

Table S4. Region-specific regression models for predicting energy consumptions of small countries/territories. The models were developed for the 11 regions of East and South Africa (ESA), North Africa (NA), West and Central Africa (WCA), East Asia and Oceania (EA+OCE), South and Southeast Asia (SSA), West and Central Asia (WCA), Europe (EUR), North America (NA), and South and Central America (SA+CCA) based on the energy data of other countries in the same regions. Total population, rural population, and/or gross domestic production (GDP) were used individually or collectively as independent variables. The coefficients of determination (R^2), sample size, and regression coefficients (K_0 , K_1 - K_3 as the intercept and slopes for total population, rural population, and GDP, respectively) of all regression models are listed. The overall uncertainty of the inventory would not be affected significantly since the energy consumptions in these countries/territories contributed only 4.2% to the global total.

Fuel sub-type	C*	ESA	NA	WCA	EA+OCE	SSA	WCA	EUR	NA	SA+CCA
		20	16	21	29	18	24	44	5	46
		9	8	9	7	14	23	39	3	23
Anthracite used in power stations	R^2				1.00	0.26		0.26	0.99	
	n				7	14		39	3	
	K_0				0	1.0×10^2		1.0×10^2	-6.2×10^0	
	K_1									
	K_2									
	K_3				6.9×10^{-10}	-9.3×10^{-11}		8.6×10^{-11}	8.2×10^{-11}	
Coke used in power stations	R^2				1.00	1.00	1.00	0.31		
	n				7	14		39	3	
	K_0				0	0	0	-1.0×10^2		
	K_1									
	K_2									
	K_3				3.5×10^{-11}	2.7×10^{-9}	3.5×10^{-10}	4.7×10^{-10}		
Bituminous coal used in power stations	R^2	0.90	0.26		0.27	0.89	0.26	0.35	1.00	0.26
	n	9	8		7	14	23	39	3	
	K_0	-6.1×10^2	9.8×10^1		8.0×10^3	-4.6×10^3	6.5×10^2	6.9×10^2	-6.3×10^2	7.3×10^1
	K_1									
	K_2									
	K_3	8.8×10^{-8}	7.3×10^{-10}		4.2×10^{-8}	6.2×10^{-8}	1.9×10^{-9}	4.4×10^{-9}	1.4×10^{-8}	4.6×10^{-10}
Lignite used in power stations	R^2				1.00	0.74	0.59	0.27	0.99	1.00
	n				7	14	23	39	3	23
	K_0				0	-2.2×10^2	-9.1×10^2	1.3×10^3	-7.8×10^0	0
	K_1									
	K_2									
	K_3				3.8×10^{-7}	4.7×10^{-9}	1.6×10^{-8}	5.8×10^{-9}	1.2×10^{-9}	3.5×10^{-10}
Peat used in power stations	R^2							0.27		
	n								1.4×10^2	
	K_0									
	K_1									
	K_2									
	K_3							-2.2×10^{-11}		
Gas/Diesel used in power	R^2	1.00	0.27	0.33	0.44	0.73	0.27	0.27	0.98	0.27
	n	9	8	9	7	14	23	39	3	23
	K_0	1.5×10^0	2.5×10^1	6.2×10^0	5.8×10^0	-4.7×10^1	5.2×10^1	2.2×10^1	1.2×10^1	1.4×10^2
	K_1									
	K_2									
	K_3	4.2×10^{-10}	1.8×10^{-9}	4.7×10^{-10}	1.6×10^{-10}	2.3×10^{-9}	2.9×10^{-9}	5.0×10^{-11}	1.9×10^{-10}	4.3×10^{-10}
Residue fuel oil used in power stations	R^2	0.27	0.46	0.33	0.92	0.27	0.27	0.36	0.88	0.27
	n	9	8	9	7	14	23	39	3	23
	K_0	8.2×10^0	-2.0×10^1	5.1×10^0	-1.3×10^1	2.9×10^2	4.3×10^2	3.3×10^1	2.0×10^2	1.1×10^2
	K_1									
	K_2									
	K_3	3.4×10^{-11}	8.4×10^{-9}	6.9×10^{-10}	1.5×10^{-9}	5.6×10^{-10}	2.7×10^{-9}	2.8×10^{-10}	8.7×10^{-10}	4.3×10^{-10}
Solid biomass used in power stations	R^2	0.37	0.27	0.27	0.89	0.27	0.27	0.27	0.98	0.95
	n	9	8	9	7	14	23	39	3	23
	K_0	2.2×10^2	1.3×10^2	4.1×10^2	-7.7×10^1	2.7×10^2	2.9×10^0	1.2×10^2	4.5×10^1	-1.9×10^2
	K_1									
	K_2									
	K_3	5.9×10^{-9}	4.7×10^{-10}	4.0×10^{-9}	2.4×10^{-10}	5.5×10^{-10}	1.9×10^{-11}	2.9×10^{-10}	2.7×10^{-10}	3.7×10^{-9}
Biogas used in power stations	R^2				0.27	1.00	0.55	0.66	1.00	
	n				7	3	23	39	3	
	K_0				7.7×10^0	0	-3.3×10^{-1}	-3.7×10^1	-2.4×10^0	
	K_1									
	K_2									
	K_3				7.3×10^{-12}	8.6×10^{-12}	6.6×10^{-12}	2.3×10^{-10}	6.4×10^{-11}	
Municipal waste used in power stations	R^2				0.99			0.62	0.99	
	n				7			39	3	
	K_0				2.6×10^0			-2.5×10^{-1}	-1.4×10^1	
	K_1									
	K_2									
	K_3				1.3×10^{-10}			3.7×10^{-10}	2.0×10^{-10}	

Industrial waste used	R^2			0.51		1.00	0.28	1.00
in power stations	n			7		2	39	3
	K_0			-2.6×10^0		0	1.8×10^1	0
	K_1							
	K_2							
	K_3			5.4×10^{-12}		2.3×10^{-11}	8.0×10^{-11}	3.4×10^{-11}
Dry natural gas used	R^2	0.72	0.69	0.89	1.00	0.42	0.47	0.28
in power stations	n	9	8	9	3	14	23	39
	K_0	1.3×10^1	-2.6×10^2	-8.7×10^{-1}	1.0×10^1	1.1×10^3	1.1×10^3	1.9×10^3
	K_1							
	K_2							
	K_3			1.1×10^{-9}	4.0×10^{-8}	6.2×10^{-9}	4.4×10^{-9}	5.3×10^{-9}
Bituminous coal	R^2	0.86	0.60		0.34	0.85	0.38	0.28
consumed in coke	n	9	8		7	14	23	39
production	K_0	-1.1×10^0	-3.9×10^0		1.6×10^2	-2.9×10^1	-2.5×10^0	6.5×10^1
	K_1							
	K_2							
	K_3			2.6×10^{-10}	2.8×10^{-10}	1.7×10^{-9}	3.6×10^{-10}	1.8×10^{-10}
Gas/diesel used in	R^2	0.88	0.40	0.29	0.33	0.68	0.51	0.30
agriculture	n	9	8	9	7	14	23	39
	K_0	-6.4×10^0	-1.5×10^1	4.6×10^0	1.4×10^2	3.0×10^1	-2.4×10^1	1.3×10^2
	K_1							
	K_2							
	K_3			1.3×10^{-9}	3.0×10^{-9}	3.5×10^{-11}	1.0×10^{-9}	1.4×10^{-9}
Gas/diesel used in	R^2	0.96	0.70	0.29	0.86	0.93	0.29	0.63
industry	n	9	8	9	7	14	23	39
	K_0	1.8×10^0	-3.6×10^1	1.0×10^1	-1.3×10^2	-1.2×10^2	1.6×10^2	6.3×10^1
	K_1							
	K_2							
	K_3			1.3×10^{-9}	3.9×10^{-9}	9.5×10^{-11}	1.5×10^{-9}	4.1×10^{-10}
Anthracite used in	R^2				0.29	0.21		
industry	n				7	14		
	K_0				3.1×10^2	1.4×10^2		
	K_1							
	K_2							
	K_3				7.1×10^{-10}	-1.3×10^{-10}		-1.4×10^{-12}
Coke used in	R^2	1.00			0.30	1.00	0.33	0.41
industry	n	2			7	2	23	39
	K_0	0			7.9×10^1	0	4.7×10^1	5.9×10^1
	K_1							
	K_2							
	K_3			6.2×10^{-10}		4.4×10^{-10}	6.7×10^{-10}	8.9×10^{-11}
Bituminous coal used	R^2	0.90	0.30	0.30	0.30	0.92	0.56	0.30
in industry	n	9	8	9	7	14	23	39
	K_0	-4.9×10^1	5.5×10^0	3.7×10^0	3.0×10^3	-2.9×10^2	-1.5×10^2	1.1×10^2
	K_1							
	K_2							
	K_3			7.9×10^{-9}	4.1×10^{-11}	-2.2×10^{-12}	9.0×10^{-9}	1.1×10^{-8}
Lignite used in	R^2				1.00	0.76	0.34	0.22
industry	n				2	14	23	39
	K_0				0	-3.4×10^1	-2.1×10^1	3.0×10^1
	K_1							
	K_2							
	K_3				4.3×10^{-9}	1.0×10^{-9}	1.4×10^{-9}	1.8×10^{-11}
Peat used in industry	R^2						0.30	
	n						39	
	K_0						1.4×10^1	
	K_1							
	K_2							
	K_3						-3.5×10^{-12}	
Residue fuel oil used	R^2	0.30	0.38	0.74	0.37	0.95	0.31	0.45
in industry	n	9	8	9	7	14	23	39
	K_0	8.8×10^0	-6.0×10^1	2.3×10^0	6.5×10^2	-2.8×10^1	1.1×10^2	8.1×10^1
	K_1							
	K_2							
	K_3			1.8×10^{-11}	6.6×10^{-9}	2.9×10^{-10}	1.0×10^{-9}	2.4×10^{-9}
Solid biomass used	R^2	0.49	0.30	0.85	0.50	0.94	0.30	0.30
in industry	n	9	8	9	7	14	23	39
	K_0	3.8×10^1	2.9×10^0	-3.8×10^1	-5.6×10^1	-3.1×10^2	6.3×10^1	1.8×10^2
	K_1							
	K_2							
	K_3			1.9×10^{-9}	9.4×10^{-10}	1.6×10^{-8}	1.5×10^{-10}	7.4×10^{-9}
Biogas used in	R^2				1.00			
industry	n				2			
	K_0				0			

	K_1	K_2	K_3		3.9×10^{-12}		1.9×10^{-12}	6.8×10^{-11}
Municipal waste used	R^2						0.31	1.00
in industry	n						39	2
	K_0						1.5×10^0	0
	K_1							
	K_2							
	K_3						2.8×10^{-12}	4.9×10^{-12}
Industrial waste used	R^2				0.31	1.00	0.31	0.99
in industry	n				7	2	39	3
	K_0				1.6×10^2	0	1.9×10^1	-3.1×10^0
	K_1							
	K_2							
	K_3							
Crude oil consumed	R^2	0.95	0.90	0.35	0.69	0.95	0.43	0.54
in petroleum refinery	n	9	8	9	7	14	23	39
	K_0	-1.2×10^1	-3.5×10^1	1.1×10^1	1.0×10^3	-4.9×10^1	2.1×10^2	2.5×10^2
	K_1							
	K_2							
	K_3							
Dry natural gas used	R^2	0.31	0.60	0.95	0.85	0.50	0.31	0.93
in industry	n	9	8	9	7	14	23	39
	K_0	1.2×10^1	-1.4×10^2	-1.3×10^1	5.5×10^2	5.5×10^2	1.4×10^3	1.1×10^3
	K_1							
	K_2							
	K_3							
Small-scaled solid	R^2	0.79	0.67	0.98	1.00	0.99	0.89	0.80
waste burning	n	9	8	9	3	14	23	39
	K_0	-4.1×10^0	4.5×10^0	-2.5×10^0	-3.4×10^1	1.8×10^1	-1.3×10^1	-2.4×10^1
	K_1	2.4×10^{-6}	2.0×10^{-6}	2.4×10^{-6}	2.5×10^{-6}	2.5×10^{-6}	6.3×10^{-6}	7.7×10^{-6}
	K_2							
	K_3							
Anthracite used in	R^2					0.32		0.35
residential or	n					13		39
commercial sector	K_0					2.9×10^1		2.7×10^0
	K_1					-1.6×10^8		1.1×10^{-7}
	K_2							
	K_3							
Coke used in	R^2				1.00	1.00	1.00	
residential or	n				2	2	2	
commercial sector	K_0				0	0	0	
	K_1				2.2×10^{-8}	3.4×10^{-7}	1.1×10^{-7}	
	K_2							
	K_3							
Bituminous coal used	R^2	0.36	0.32		1.00	0.93	0.33	0.32
in residential or	n	9	8		2	14	23	39
commercial sector	K_0	-5.2×10^1	9.0×10^{-1}		0	-5.5×10^1	-1.9×10^1	-5.0×10^0
	K_1	1.3×10^{-5}	1.3×10^{-9}		1.4×10^{-5}	1.2×10^{-6}	2.5×10^{-6}	7.9×10^{-6}
	K_2							
	K_3							
Lignite used in	R^2				1.00		0.33	0.32
residential or	n				2		23	39
commercial sector	K_0				0		-8.7×10^1	1.2×10^1
	K_1				4.2×10^{-5}		1.1×10^{-5}	9.1×10^{-7}
	K_2							
	K_3							
Peat used in	R^2						0.32	
residential or	n						39	
commercial sector	K_0						6.4×10^0	
	K_1						-5.6×10^{-8}	
	K_2							
	K_3							
Liquid petroleum gas	R^2	0.40	0.36	0.33	0.96	0.94	0.62	0.80
used in residential or	n	9	8	9	7	14	23	39
commercial sector	K_0	-2.3×10^0	3.6×10^1	7.9×10^0	3.5×10^2	-7.9×10^1	2.5×10^1	-3.2×10^1
	K_1	1.4×10^{-6}	1.2×10^{-5}	-2.4×10^{-8}	6.0×10^{-6}	4.5×10^{-6}	1.2×10^{-5}	1.2×10^{-5}
	K_2							
	K_3							
Dry natural gas used	R^2		0.33		0.57	0.33	0.58	0.89
in residential or	n		8		7	14	23	39
commercial sector	K_0		7.7×10^1		1.8×10^3	1.3×10^2	-7.1×10^2	-5.8×10^2
	K_1		3.7×10^{-6}		3.9×10^{-6}	3.8×10^{-7}	1.5×10^{-4}	1.8×10^{-4}
	K_2							
	K_3							

Kerosene used in residential or commercial sector	R^2	0.62	0.33	0.78	0.33	0.82	0.41	0.33	0.92	0.33
	n	9	8	9	7	14	23	39	3	23
	K_0	-1.7×10^1	9.1×10^0	-1.7×10^1	1.4×10^3	-3.8×10^1	-1.3×10^2	2.1×10^1	1.7×10^0	5.6×10^0
	K_1	3.6×10^{-6}	7.3×10^{-7}	4.3×10^{-6}	-7.8×10^{-7}	4.5×10^{-6}	2.3×10^{-5}	2.2×10^{-6}	2.0×10^{-6}	2.9×10^{-8}
	K_2									
	K_3									
Biogas used in residential or commercial sector	R^2				0.99	1.00	0.33	0.33	0.88	
	n				7	2	23	39	3	
	K_0				-6.5×10^1	0	6.0×10^{-3}	2.5×10^0	-3.6×10^{-1}	
	K_1				1.6×10^{-6}	7.2×10^{-7}	-1.5×10^{-10}	7.6×10^{-8}	8.9×10^{-8}	
	K_2									
	K_3									
Firewood used in residential or commercial sector	R^2	0.86	0.77	0.83	1.00	0.98	0.34	0.70	0.95	0.90
	n	9	8	9	3	14	23	39	3	23
	K_0	-3.7×10^1	-2.2×10^2	1.6×10^2	-6.5×10^0	2.0×10^2	-7.1×10^0	-8.8×10^1	3.3×10^1	-4.3×10^2
	K_1									
	K_2	8.1×10^{-5}	8.6×10^{-5}	7.7×10^{-5}	2.0×10^{-5}	3.0×10^{-5}	6.0×10^{-6}	1.1×10^{-4}	7.7×10^{-5}	3.0×10^{-4}
	K_3									
Straw used in residential or commercial sector	R^2	0.44	0.34	0.72	1.00	0.87	0.34	0.34	0.34	0.34
	n	9	8	9	2	14	23	39	3	23
	K_0	8.4×10^1	3.0×10^1	-9.9×10^2	0	8.4×10^2	3.0×10^1	1.3×10^2	3.3×10^1	1.8×10^1
	K_1									
	K_2	5.1×10^{-5}	-4.9×10^{-7}	2.4×10^{-4}	7.4×10^{-5}	3.2×10^{-5}	1.6×10^{-5}	1.2×10^{-5}	4.4×10^{-6}	5.1×10^{-7}
	K_3									
Motor vehicle gasoline	R^2	0.92	1.00	0.97	0.88	0.58	0.34	0.63	1.00	0.73
	n	9	3	9	7	14	23	39	3	23
	K_0	-4.4×10^1	-5.9×10^1	-3.2×10^1	-2.2×10^2	3.7×10^2	5.1×10^2	3.5×10^2	-8.8×10^1	3.4×10^2
	K_1									
	K_2									
	K_3	1.2×10^{-8}	9.1×10^{-9}	1.4×10^{-8}	5.8×10^{-9}	4.2×10^{-9}	6.9×10^{-9}	3.6×10^{-9}	1.3×10^{-8}	4.2×10^{-9}
Liquid biofuels used by vehicles	R^2				0.34	0.57	0.58	0.55	0.99	0.93
	n				7	14	23	39	3	23
	K_0				2.1×10^1	-9.2×10^{-1}	-3.7×10^{-1}	-4.6×10^1	-4.1×10^1	-2.6×10^2
	K_1									
	K_2									
	K_3									
Motor vehicle gas/diesel	R^2	0.95	0.85	0.60	0.59	0.90	0.65	0.93	1.00	0.98
	n	9	8	9	7	14	23	39	3	23
	K_0	-1.1×10^0	2.4×10^1	5.1×10^1	1.5×10^3	2.8×10^2	6.0×10^1	4.2×10^2	7.4×10^1	6.1×10^1
	K_1									
	K_2									
	K_3	8.2×10^{-9}	1.5×10^{-8}	1.8×10^{-9}	4.6×10^{-9}	8.3×10^{-9}	1.0×10^{-8}	5.4×10^{-9}	4.7×10^{-9}	8.1×10^{-9}
Open burning of agriculture waste	R^2	0.52	0.50	0.68	1.00	1.00	0.48	0.83	0.89	0.70
	n	19	14	18	27	18	24	44	5	37
	K_0	-1.5×10^0	-1.6×10^1	2.1×10^0	-9.7×10^1	1.3×10^1	6.5×10^0	-5.2×10^0	-3.2×10^1	-2.8×10^1
	K_1									
	K_2	8.3×10^{-6}	6.7×10^{-6}	3.4×10^{-6}	2.6×10^{-5}	1.4×10^{-5}	2.1×10^{-5}	2.2×10^{-5}	3.2×10^{-5}	8.8×10^{-5}
	K_3									

Note: No data is shown when a variable is not significant ($p > 0.05$).