
Príprava Národného programu znižovania emisií
podľa smernice (EÚ) č. 2016/2284

Emisie a projekcie emisií

Stretnutie pracovnej skupiny „**Priemyselné emisie**“

12.3.2018



Obsah

Emisné inventúry

- o Emisie SO_2 , NO_x , NMVOC, NH_3 a $\text{PM}_{2,5}$ v 2005, aktuálny stav (2016)
- o Podiel zdrojov na produkcii emisií jednotlivých ZL

Projekcie emisií

- o projekcie (WM) vývoja emisií sledovaných ZL – do roku 2020 a 2030 s vyznačením cieľov smernice NEC (2020-2029 a od 2030)
- o identifikácia opatrení/politik, ktoré vstupujú do projekcií (WM)

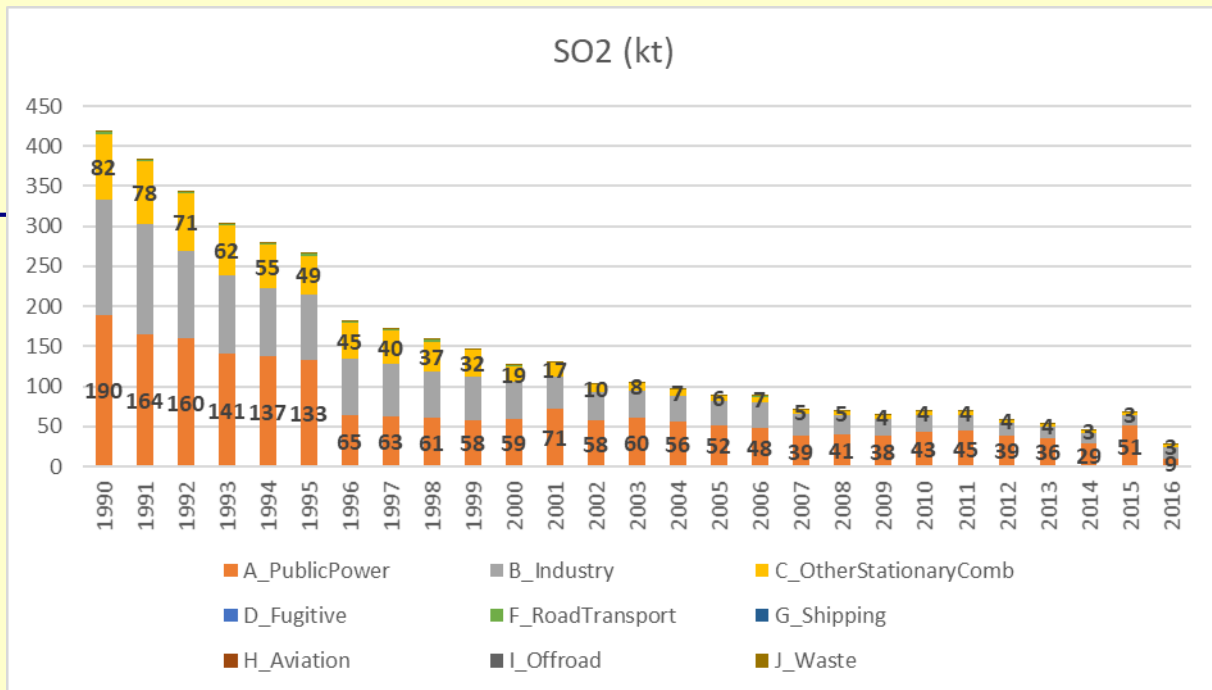
Štáty EU28 a požiadavky NECD

Comparison of Member State emissions with respective NECD ceilings

EU Member State	NOx						NMVOC						SO2						NH3						PM2.5					
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015
Austria	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	+	+	+	+	+	+
Belgium	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Bulgaria	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Croatia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Cyprus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Czech Republic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Denmark	✗	✗	✗	✓	✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	+	+	+	+	+	+
Estonia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Finland	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	+	+	+	+	+	+
France	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	+	+	+	+	+	+
Germany	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	+	+	+	+	+	+
Greece	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hungary	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Ireland	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Italy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Latvia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Lithuania	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Luxembourg	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Malta	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Netherlands	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	+	+	+	+	+	+
Poland	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Portugal	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Romania	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Slovakia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Slovenia	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	+	+	+	+	+	+
Spain	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	+	+	+	+	+	+
Sweden	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	+	+	+	+	+	+
United Kingdom	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+
Above	13	11	11	6	6	6	7	5	5	5	4	6						8	7	6	6	6	6							
Below	13	15	15	20	21	21	19	21	21	21	23	21	26	26	26	26	27	27	18	19	20	20	21	21						
No data	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27	27	27	27	28	28

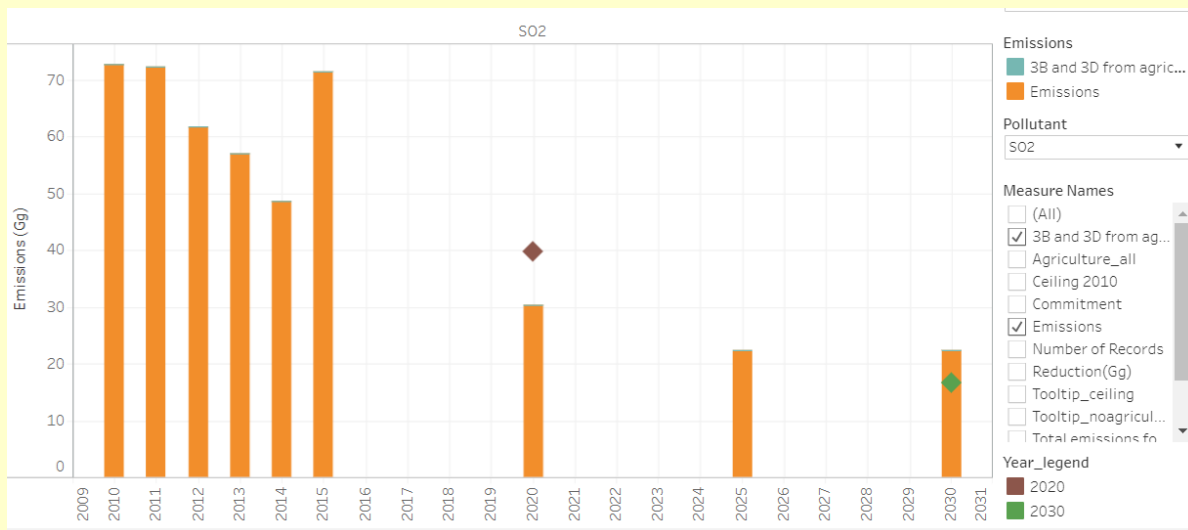
SO₂

SO2	
A_PublicPower	9.237
B_Industry	14.789
C_OtherStationaryComb	2.919
D_Fugitive	0.001
E_Solvents	
F_RoadTransport	0.028
G_Shipping	0.151
H_Aviation	0.006
I_Offroad	0.007
J_Waste	0.011
K_AgriLivestock	
L_AgriOther	
M_Other	
Celkový súčet	27.147



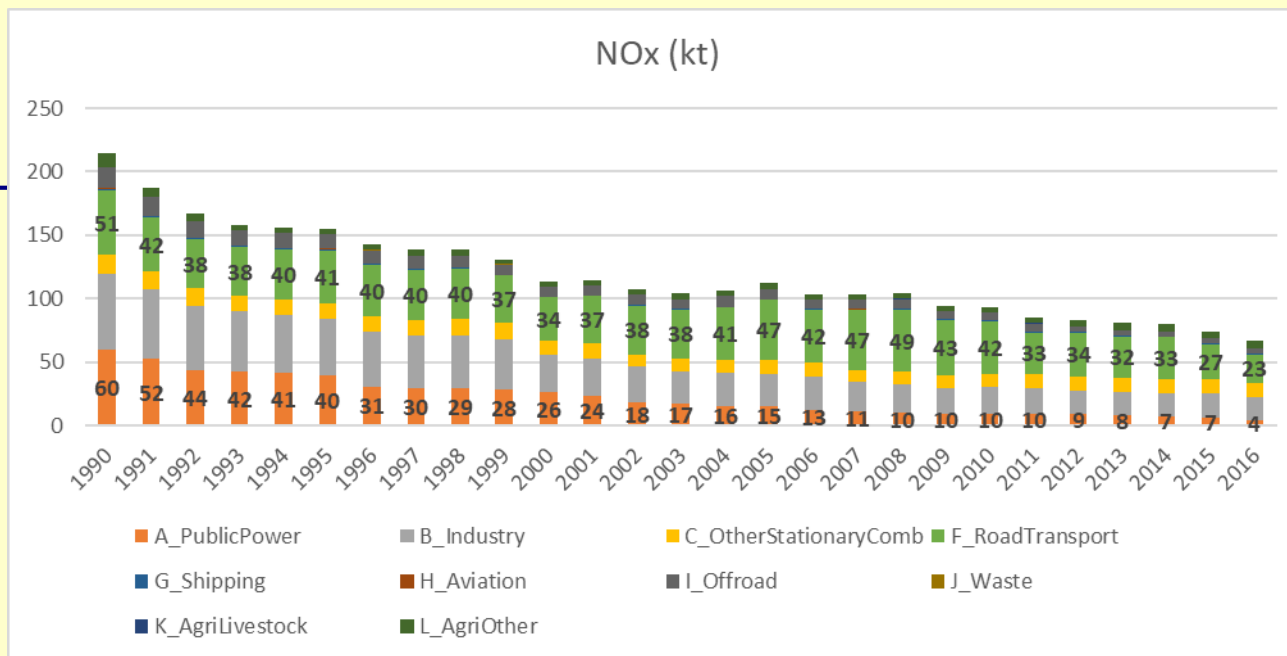
SLOVENSKÝ HYDROMETEOROLOGICKÝ ÚSTAV

Prevádzkovateľ	so2 (t)
U. S. Steel Košice, s.r.o.	6 616
Slovenské elektrárne a.s.	6 393
Slovalco, a.s.	2 845
SLOVNAFT, a.s.	2 056
BUKÓZA ENERGO, a.s.	1 118
OFZ, akciová spoločnosť	738
CM European power Slovakia, s. r. o.	738
Zvolenská teplárenská a.s.	663
Martinská teplárenská, a.s.	445
Knauf Insulation, s.r.o.	402
Spolu	22 014
	89%

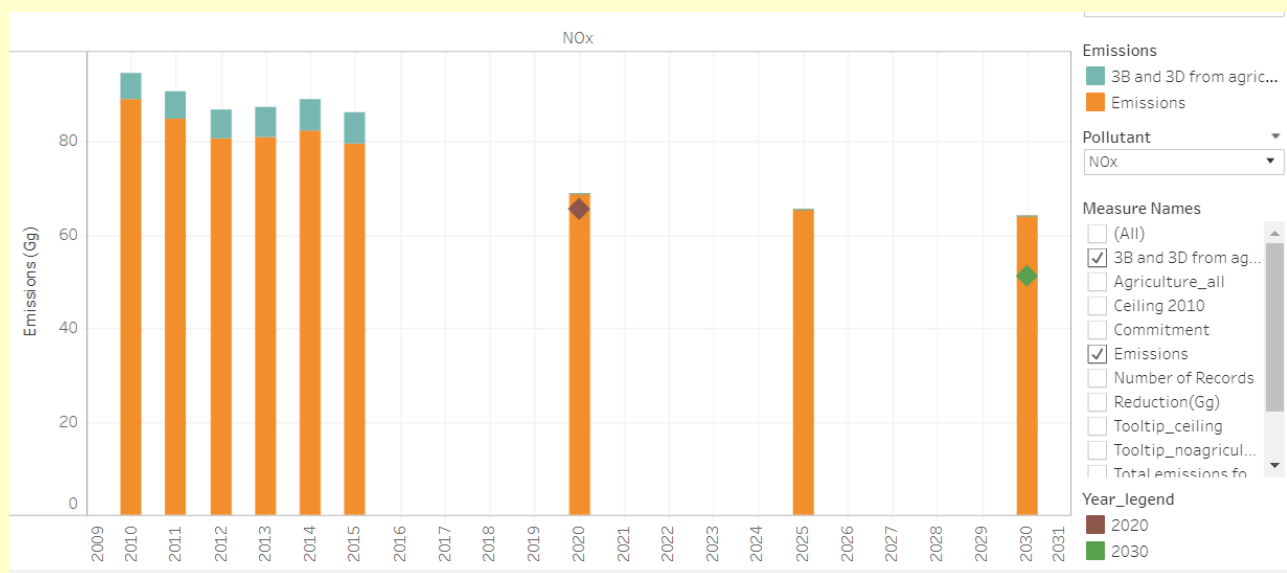


NO_x

	NO _x
A_PublicPower	4.201
B_Industry	18.002
C_OtherStationaryComb	11.298
D_Fugitive	0.002
E_Solvents	
F_RoadTransport	22.703
G_Shipping	0.597
H_Aviation	0.095
I_Offroad	4.172
J_Waste	0.064
K_AgriLivestock	0.010
L_AgriOther	5.830
M_Other	
Celkový súčet	66.975



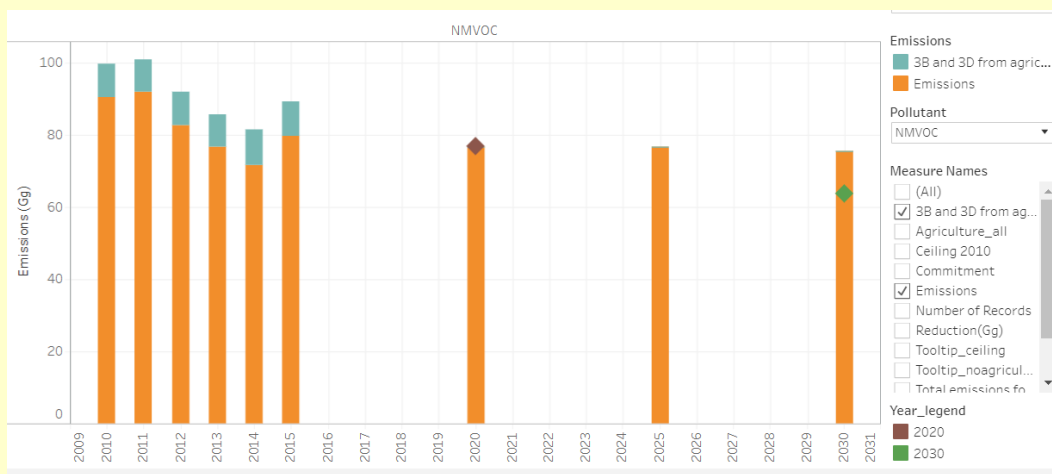
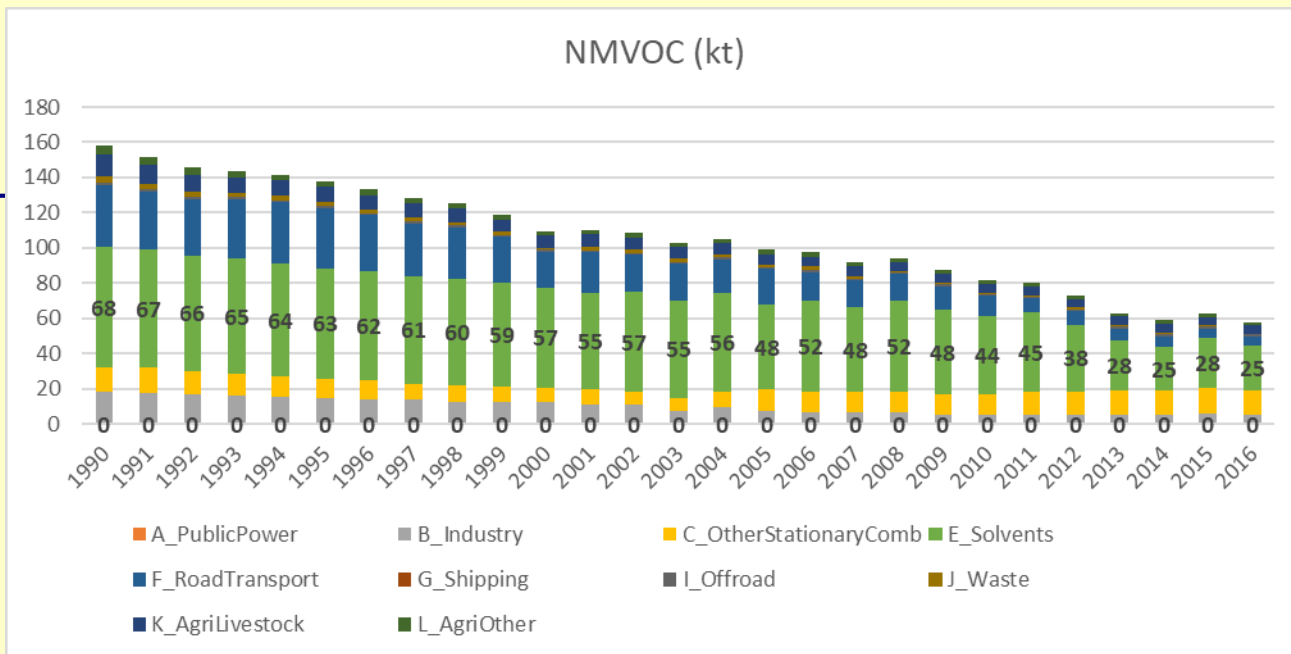
Prevádzkovateľ	nox (t)
U. S. Steel Košice, s.r.o.	5 863
Slovenské elektrárne a.s.	1 885
CRH (Slovensko)	1 433
Mondi scp, a.s.	1 135
CM European power Slovakia, s. r. o.	1 079
SLOVNAFT, a.s.	983
CRH (Slovensko) a. s.	735
Považská cementáreň, a.s.	627
Duslo a.s.	596
CEMMAC a. s.	519
Spolu	14 856
% z NEIS	57%



NMVOG

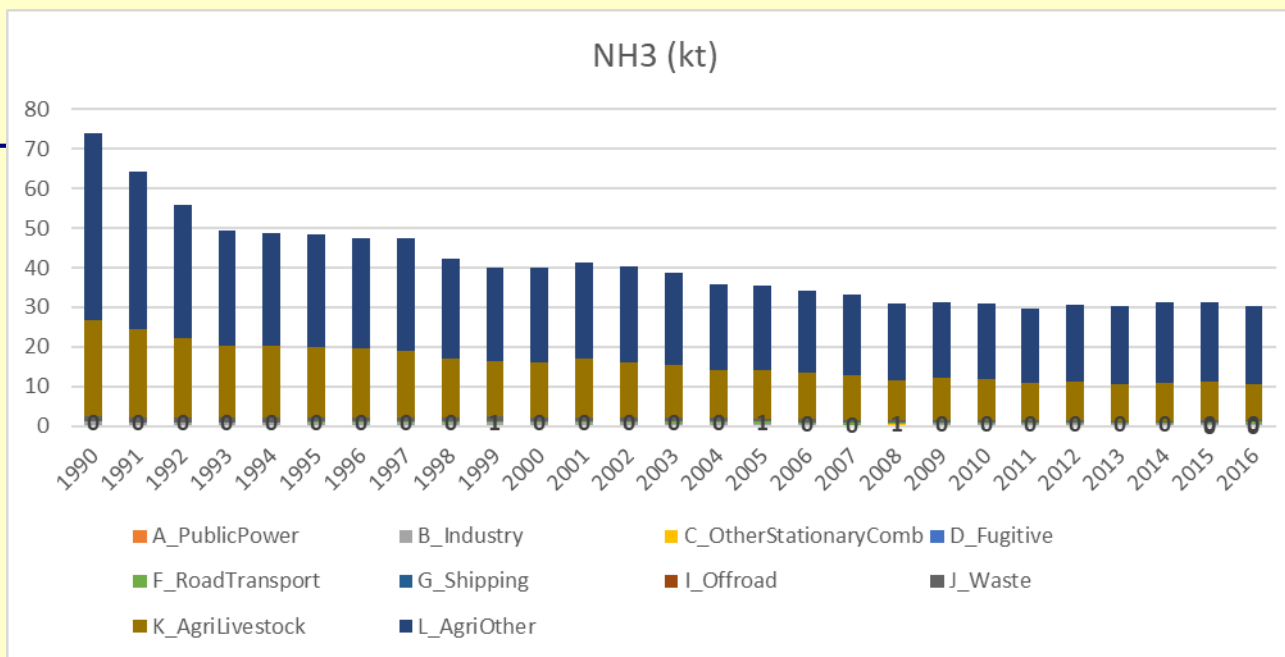
Emisie v roku 2016 (kt)

▼ NMVOG	
A_PublicPower	0.153
B_Industry	5.408
C_OtherStationaryComb	13.437
D_Fugitive	6.074
E_Solvents	25.454
F_RoadTransport	5.285
G_Shipping	0.020
H_Aviation	0.002
I_Offroad	1.011
J_Waste	0.632
K_AgriLivestock	4.487
L_AgriOther	1.998
M_Other	
Total	63.962

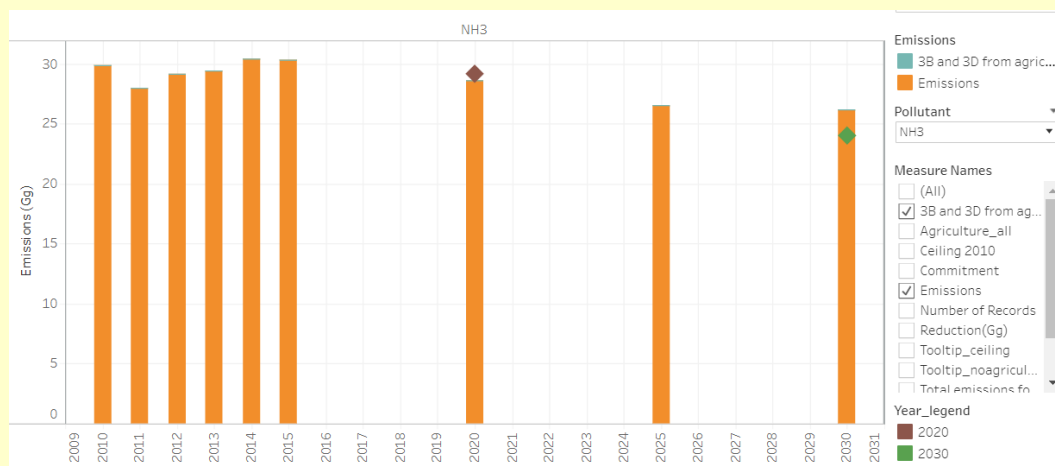


NH3

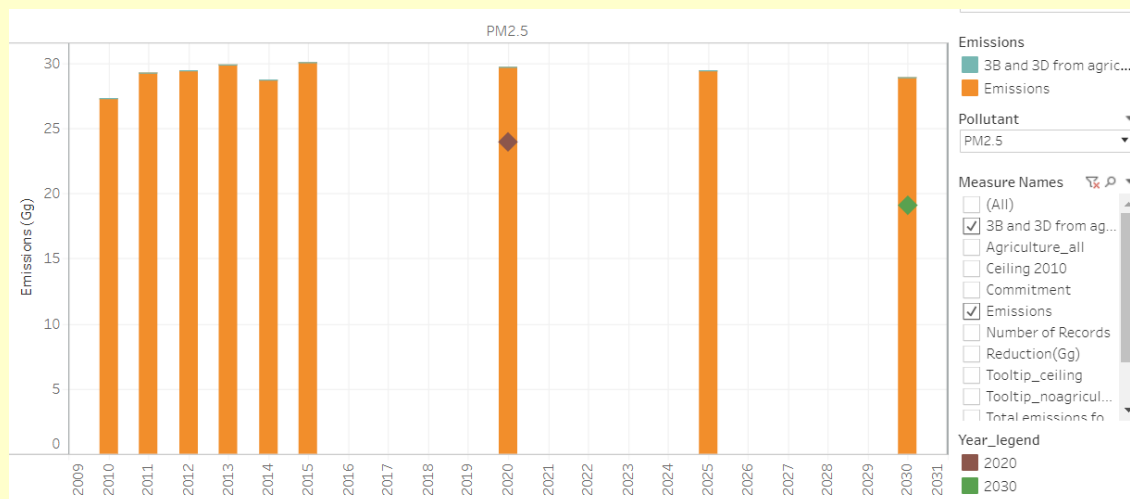
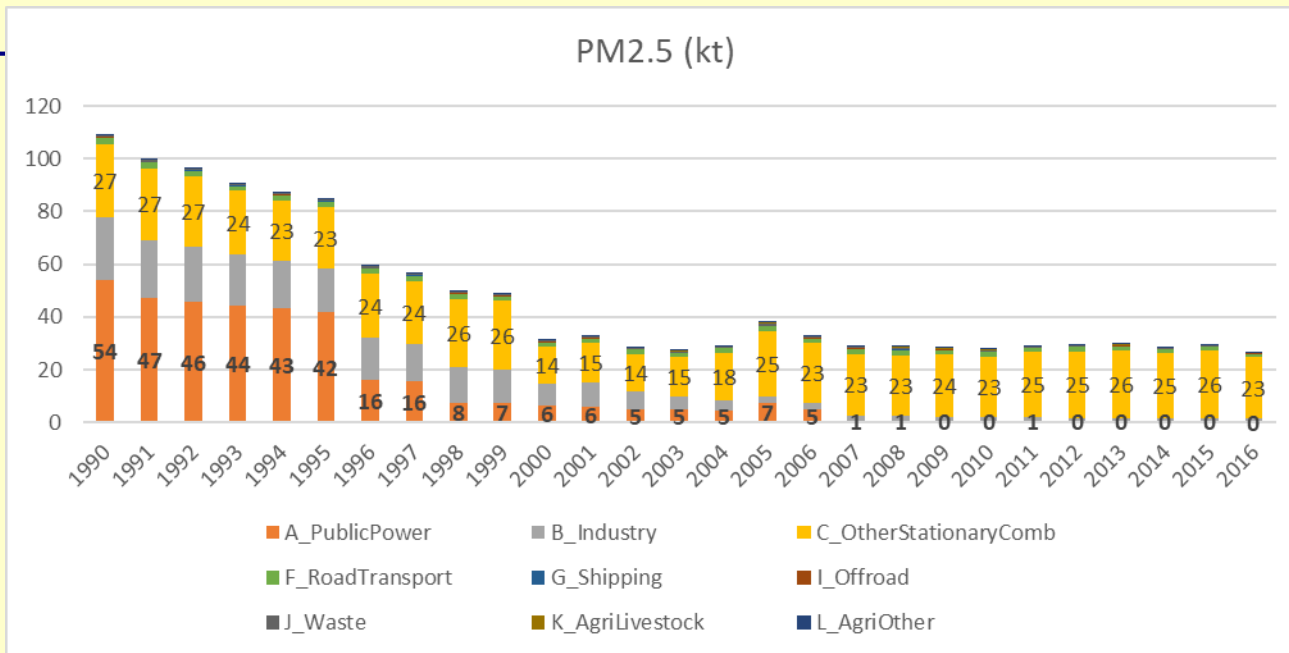
NH3	
A_PublicPower	0.020
B_Industry	0.601
C_OtherStationaryComb	0.001
D_Fugitive	0.007
E_Solvents	
F_RoadTransport	0.399
G_Shipping	0.000
H_Aviation	
I_Offroad	0.001
J_Waste	0.464
K_AgriLivestock	9.145
L_AgriOther	19.816
M_Other	
Total	30.452



Prevádzkovateľ	nh3 (t)
Duslo a.s.	145
BEST MEAT s.r.o.	105
Farma HYZA, a.s.	44
Poľnohospodárske družstvo DEVIO No	43
Pigagro, s.r.o.	40
Novogal a.s.	39
JANEK s.r.o.	38
Dan-Slovakia Agrar a.s.	38
Farma HYZA a.s.	34
U. S. Steel Košice, s.r.o.	32
Spolu	558
% z NEIS	15%



Emisie PM_{2.5}



PM_{2.5} v roku 2016

Emisie v roku 2016 (kt)

	PM2.5
A_PublicPower	0.207
B_Industry	1.171
C_OtherStationaryComb	23.387
D_Fugitive	0.122
E_Solvents	
F_RoadTransport	1.126
G_Shipping	0.042
H_Aviation	0.001
I_Offroad	0.153
J_Waste	0.386
K_AgriLivestock	0.069
L_AgriOther	0.089
M_Other	
Total	26.753

10 prevádzkovateľov (NEIS) s najvyššími emisiami v roku 2016

Prevádzkovateľ	pm2.5 (t)
U. S. Steel Košice, s.r.o.	425
Slovenské elektrárne a.s.	104
Slovalco, a.s.	84
Duslo a.s.	55
FORTISCHEM a.s.	52
CM European power Slovakia, s. r. o.	47
Zvolenská teplárenská a.s.	35
Považská cementáreň, a.s.	33
OFZ, akciová spoločnosť	28
Johns Manville Slovakia, a.s.	27
Spolu	889
% z NEIS	53%

Štáty EU28 a požiadavky NECD



Member State	reported emissions vs. 2010 ceilings					WM proj. vs. reduction commitments		reported emissions vs. 2010 ceilings					WM proj. vs. reduction commitments		reported emissions vs. 2010 ceilings					WM proj. vs. reduction commitments		reported emissions vs. 2010 ceilings					WM proj. vs. reduction commitments														
	NO _x							NMVOCs							SO ₂							NH ₃							PM _{2.5}												
	2010	11	12	13	14	15	2020	2030	2010	11	12	13	14	15	2020	2030	2010	11	12	13	14	15	2020	2030	2010	11	12	13	14	15	2020	2030	2010	11	12	13	14	15	2020	2030	2020
Austria	x	x	x	x	x	x	✓	x	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	x	✓	x		
Belgium	x	x	x	x	x	x	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Bulgaria	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x			
Croatia					✓	✓	✓	✓					✓	✓	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Cyprus	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Czech Republic	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	✓	✓		
Denmark	x	x	x	✓	✓	✓	✓	✓	x	x	x	x	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	x	✓	x		
Estonia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Finland	x	x	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	✓	✓			
France	x	x	x	x	x	x			✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Germany	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	x	✓	x		
Greece																																									
Hungary	✓	✓	✓	✓	✓	✓			x	x	x	x	✓	x			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Ireland	x	x	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	✓	✓	
Italy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	
Latvia	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Lithuania	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	
Luxembourg	x	x	x	x	x	x	x	x	✓	✓	x	x	✓	x	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	
Malta	x	✓	x	✓	✓	✓			✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Netherlands	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Poland	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	
Portugal	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	
Romania	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x		
Slovakia	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	
Slovenia	x	x	x	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	
Spain	x	x	x	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	x	x	✓	x	
Sweden	x	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	x	✓	✓		
United Kingdom	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	
✓	13	15	16	20	21	21	16	8	20	22	21	21	24	22	15	7	26	26	26	26	27	27	22	11	18	19	20	20	21	21	11	7	18	9							
x	13	11	10	6	6	6	7	15	6	4	5	5	3	5	8	16	0	0	0	0	0	0	1	12	8	7	6	6	6	6	12	16	5	14							

Zdroje k projekciám

<https://www.eea.europa.eu/data-and-maps/dashboards/necd-directive-data-viewer>

Ďakujem za pozornosť