

# Uncovering blind spots in the energy & transport sectors: Divergent thinking on transport decarbonisation

## BACKGROUND

Transport is arguably the most difficult sector to decarbonise. Transport accounts for nearly one-third of total final energy demand, while the share of renewable energy in the sector remains only 3.7%. Furthermore, the share of renewable energy has only increased by just over one percentage point during the past decade. During the same time, transport energy demand has increased more than 24%, much faster than in other sectors, and with the vast majority of that demand increase being met by fossil fuels. This is despite the significant rise in electric vehicles in recent years. (REN21, 2022) (→ See Figure 1.)

The transport and energy sectors will not be able to decarbonise independently. However, evidence suggests that actors within the transport and renewable energy sectors do not always see the 'full picture' when considering transport decarbonisation. The two sectors often operate in silos, attending different conferences, reading different materials, their government ministries not interacting, and so on. It is unsurprising that the Avoid-Shift-Improve (ASI) Framework, which was created within the transport sector, originally did not consider sources of energy. Transport actors have often still tended to focus on Avoid, Shift, and only on electrification and efficiency under Improve, while renewable energy actors have still tended to focus only on energy source. (REN21, 2020) (→ See Figure 2.)

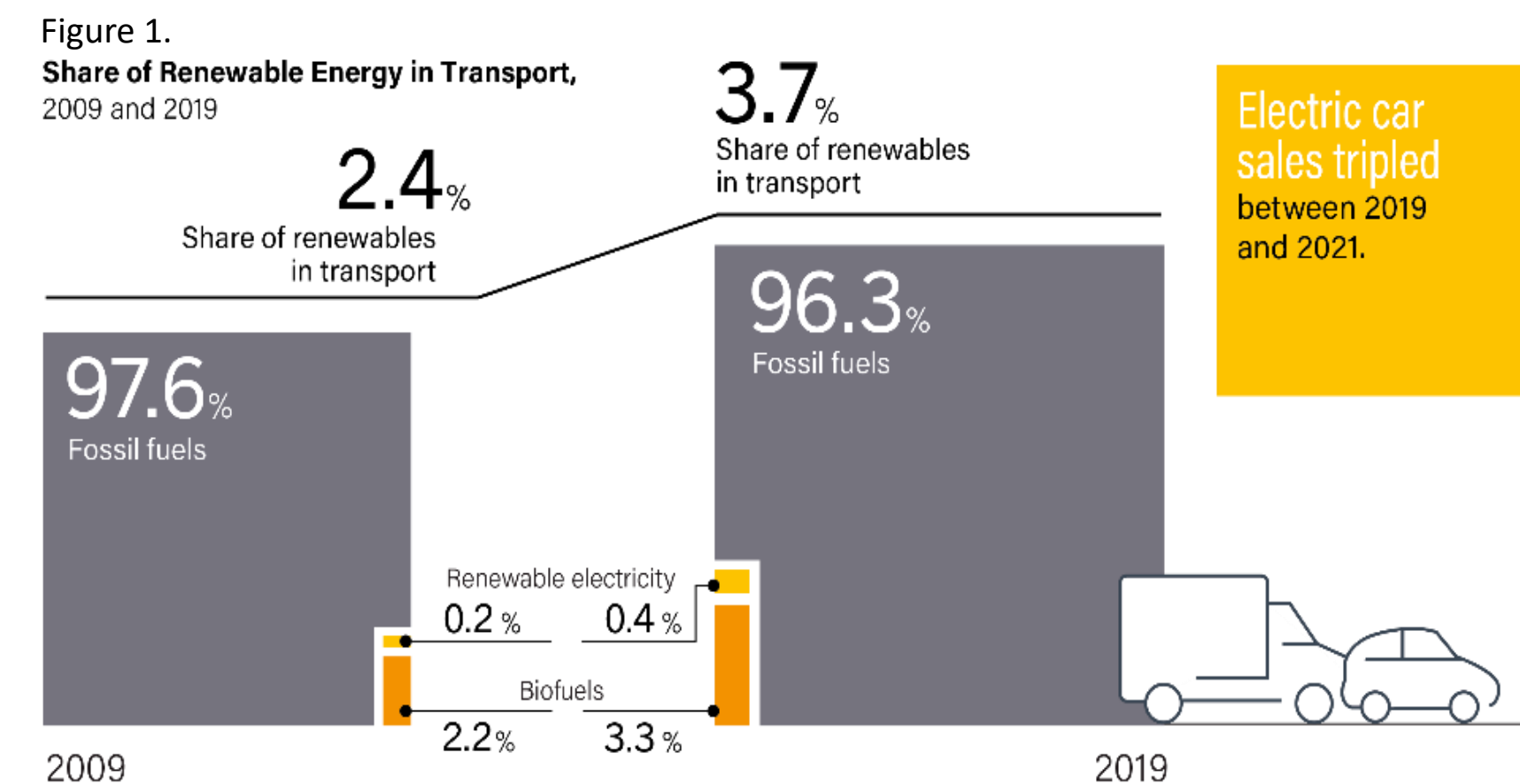
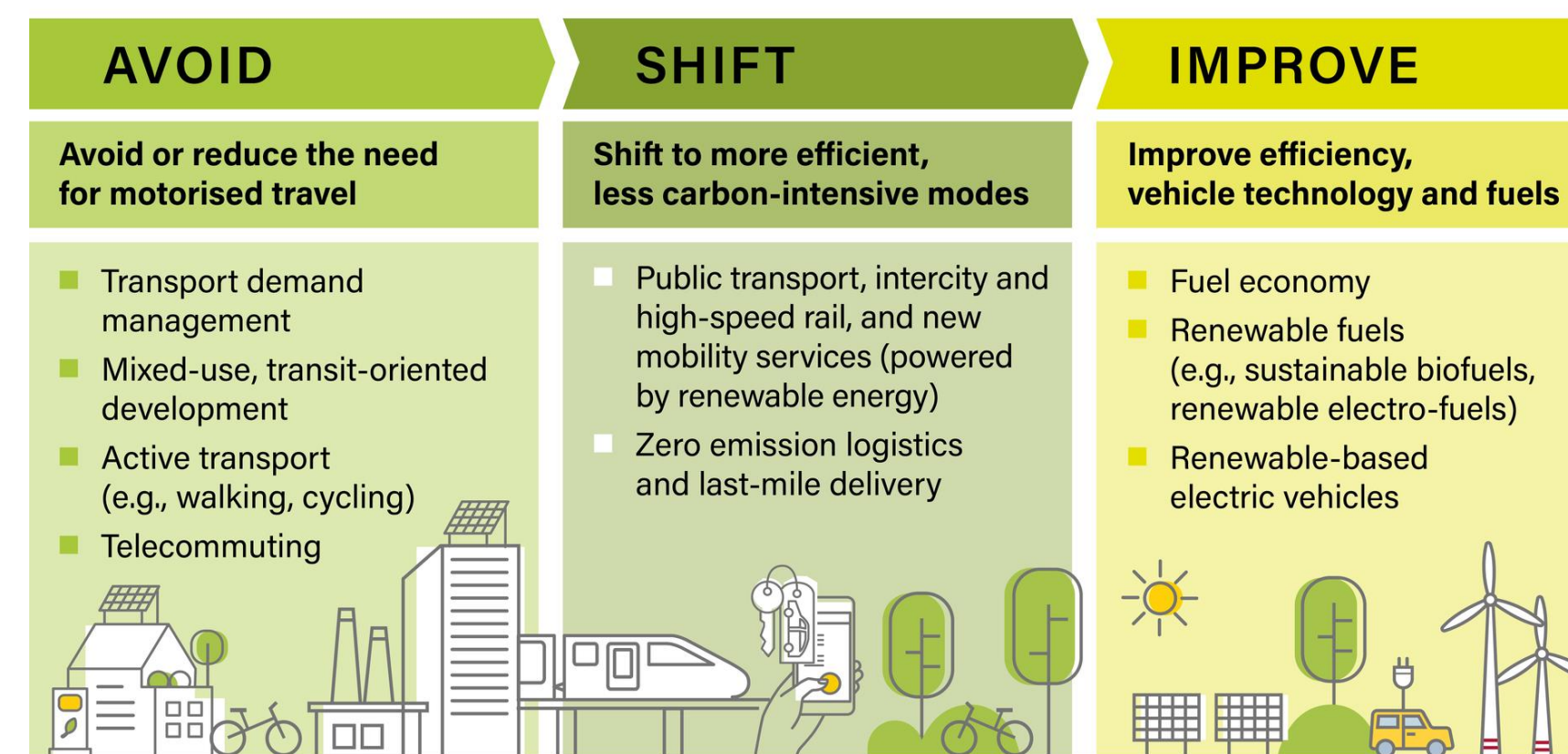


Figure 2. Avoid-Shift-Improve Framework in the Transport Sector



## MOTIVATION & RESEARCH QUESTIONS

By better understanding the perspectives and starting points of actors within the two sectors, 'blind spots' can be identified, more common ground could potentially be found, communication could be better tailored to reach the different communities, and points of disparity or discord could be addressed. To that end, this study seeks to address the following questions:

- What differences are there between how energy and transport sector experts think about decarbonising transport when it comes to which energy sources they consider to be clean and sustainable?
- Is one sector or the other more optimistic about the global renewable energy share in transport by 2050?
- Are there differences in perspectives between: OECD/non-OECD countries; major oil producing countries vs other countries; or different demographics?

## METHODS

In collaboration with REN21 as part of the *Renewables Global Futures Report 2022* under the NDC Transport Initiative for Asia, a survey was developed with 26 questions, including 15 multiple choice/selection, 2 ranking, and 9 open-ended questions on the SoGo online survey platform. The survey began with demographic questions while the vast majority of the questions were aimed at gauging respondents' perspectives about energy and transport. Some questions were forward-looking (to 2050), while some were about energy and/or transport in general.

The survey was distributed among REN21's mostly energy-focused network but also within the networks of partner organisations from both the energy and transport sectors. The survey was active for 6 weeks, and 79 responses were collected while 74 were retained for analysis. Respondents were from 40 different countries representing all major continents. Respondents included 35 primarily energy sector experts, 9 primarily transport sector experts, 24 people having expertise in both sectors, and the remainder focusing on other sectors. 116 variables were analysed for correlation, and significance was tested using a 0.05 and 0.10 significance level. Insights were drawn from the strength and confidence of the observed correlations.

## RESULTS

- Uncertainty regarding future renewable energy share:** Regardless of sectoral expertise or location, there seemed to be no real consensus regarding the share of renewable energy in the transport sector globally by 2050, though a slightly higher number of respondents indicated the 26-35% range. (→ See Figure 3.)

- Clear consensus on solar and wind vs coal:** All respondents regardless of sector considered solar and wind energy to be sustainable and coal to be unsustainable. (→ See Table.)

- Opposing views on renewables and natural gas:** Experts working in the energy sector were more likely to rate positively nearly all renewable energy sources and rate negatively natural (fossil) gas, whereas the opposite was true for experts working in the transport sector. (→ See Table.)

- While energy experts were more likely to consider geothermal energy, hydropower, and waste-to-energy as sustainable, transport experts were less likely to do so.
- Transport experts were also less likely to consider biofuels and biomass to be sustainable.
- Transport experts were more likely, and energy experts were less likely, to consider natural (fossil) gas to be sustainable.
- Transport experts were less likely to consider hydrogen (from any source) to be sustainable.

- Older respondents more "environmentally-conscious"?:** Regardless of sectoral expertise, the older the respondent, the less likely they were to consider energy from any fossil sources (with or without CCS), nuclear, hydropower, or waste-to-energy to be clean/sustainable.

- More positive view of fossil fuels and nuclear in major oil-producing countries:** Respondents located in major oil-producing countries were more likely to consider energy from any fossil sources (with or without CCS) and nuclear to be clean/sustainable.

- Less optimistic views of renewable energy in major oil-producing countries:** Respondents located in major oil-producing countries were more likely to indicate that they anticipated the renewable energy share in transport in their country to be less than 10% by 2050, and that major challenges to decarbonising included vehicle technologies and availability of low carbon fuels.

- More optimistic views of net-zero in OECD countries:** Respondents from OECD countries were more likely to indicate that achieving net-zero in transport or overall was moderately or highly likely in their country.

## CONCLUSIONS

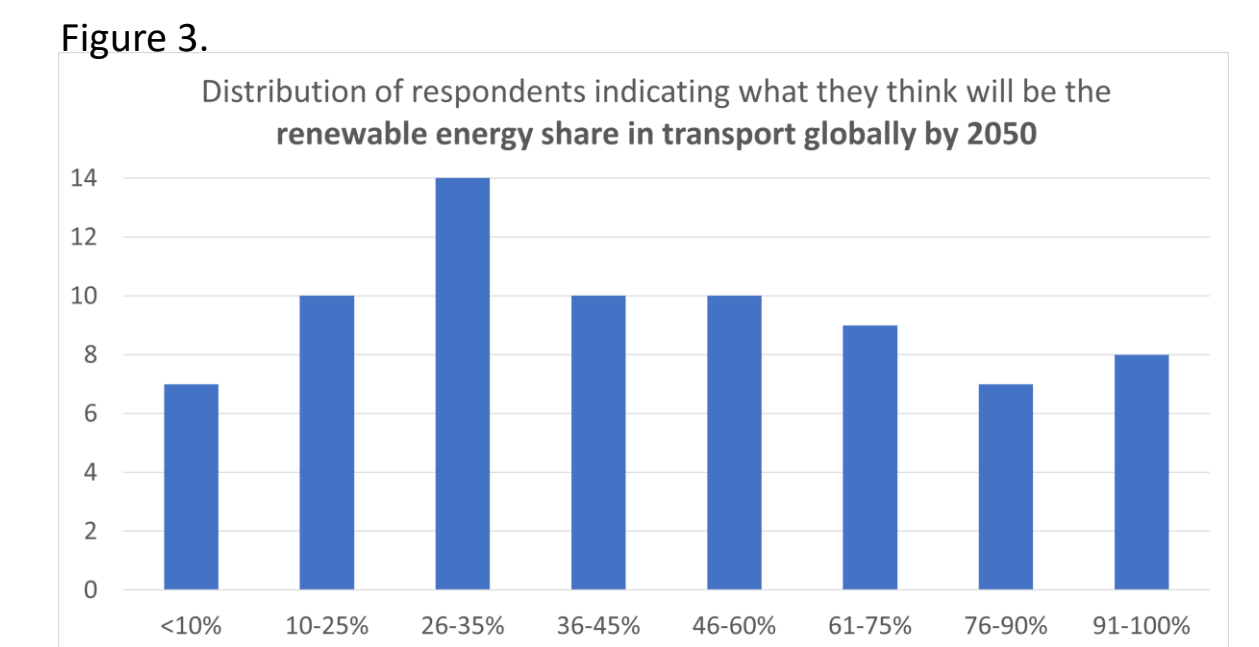
If transport decarbonisation is a main goal for both sectors, and if we accept that neither sector will be able to decarbonise independently, agreement on some key points would be helpful, if not necessary in some cases – at the least what fuels are clean and sustainable, but also what the primary challenges are, what measures should be prioritised, and even that decarbonisation by 2050 is a possibility. Acknowledging that such blind spots exist can aid in achieving mutual goals. Both energy and transport practitioners can use this knowledge to help inform their work – from awareness raising to coalition building and policymaking – ultimately increasing the chances of making decarbonised transport a reality. Additional research would be helpful to gain insight into the reasons behind the divergent views, which could further aid in developing more understanding between the sectors.

## REFERENCES

REN21, *Renewables Global Status Report*, editions 2020 & 2022, [www.ren21.net/gsr](http://www.ren21.net/gsr).  
REN21, *Renewables Global Futures Report 2022* (forthcoming), <https://www.ren21.net/reports/global-futures-report>.  
NDC Transport Initiative for Asia, <https://www.ndctransportinitiativeforasia.org>.

## ACKNOWLEDGEMENTS

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Views on the sustainability of different fuels of experts working in the energy sector vs the transport sector

	Energy	Transport
Renewable	Solar power	▲
	Wind power	▲
	Geothermal	▲
	Hydropower	▲
	Biofuels and biomass	▲
	Ocean energy	▲
	Waste-to-energy	▲
Non-renewable	Coal	▼
	Natural (fossil) gas	▼
	Electricity (from any source)	▲
	Nuclear	▲
	Any fossil fuel with CCS	▲
Hydrogen	Hydrogen produced using renewable power	▲
	Hydrogen produced using nuclear power	▲
	Blue hydrogen (produced using fossil fuels, with CCS)	▲
	Grey hydrogen (produced using fossil fuels, no CCS)	▲

KEY  
 ▲ Viewed as more sustainable  
 ▼ Viewed as less sustainable  
 — Not strongly viewed as sustainable or unsustainable