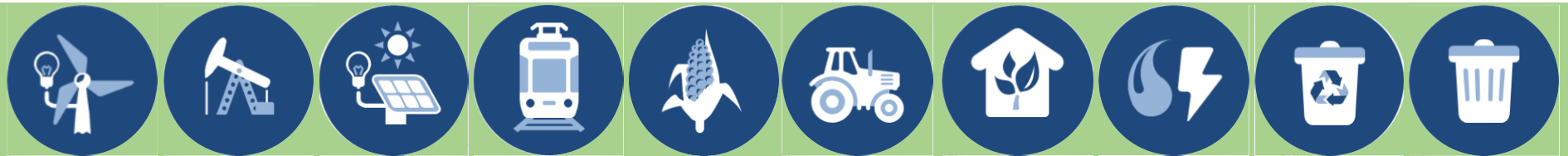
Currently, Exiobase has limited detail in bicycling, construction of specific infrastructure, public transport



Sustainable transport: What we could do now

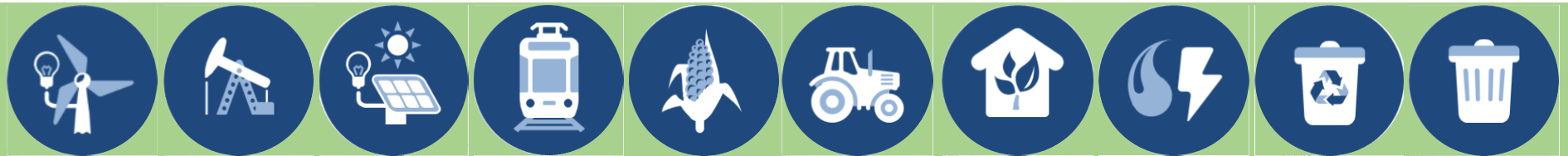
Compare job impacts of a Business as Usual with a Green Transport scenario:

- Map the **direct and indirect employment** linkages to the transport sector
- Model job impacts of a rise in **electric vehicle sales and use** (not the infrastructure investments, see last bullet)
- Model job impacts of a rise in the **private transport industry as a service** (car rental, ride sharing & hail services)



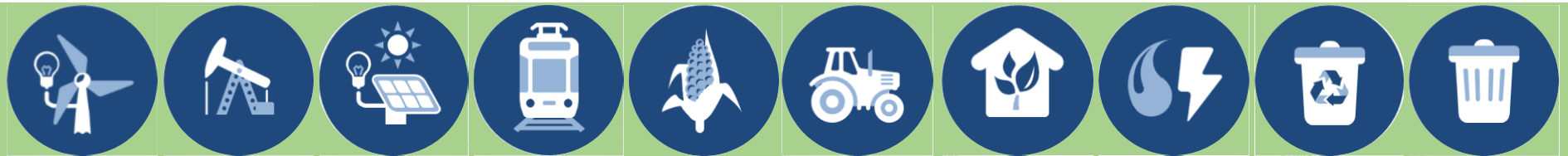
Sustainable transport: What we could do in addition

- Model the employment implications of a rise in the **public transport industry** as a service
- Model the direct and indirect employment implications of the **bicycling industry** as manufacturing and repair service
- Model the direct and indirect employment implications of **infrastructure investments** into public transport and bicycles transport
- **CO2 and PM2** emissions comparing green vs. BAU



What we need!

- Detailed green vs BAU transport scenarios by country and by sub-transport industry
- Public and private investment by sub-transport industry
- Final demand by sub-transport industry
- Development path of investment & final demand up to 2030



As a token of our appreciation, Some relevant references

Some papers using Exiobase

- Tisserant, A., S. Pauliuk, S. Merciai, J. Schmidt, J. Fry, R. Wood, and A. Tukker. 2017. Solid waste and the Circular Economy: a global analysis of waste treatment and waste footprints. Journal of Industrial Ecology. *In press*
- Simas, M.; Golsteijn, L.; Huijbregts, M.; Wood, R.; Herwich, E. 2014. "The "bad labor" footprint: Quantifying the social impacts of globalization", in *Sustainability*, Vol. 6, pp. 7514–7540.

Some papers using the methodology

- Garrett-Peltier, H. 2017. "Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input-output model", in *Economic Modelling*, Vol. 61, pp. 439–447.