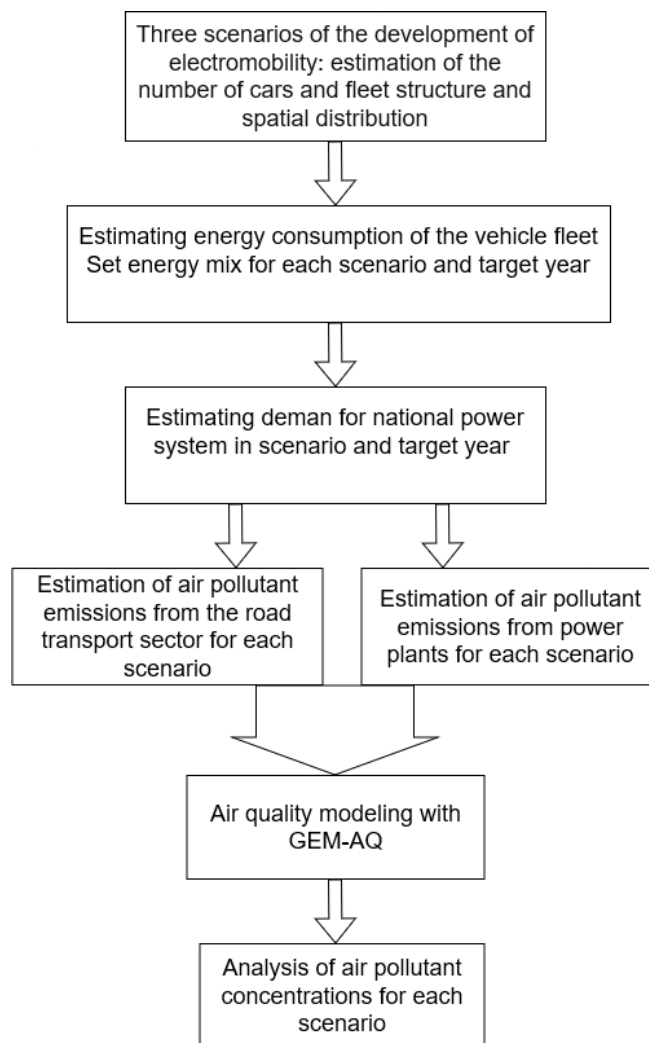




## Supplementary Materials



**Fig. S1.** Project concept.

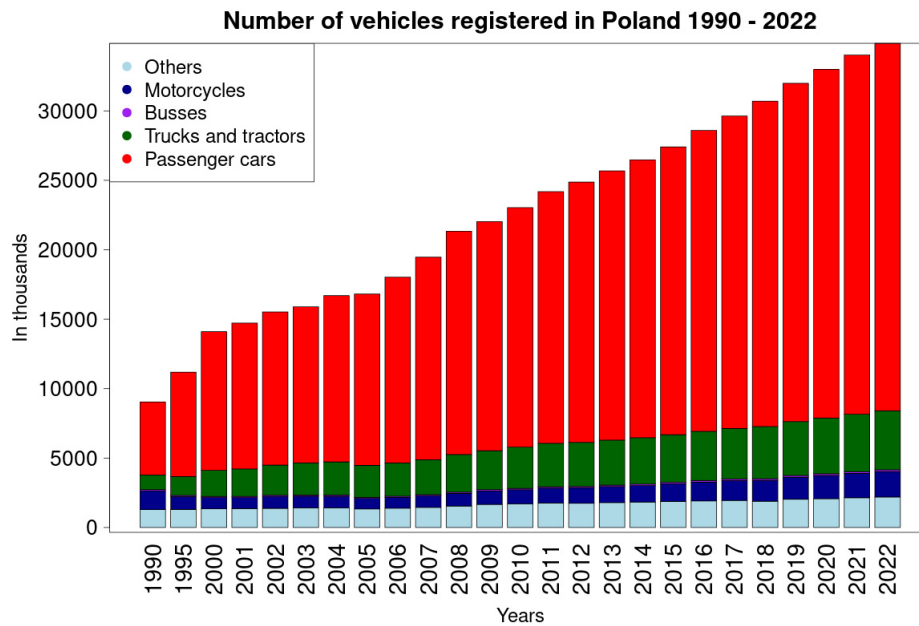


Fig. S2. Number of vehicles registered in Poland. Source: PAIA

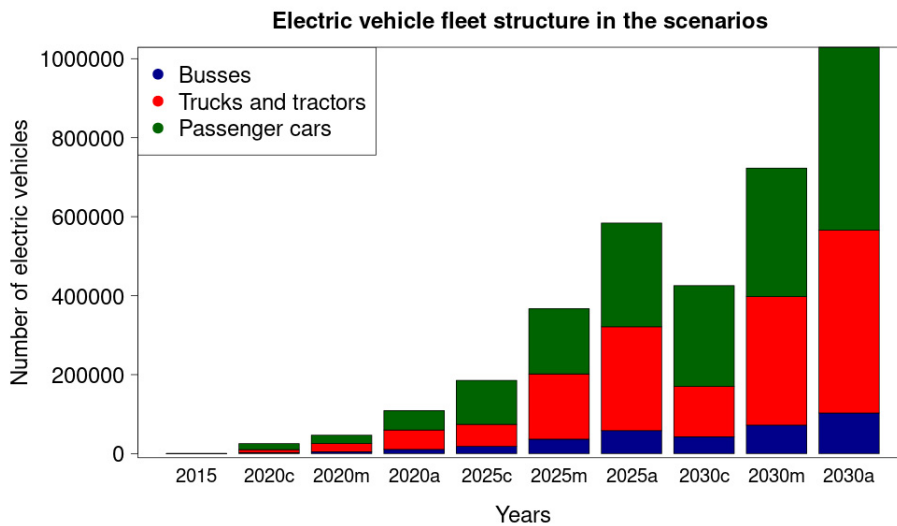
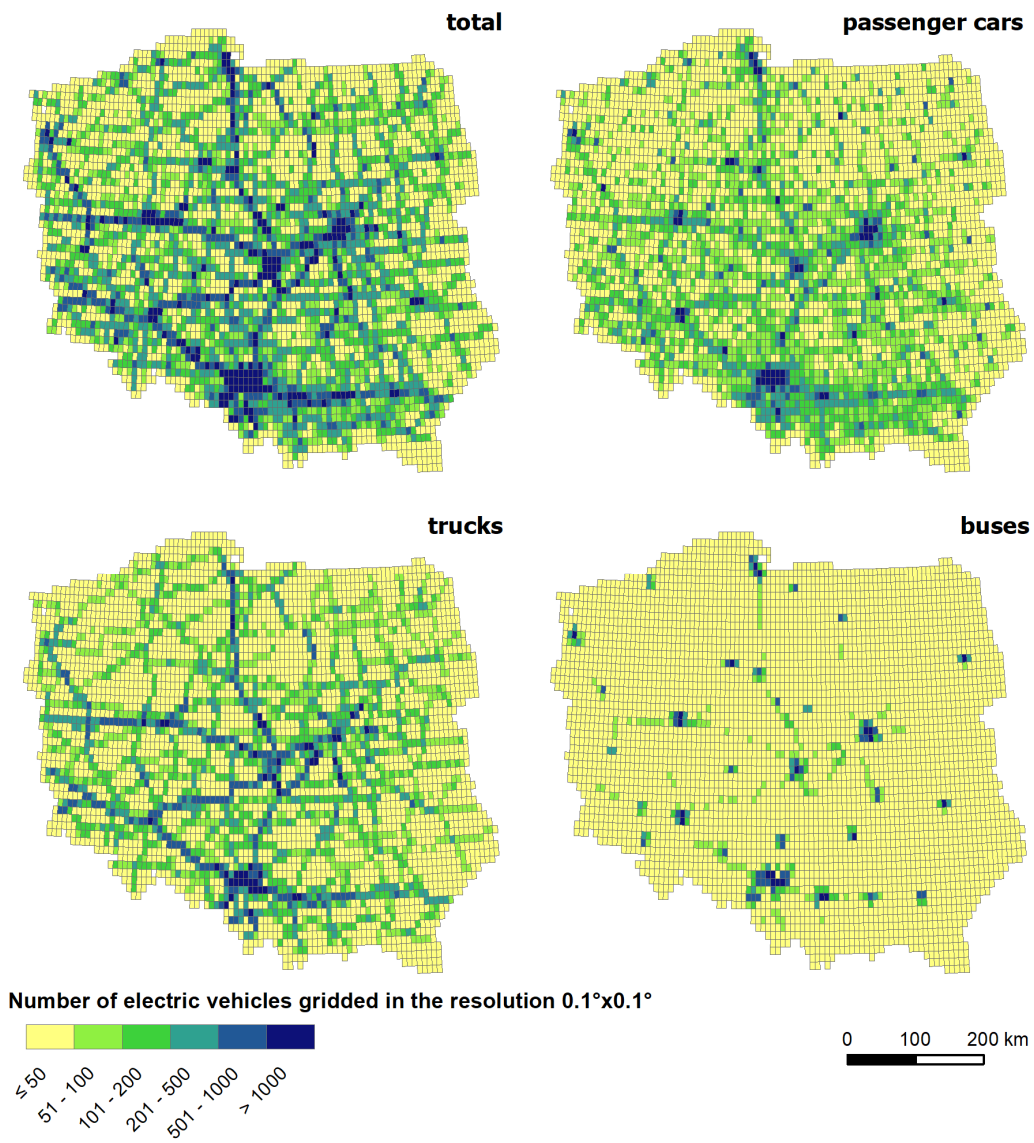
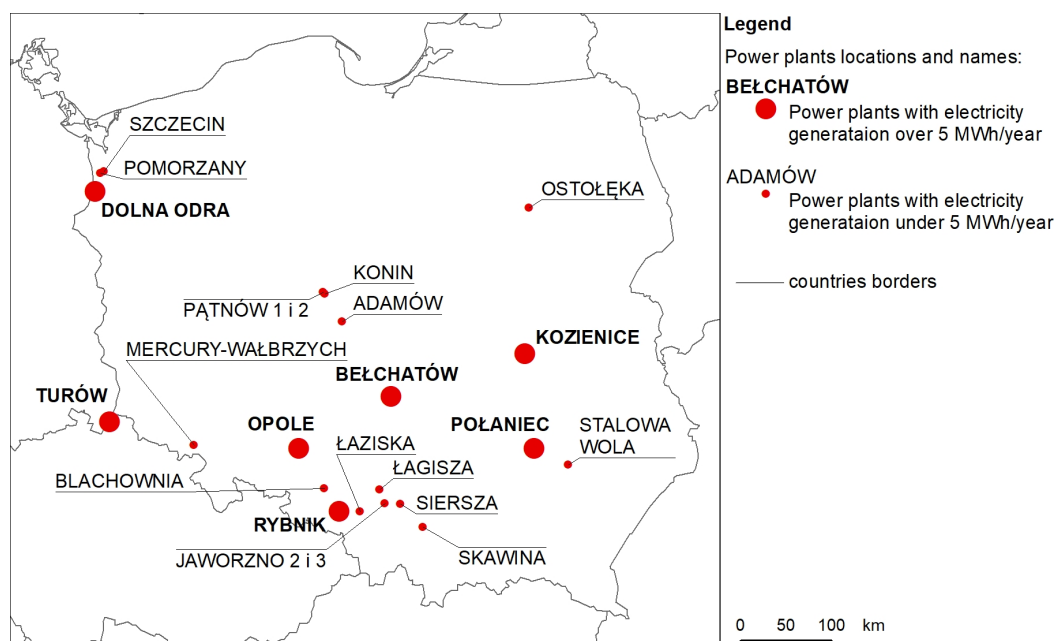


Fig. S3. Electric vehicle fleet structure in the different scenarios of development of electromobility (a – aggressive scenario, m – moderate scenario, c – conservative)



**Fig. S4.** Electric vehicle distribution forecast: total (top left), passenger cars (top right), trucks (bottom left) and buses (bottom right) in the aggressive scenario in 2030.



**Fig. S5.** Location of power plants for which modulation of power generation was assumed due to the increase of the electric vehicle fleet

**Table S1.** Increase in electricity production in selected power plants under the aggressive scenario for 2030

Name of the power plant	Increase in electricity production [TWh]
Elektrownia ADAMÓW	1.16
Elektrownia BELCHATÓW	12.45
Elektrownia BLACHOWNIA	0.21
Elektrownia DOLNA ODRA	1.92
Elektrownia JAWORZNO 2	0.42
Elektrownia JAWORZNO 3	1.73
Elektrownia KONIN	0.28
Elektrownia KOZIENICE	4.79
Elektrownia ŁAGISZA	1.20
Elektrownia ŁAZISKA	1.46
Elektrownia MERCURY-WAŁBRZYCH	0.02
Elektrownia OPOLE	2.43
Elektrownia PAŃNÓW-1	1.63
Elektrownia PAŃNÓW-2	0.86
Elektrownia POŁANIEC	3.52
Elektrownia POMORZANY	0.25
Elektrownia RYBNIK	2.74
Elektrownia SIERSZA	0.71
Elektrownia SKAWINA	0.51
Elektrownia STAŁOWA WOLA	0.33
Elektrownia SZCZECIN	0.17
Elektrownia TURÓW	2.95

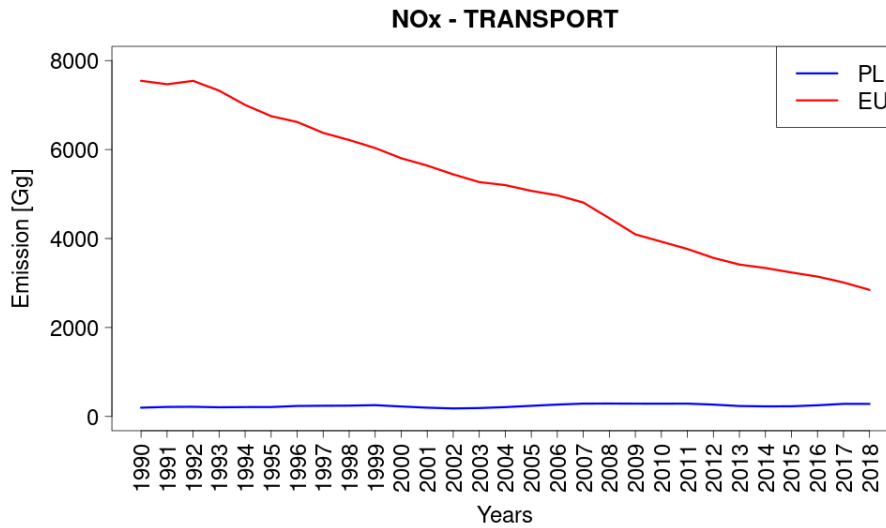


Fig. S6. The NOx emission trend in the transport sector (SNAP7) based on the EMEP0.5 inventory

Table S2. Average reduction of emissions from the transport sector (SNAP7)

%	conservative	moderate	aggressive
2020	0.25	0.3	0.5
2025	0.66	1.1	1.7
2030	1.1	2.5	3.4

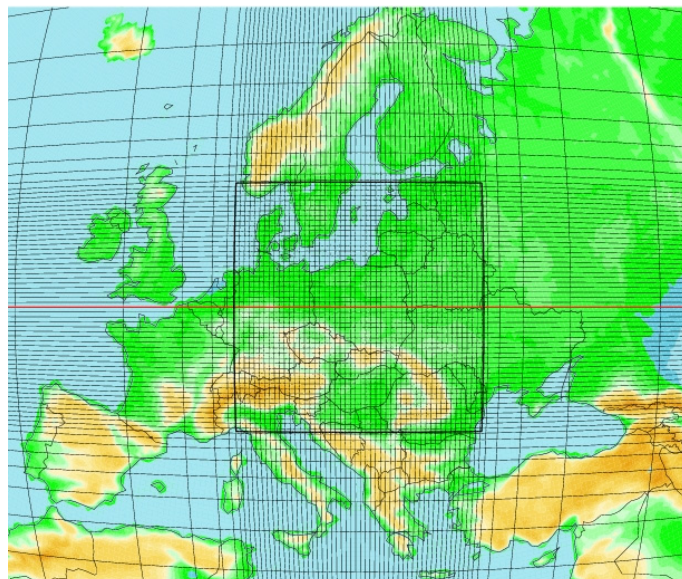
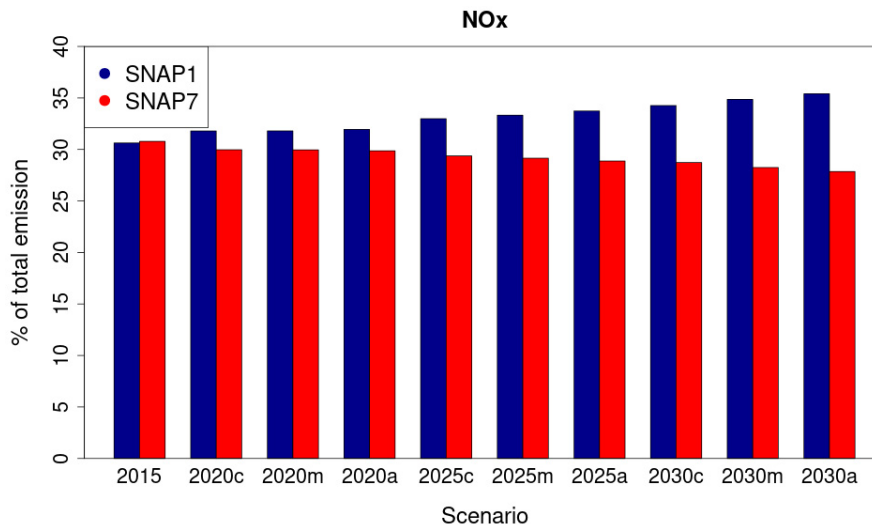
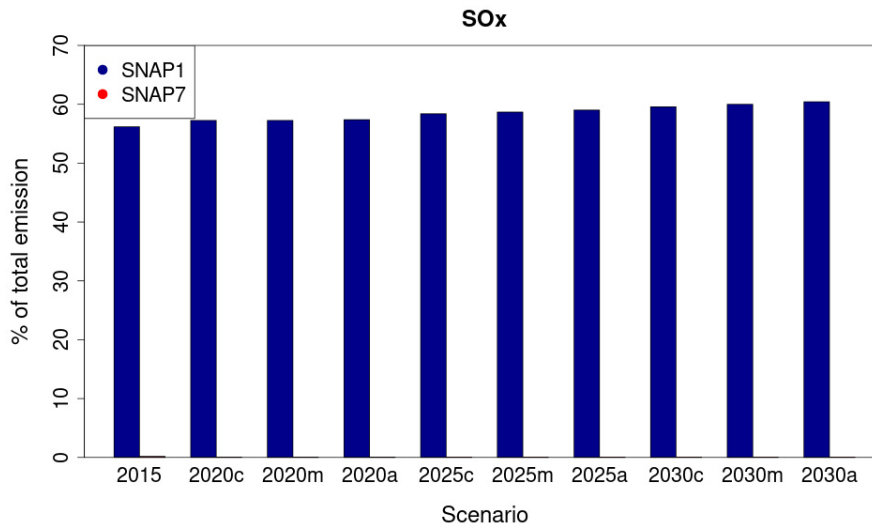


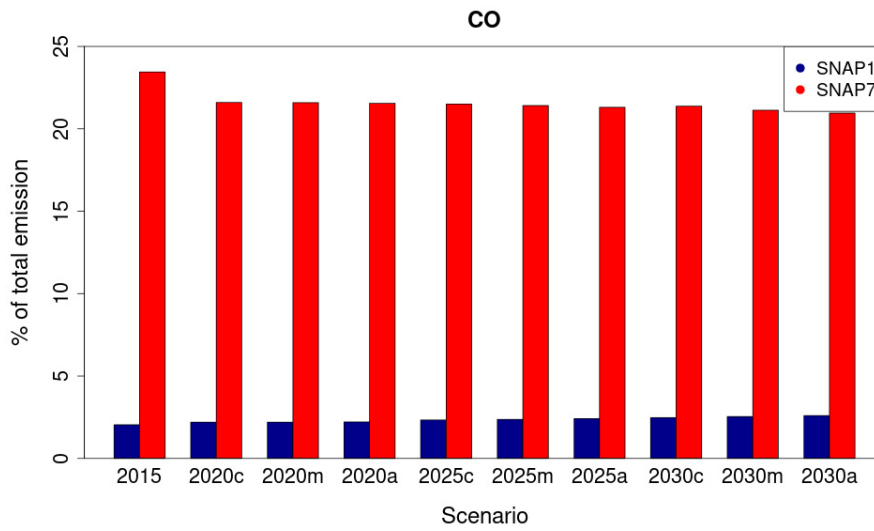
Fig. S7. Configuration of the computational grid of the GEM-AQ; the black line indicates an area of fixed resolution equal to 0.1x0.1 deg, and the red line indicates equator numeric positions



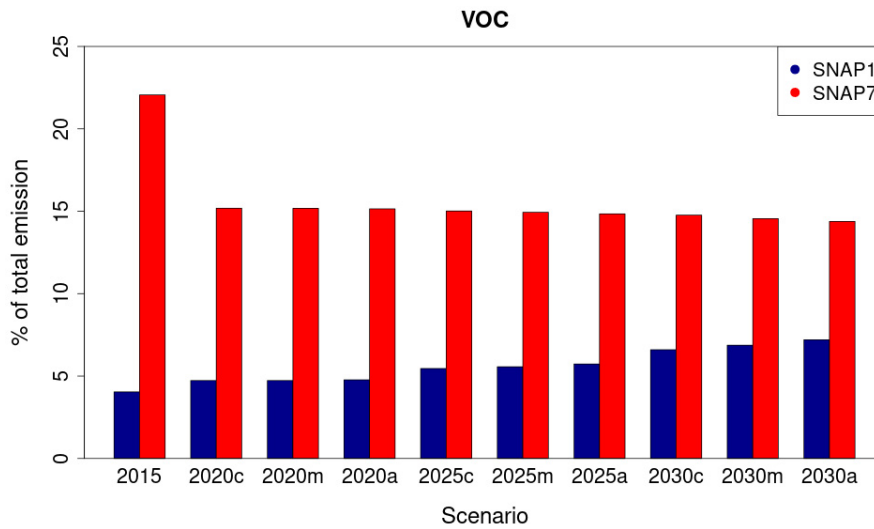
**Fig. S8.** The trend in the share of NOx emissions from the power generation and transport sectors in the total emissions in the analysed scenarios (a – aggressive scenario, m – moderate scenario, c – conservative scenario)



**Fig. S9.** The trend in the share of SOx emissions from the power generation and transport sectors in the total emissions in the analysed scenarios (a – aggressive scenario, m – moderate scenario, c – conservative scenario)



**Fig. S10.** The trend in the share of CO emissions from the power generation and transport sectors in the total emissions in the analysed scenarios (a – aggressive scenario, m – moderate scenario, c – conservative scenario)



**Fig. S11.** The trend in the share of NMVOC emissions from the power generation and transport sectors in the total emissions in the analysed scenarios (a – aggressive scenario, m – moderate scenario, c – conservative scenario)