

Latvia's green energy development - at what expense?

Haralds Millers, Tomass Liepnieks, Anrijs Tukulis, Karīna Viskuba

CONTENT

- 1** Topicality and Problem
- 2** World Energy Council and Sustainability
- 3** Energy Intensity
- 4** Low Carbon Electricity Generation
- 5** CO₂ Intensity per Capita
- 6** Conclusions and Proposals

“

**Vision without execution is
hallucination.”**

—Thomas Edison

1. TOPICALITY AND PROBLEM

- Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels. Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate (IPCC 2021)
- In 2019 The European Union member countries made a European green deal initiative to become the first climate-neutral continent by becoming a modern, resource-efficient economy. In 2021 European Climate Law added a legally binding obligation upon which the European Union purports to achieve climate neutrality by 2050



The problem of the study - An insufficient set of activities in the Latvian energy sector will lead to a gradual deterioration of the Latvian Sustainability Index and achievement of the set goals, to become climate neutral in the future.

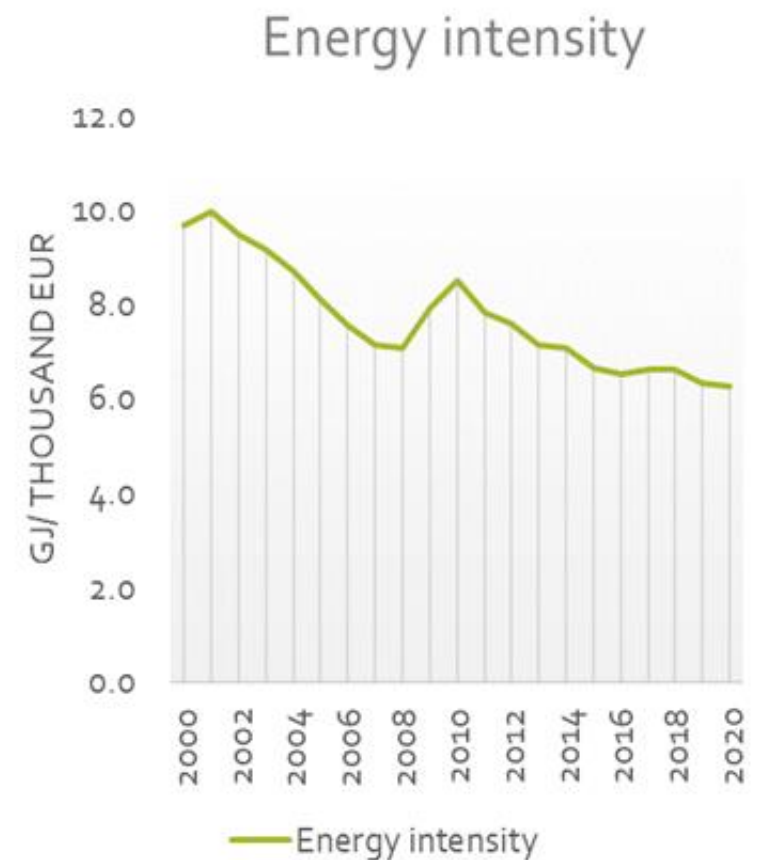
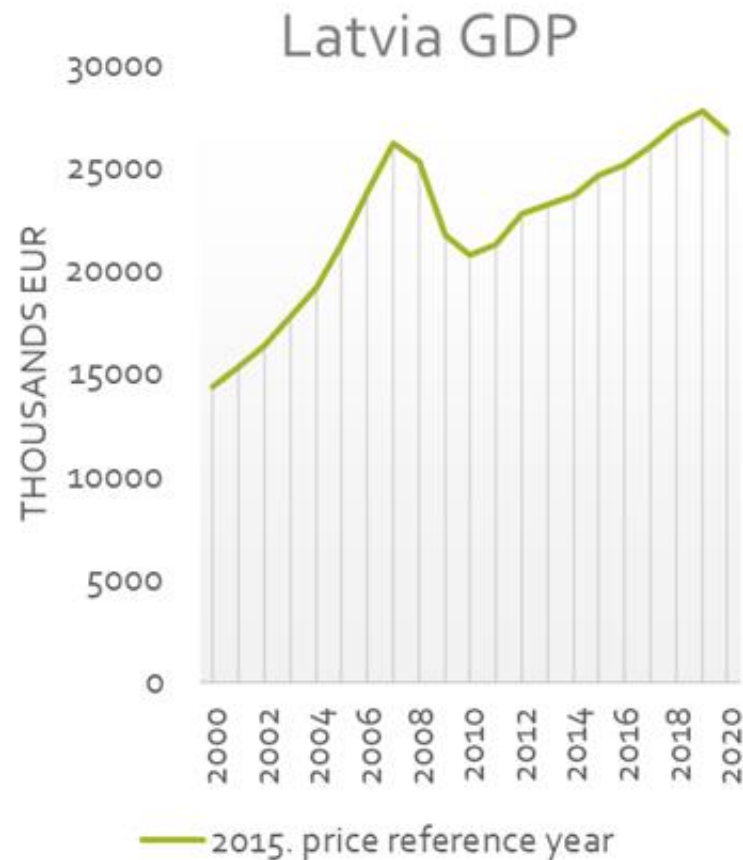
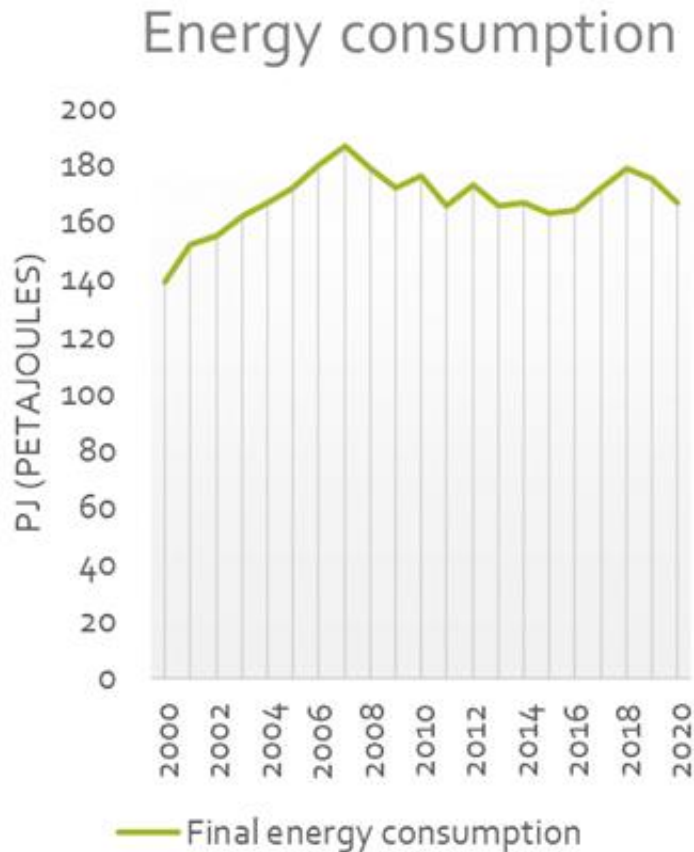
Aim of study - analyze the assessment of the WEC Trilemma Sustainability Index by using literature, strategic planning documents, statistical and graphical analysis, as well as expert interviews, to conclude and make suggestions for improving the assessment in the future.

2. World Energy Council and Sustainability

		C1 RESOURCE PRODUCTIVITY	C2 DECARBONISATION	C3 EMISSIONS AND POLLUTION					
ENVIRONMENTAL SUSTAINABILITY	C1a	5%	C2b	4%	C3a	2%	C3b	1%	
							CO2 per capita		
						CO2 intensity		C3c	1%
								CH4 per capita	
	Final energy intensity		CO2 emissions trend		C3d	4%	C3e	4%	
C1b	4%	C2a	5%						
	Efficiency of power generation and T&D		Low carbon electricity generation						
					PM2.5 mean annual exposure		PM10 mean annual exposure		

3. Energy intensity

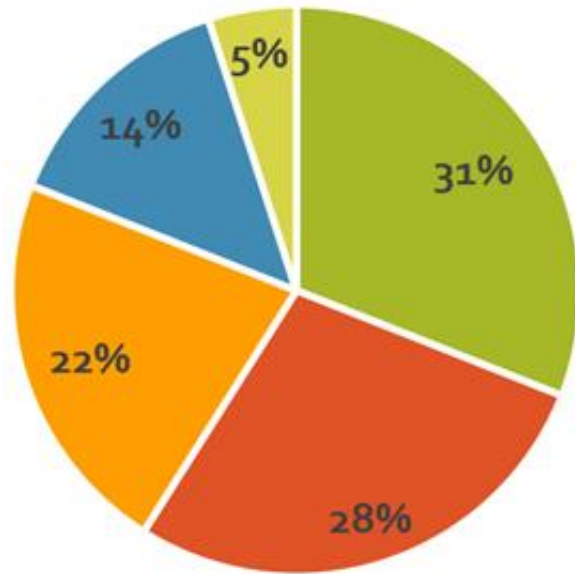
$$\text{Energy intensity} = \frac{\text{Final energy consumption}}{\text{GDP}}$$



Data from Central Statistical Bureau Republic of Latvia (2021)

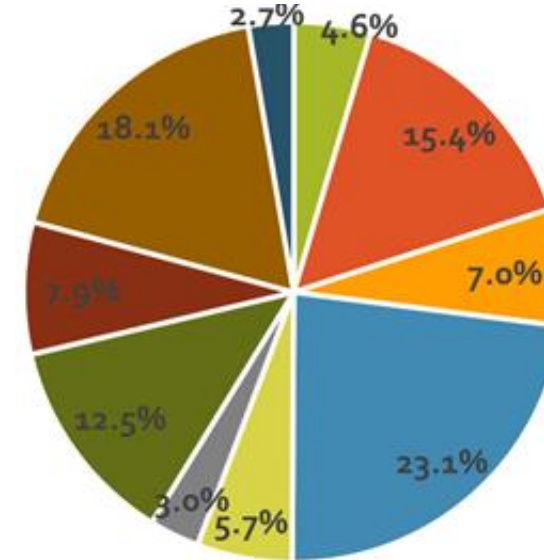
Divided by sector

Final energy consumption by sector



- Transport
- Households
- Industry and construction
- Commercial and public sector
- crop production, stockraising, forestry, fisheries

GDP by sector

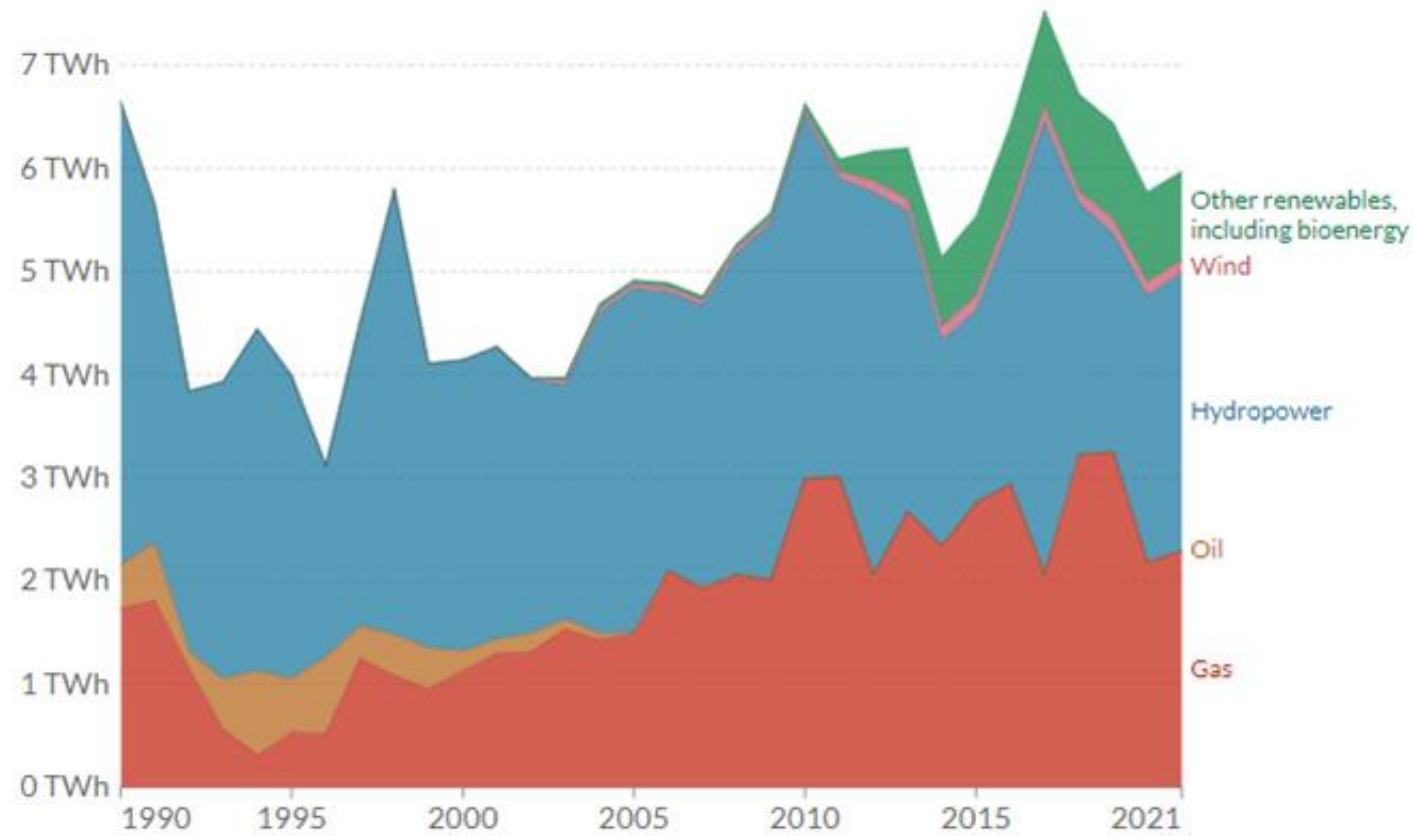


- Agriculture, forestry and fishing
- Industry
- Construction
- Wholesale and retail trade, transport and storage, accommodation and food services
- Information and communication services
- Financial and insurance activities
- Real estate activities
- Professional, scientific and technical activities, administrative and support service activities
- Public administration and defense, compulsory social security, education, health and social work
- Arts, entertainment and recreation, other services, activities of households as employers

Data from Central Statistical Bureau Republic of Latvia (2021)

4. Low Carbon Electricity Generation

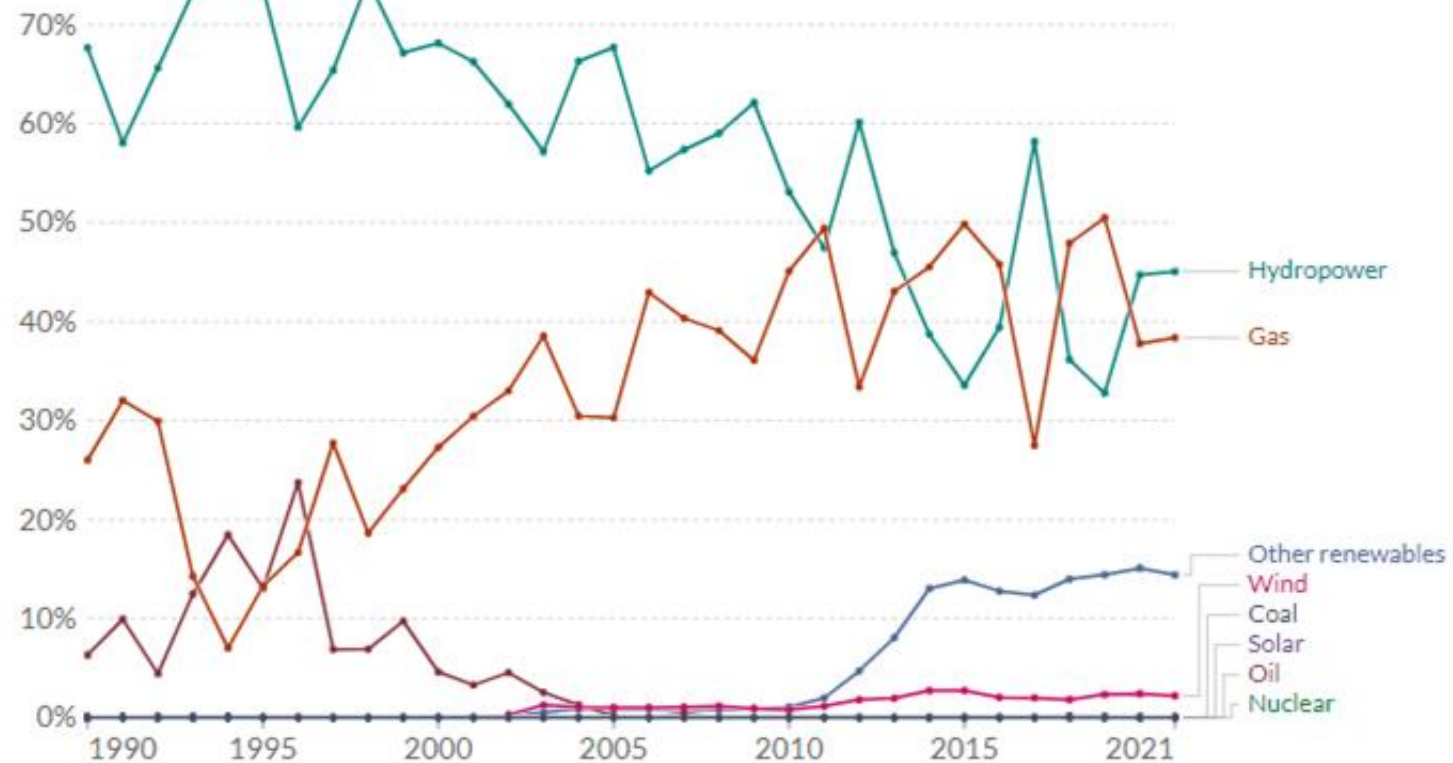
Electricity Production by Source in Latvia, 1990 - 2021



Ritchie H., Roser M. (Our World in Data) Latvia: Energy Country Profile. URL: <https://ourworldindata.org/energy/country/latvia>

4. Low Carbon Electricity Generation

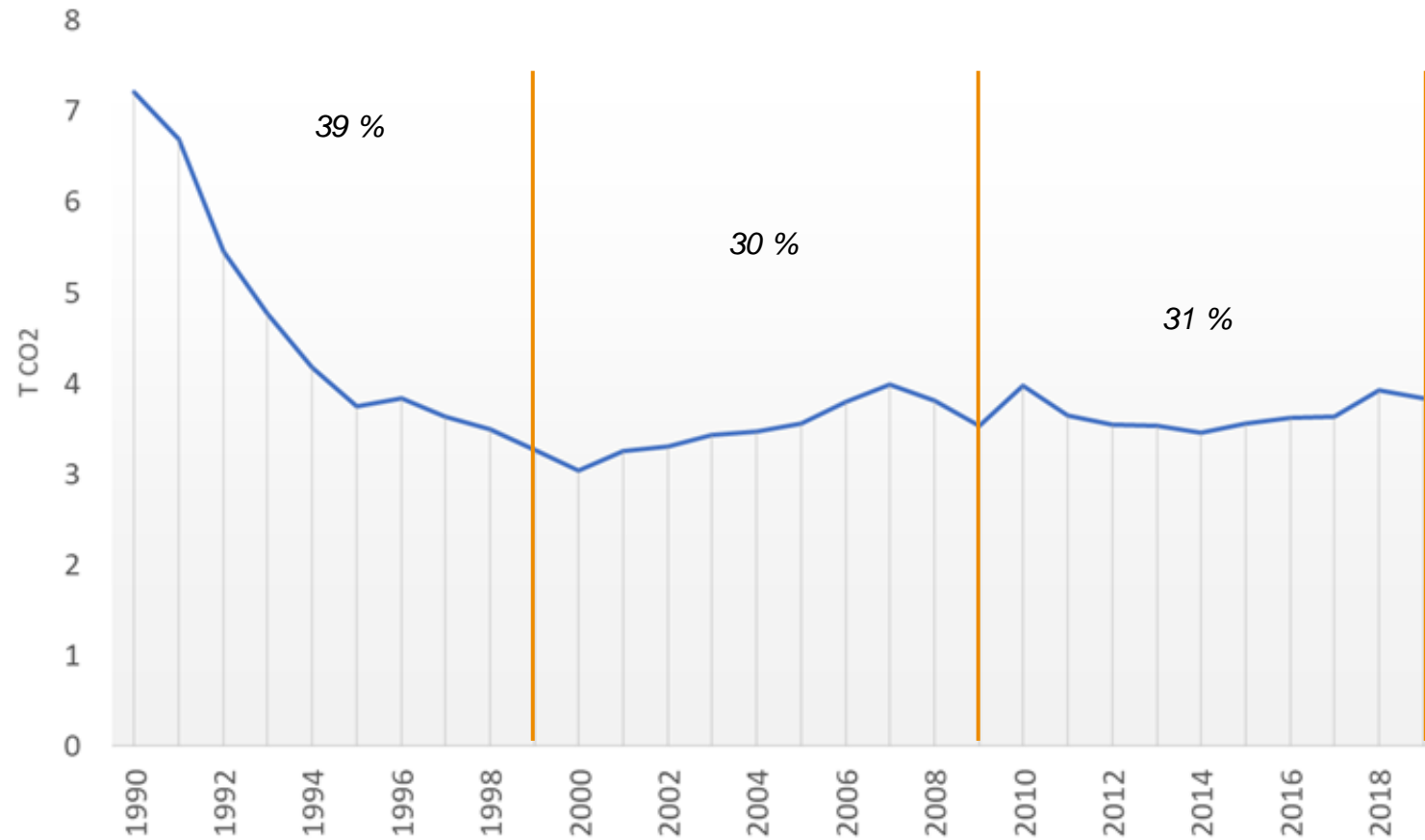
Share of Electricity Production by Source in Latvia, 1990 - 2021



Ritchie H., Roser M. (Our World in Data) Latvia: Energy Country Profile. URL: <https://ourworldindata.org/energy/country/latvia>

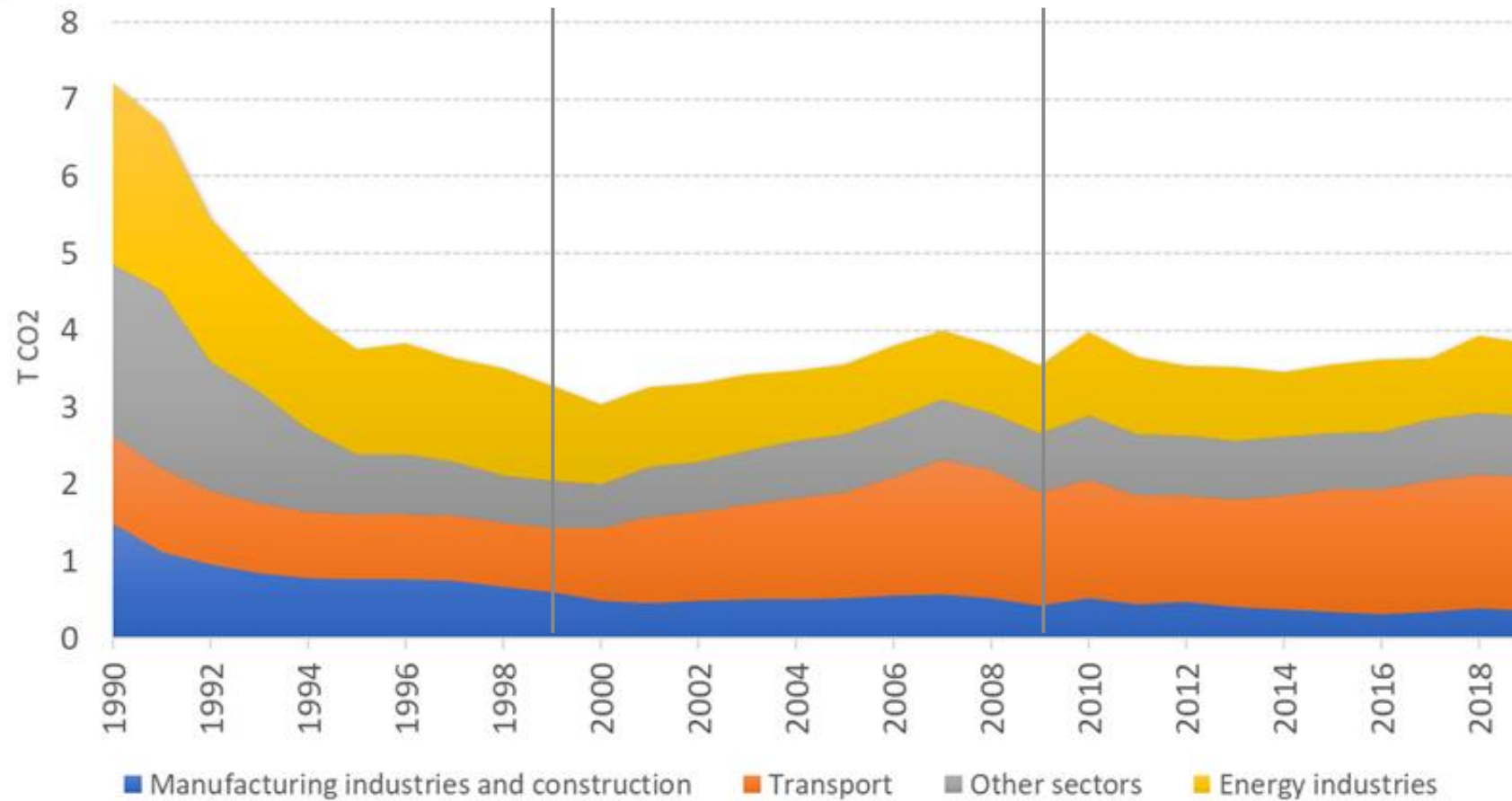
5. CO₂ Per Capita

t CO₂ Per Capita in Latvia, 1990 - 2019



5. CO₂ Per Capita

t CO₂ Per Capita by Sectors in Latvia, 1990 - 2019



6. Conclusions and Proposals

The main conclusion is that overall the “greenness” of the Latvian energy sector is **based on historical achievements, a gradual transformation of the economy and changes in consumer behaviour.**

6. Conclusions and Proposals



Energy consumption is valued as stable and energy intensity is also gradually improving.



It is necessary to develop the production of high value added goods and services.



The share of low-carbon electricity generation in Latvia is made up of historically installed capacity.



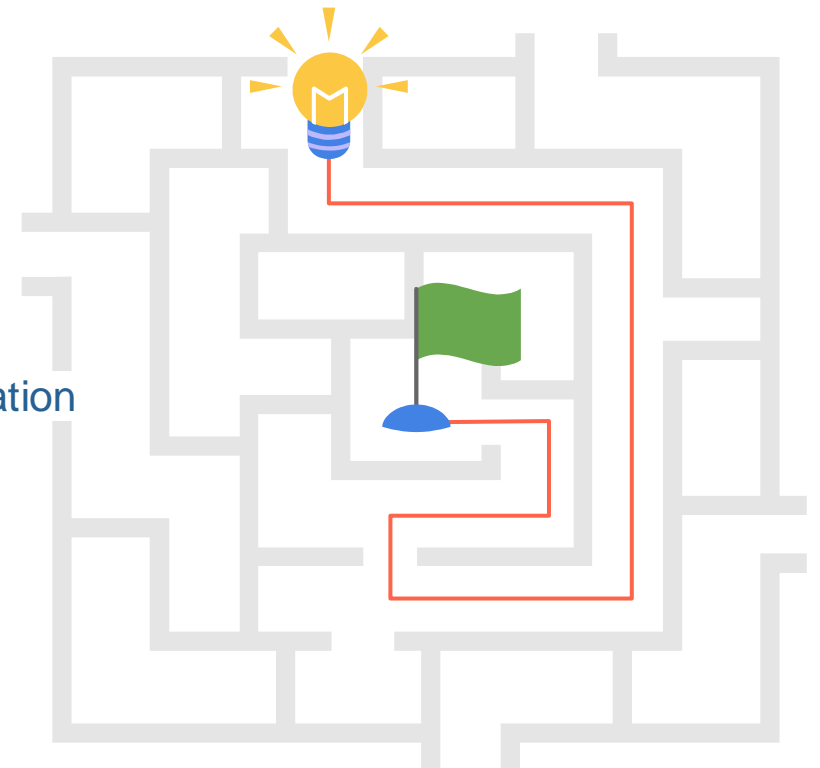
A complex solution is needed: reviewision of sectoral policies, prioritisation and support mechanisms for promoting the generation of RES.



The total amount of emissions in Latvia from the fossil fuel combustion-related sectors has decreased significantly, but there are sectors where it continues to grow, such as transport sector.



Reviewision of sectoral policies, prioritisation and support mechanisms for switching to more environmentally friendly vehicles.



LITERATURE REVIEW

- **AS “Augstsprieguma tīkls”.** AS “AUGSTSPRIEGUMA TĪKLS” ILGTSPĒJAS PĀRSKATS 2020. URL: https://www.ast.lv/sites/default/files/editor/AST_ilgtspejas_parskats_2020.pdf
- **AS “Sadales tīkls”.** AS “SADALES TĪKLS” GADA PĀRSKATS 2020. URL: https://sadalestikls.lv/storage/app/media/uploads/2021/04/ST_-2020_gada-prskats_LV_.pdf
- **Brauer M., et al.** 2017, for the Global Burden of Disease Study 2017. *Latvia - PM2.5 air pollution, mean annual exposure.* URL: <https://www.indexmundi.com/facts/latvia/indicator/EN.ATM.PM25.MC.M3>
- **OECD iLibrary.** *Air Quality.* URL: <https://www.oecd-ilibrary.org/sites/80661e2d-en/index.html?itemId=/content/component/80661e2d-en>
- **Ritchie H., Roser M. (Our World in Data)** *Latvia: Energy Country Profile.* 2020. URL: <https://ourworldindata.org/energy/country/latvia>
- **The World Bank.** *Electric power transmission and distribution losses (% of output) - European Union.* URL: <https://data.worldbank.org/indicator/EG.ELC.LOSS.ZS?end=2014&locations=EU&start=1986&view=chart>
- **VSIA “Latvijas Vides, ģeoloģijas un meteoroloģijas centrs”.** 2021. *gadā iesniegtās gaisa piesārņojošo vielu inventarizācijas kopsavilkums.* URL: <https://videscentrs.lv/gmc.lv/lapas/gaisa-piesarnojums>
- **World Energy Council.** *World Energy Trilemma Index 2021.* URL: <https://trilemma.worldenergy.org/>

THANK YOU!

Do you have any questions?



<https://www.facebook.com/NELLatvija>



Acknowledgements. The authors would like to express their gratitude to an executive committee of program “Future Energy Leaders in Latvia”.