

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

Emisie a projekcie emisií

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Obsah

Emisné inventúry

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

Projekcie emisií

- projekcie (WEM) vývoja emisií sledovaných ZL – do roku 2020 a 2030 s vyznačením cieľov smernice NEC (2020-2029 a od 2030)

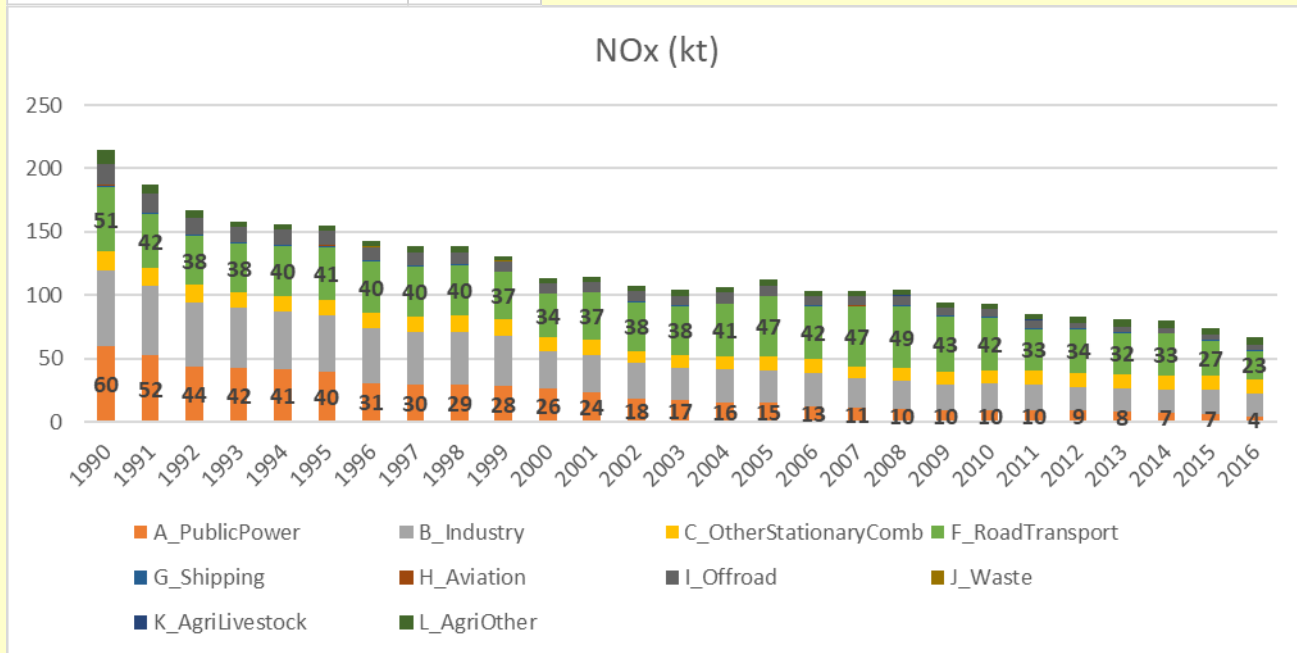
Štáty EU28 a požiadavky NECD

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

NO_x

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%

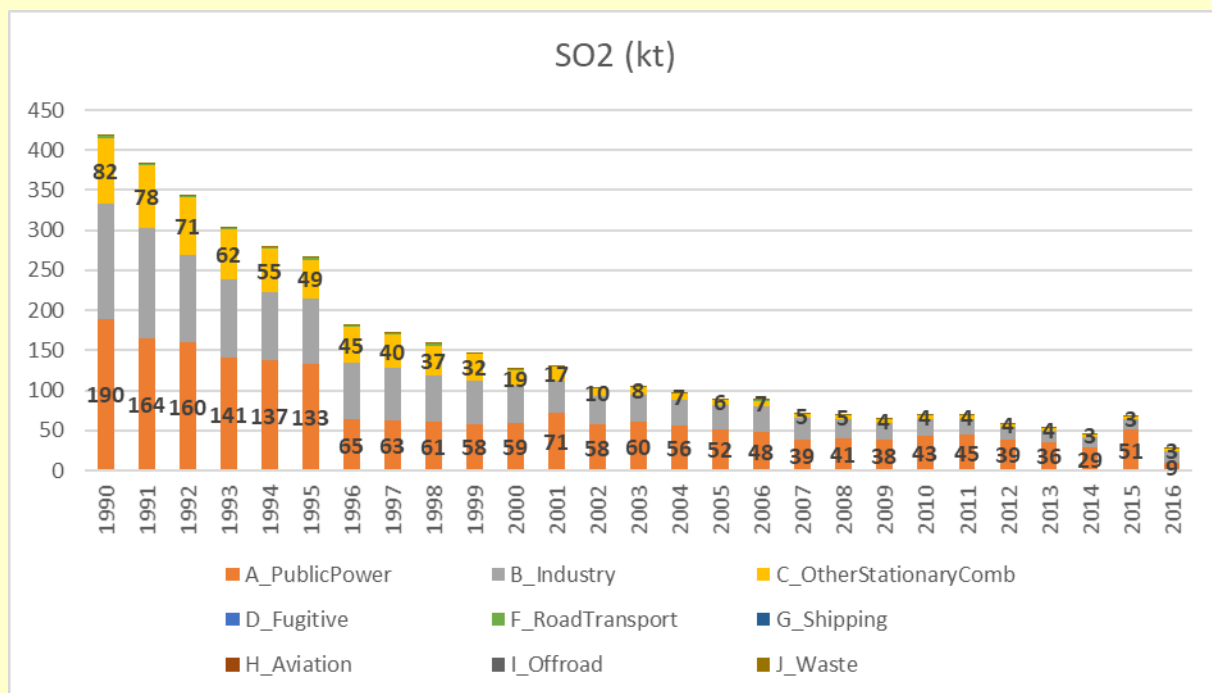


	NO _x
A_PublicPower	4.201
B_Industry	18.002
C_OtherStationaryComb	11.298
D_Fugitive	0.002
E_Solvents	
F_RoadTransport	22.703
G_Shipping	0.597
H_Aviation	0.095
I_Offroad	4.172
J_Waste	0.064
K_AgriLivestock	0.010
L_AgriOther	5.830
M_Other	
Celkový súčet	66.975



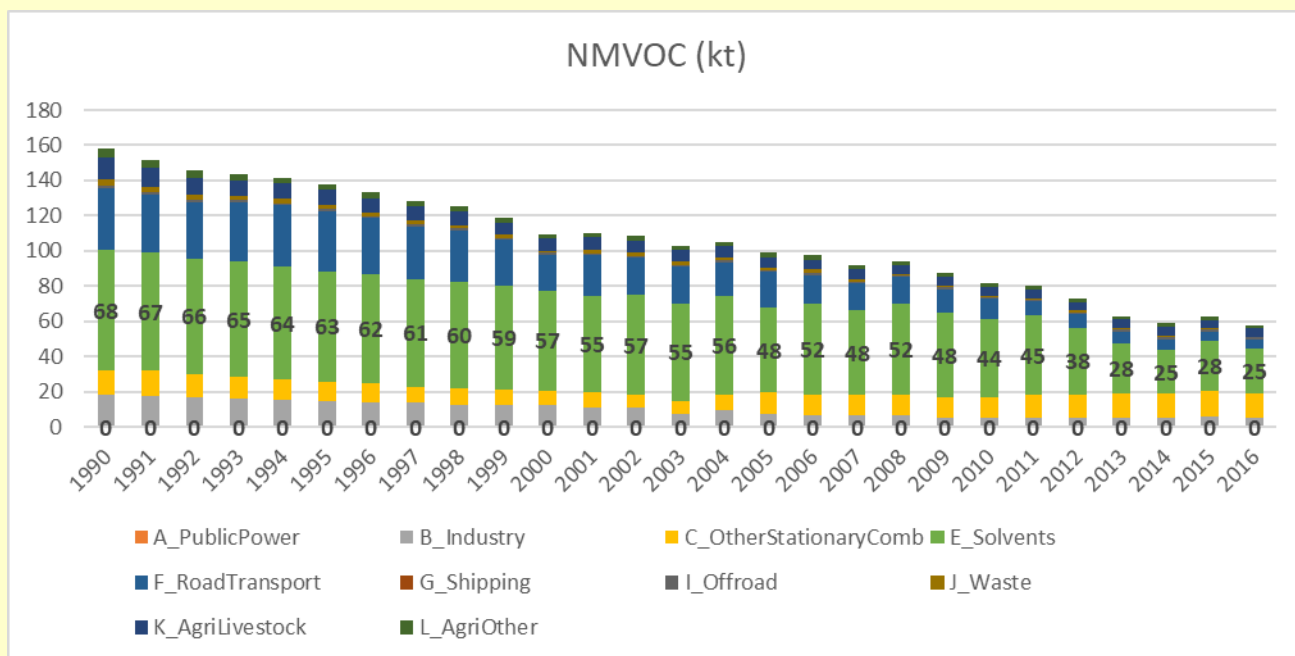
SO₂

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%



	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

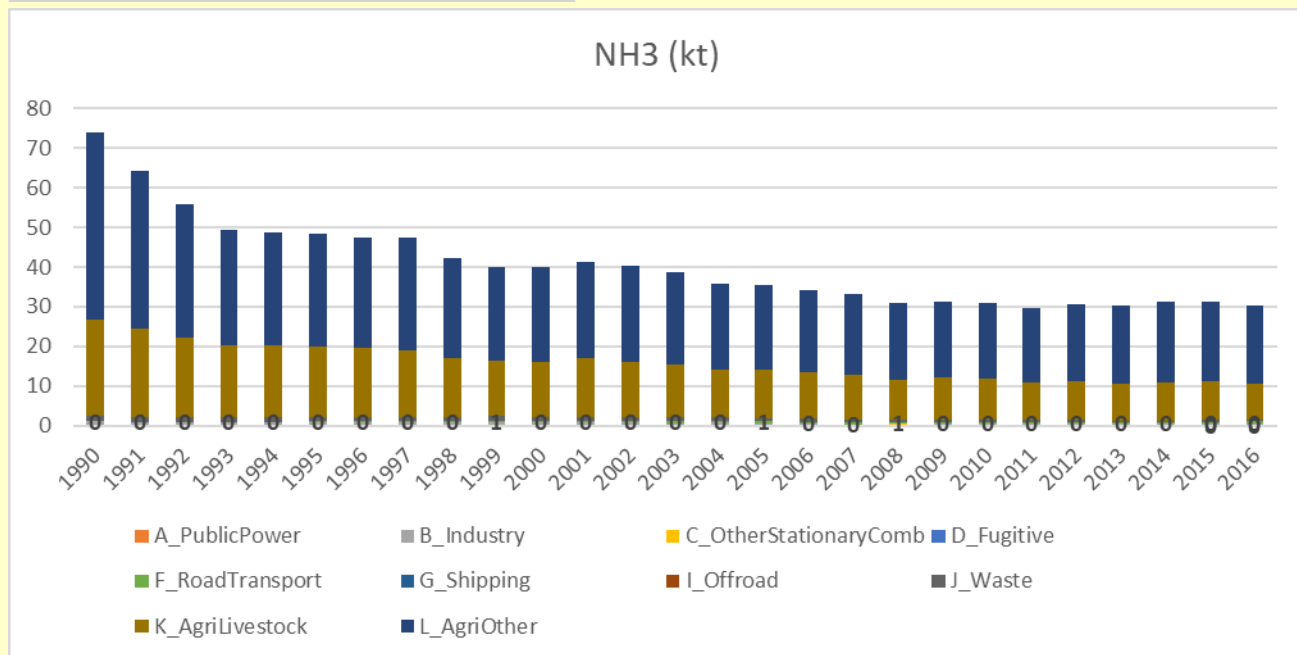
SLOVENSKÝ HYDROMETEOROLOGICKÝ ÚSTAV
SLOVAK HYDROMETEOROLOGICAL INSTITUTE



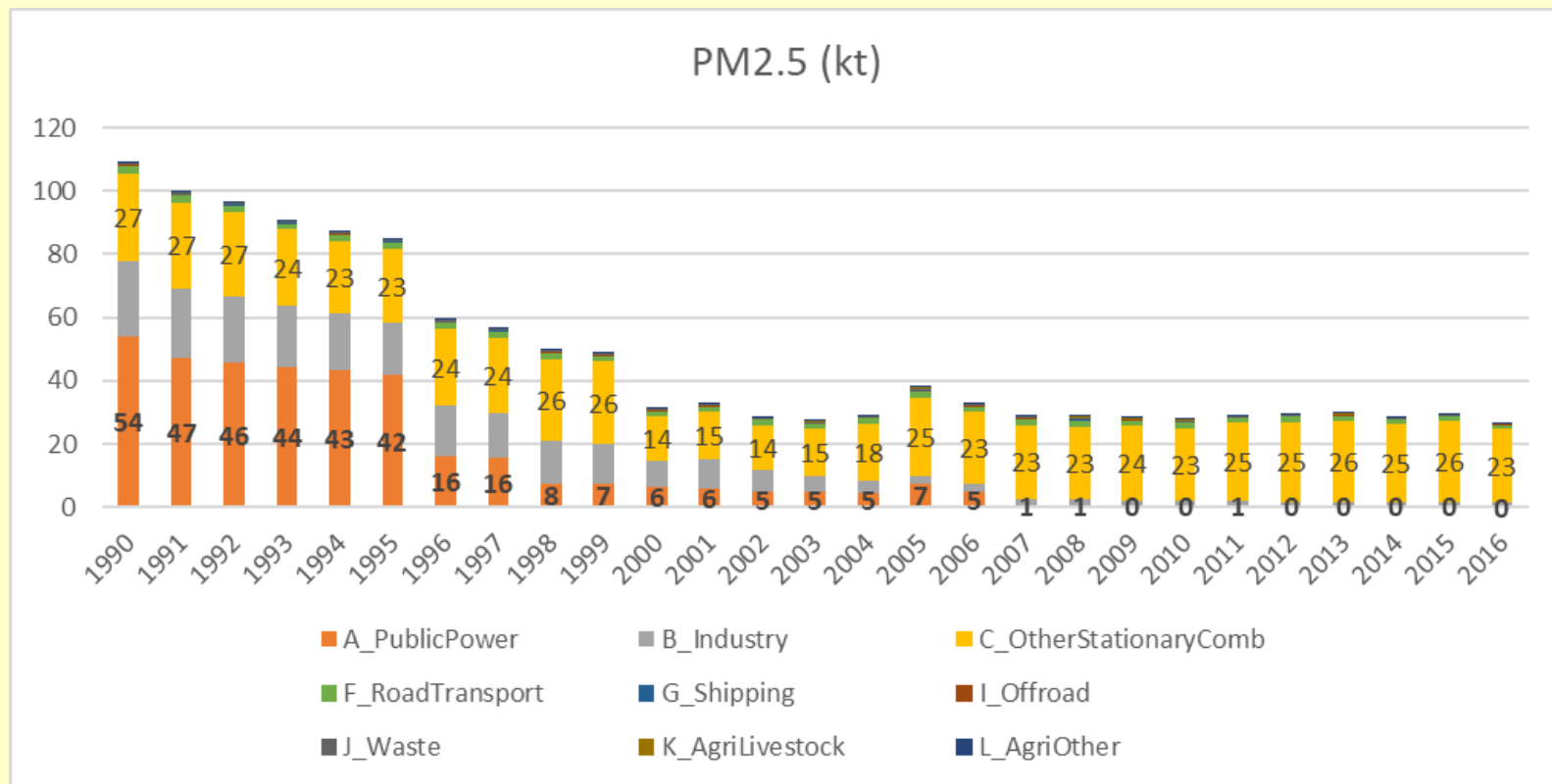
NH3

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%

	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



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%

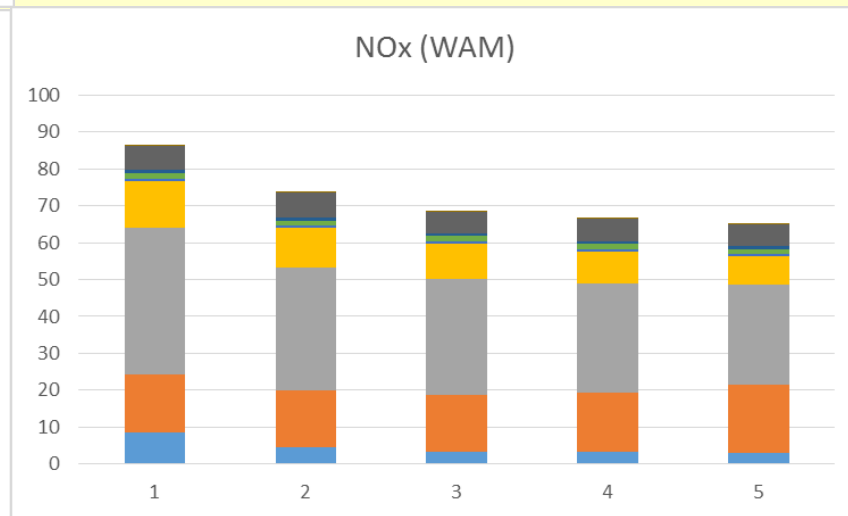
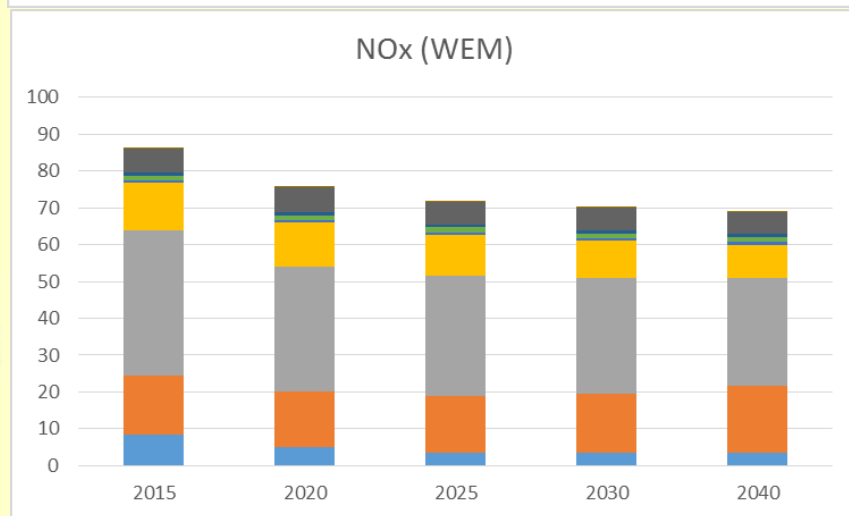
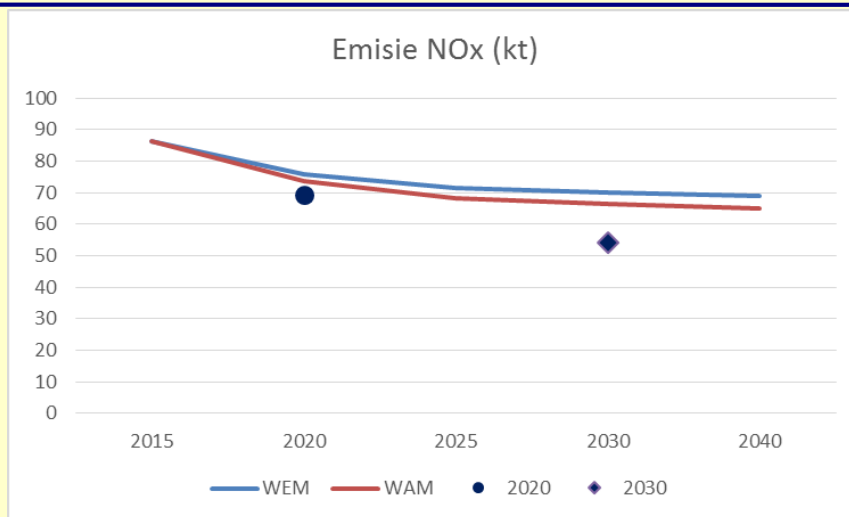
Projekcie emisií

- Odhad trendu emisií do budúcnosti na základe dostupných informácií
- Kompatibilná metodika s emisnými inventúrami – zjednodušená
- Potreba projekcií dôležitých parametrov
- Vplyv politík a opatrení (SK a EU úroveň)
- Problém vo vyjadrení efektu opatrení
- Rok výpočtu: 2017
- Základný rok: 2014
- Scenár s existujúcimi opatreniami a scenár s ďalšími opatreniami

Policies & measures in last emission projections

- Energy Efficiency Action Plan for the period 2014 - 2016 with the outlook for 2020 (WEM)
- Energy Efficiency Action Plan for the period 2017 - 2019 with the outlook for 2020 (WAM)
- National Renewable Energy Action Plan
- Emission trading scheme
- Specific emissions limits and specific technical conditions for MCP and LCP
- Assessment of the future structure of appliances used for household heating
- Transport policies (Biofuels, Hybrid transport, Electromobility strategy...)
- Use of the BAT level technologies in Industry
- Agricultural policies (Conception of the Agricultural Development, the Rural Development Programme, new manure and soils management,)
- Act on waste, Waste Management Program, Strategy on the Reduction of the Biodegradable Waste

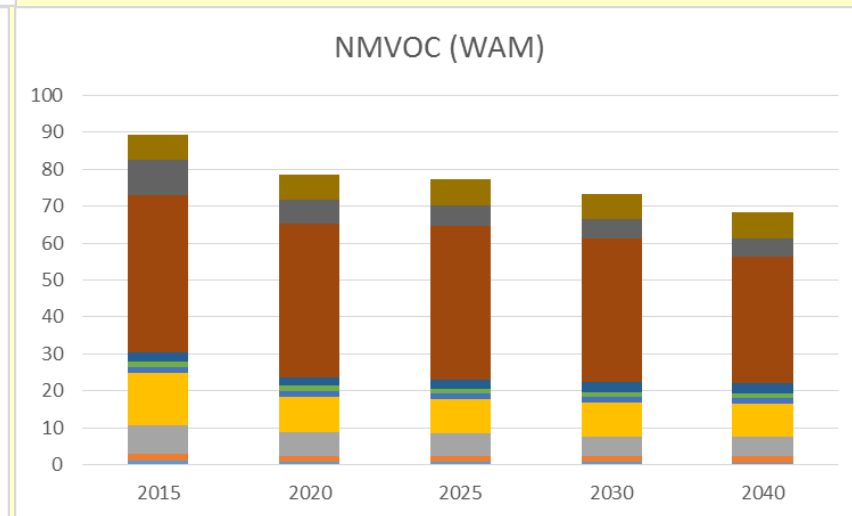
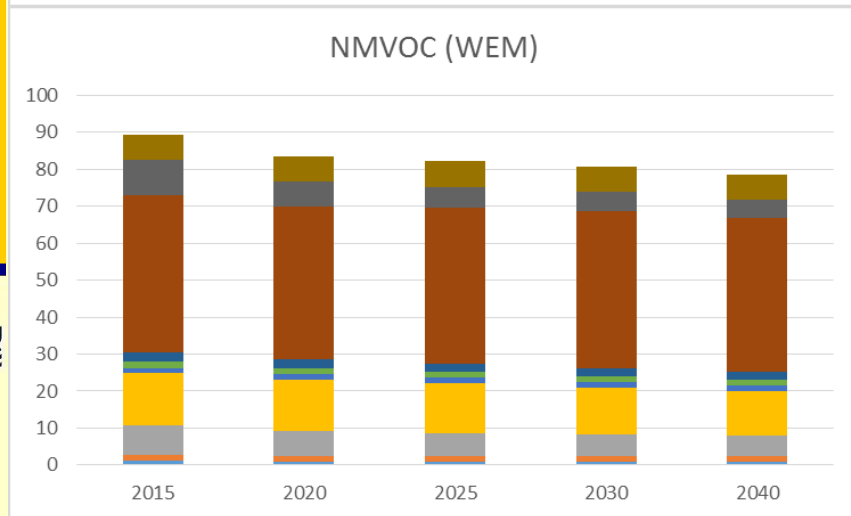
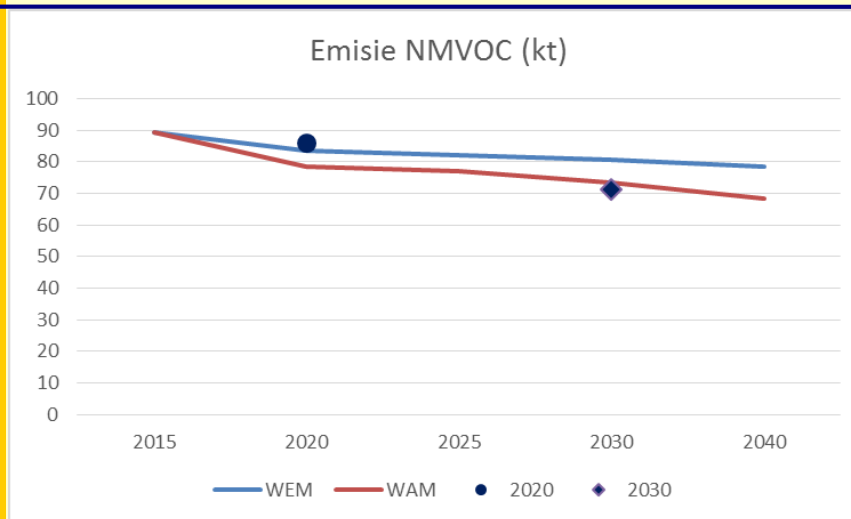
Projected NO_x emissions



■ Energy
■ Industrial comb.
■ Transport
■ Services & Residential
■ Other energy

■ Fugitive
■ Industrial processes
■ Solvents
■ Agriculture
■ Waste

Projected NMVOC emissions



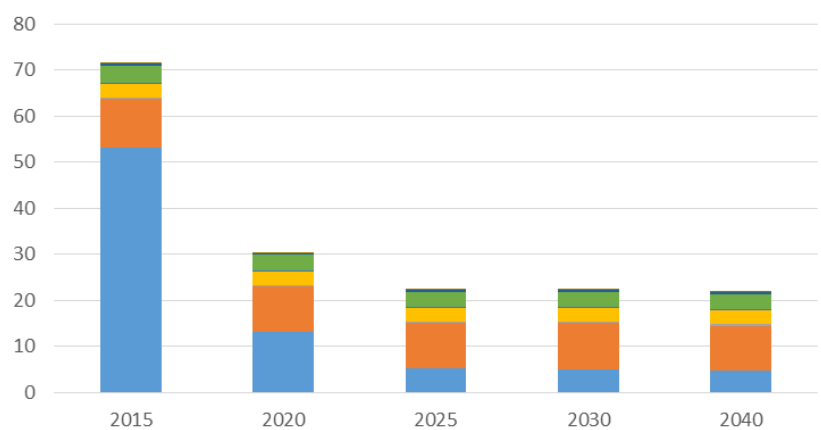
Energy	Industrial comb.	Transport	Services & Residential	Other energy
Fugitive	Industrial processes	Solvents	Agriculture	Waste

Projected SO_x emissions

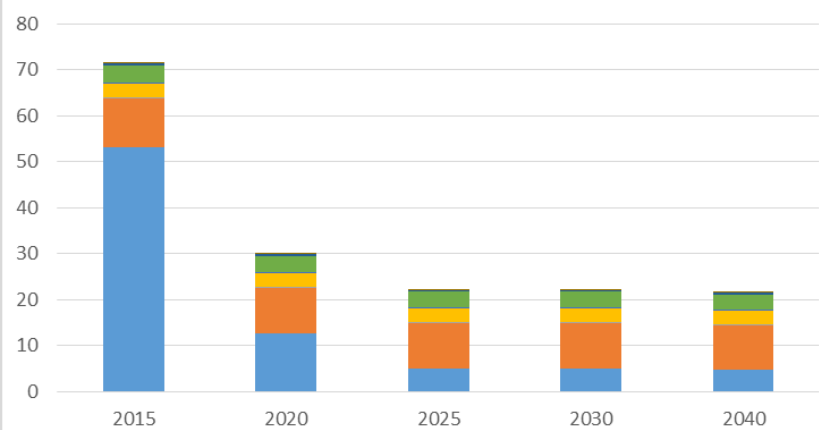
Emisie SO_x (kt)



SO_x (WEM)



SO_x (WAM)

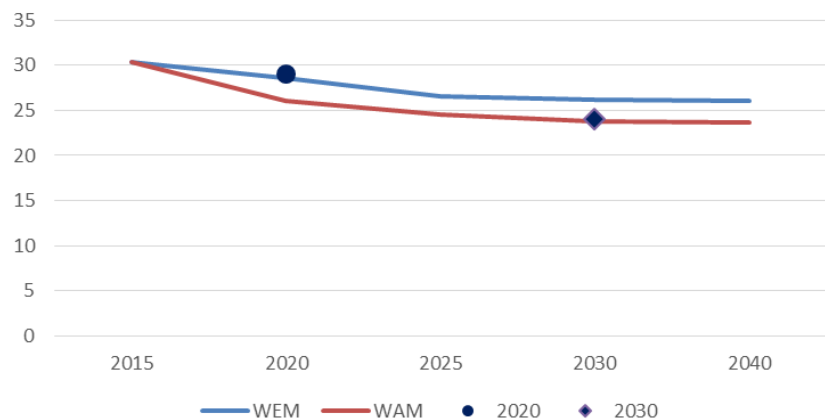


■ Energy
■ Industrial comb.
■ Transport
■ Services & Residential
■ Other energy

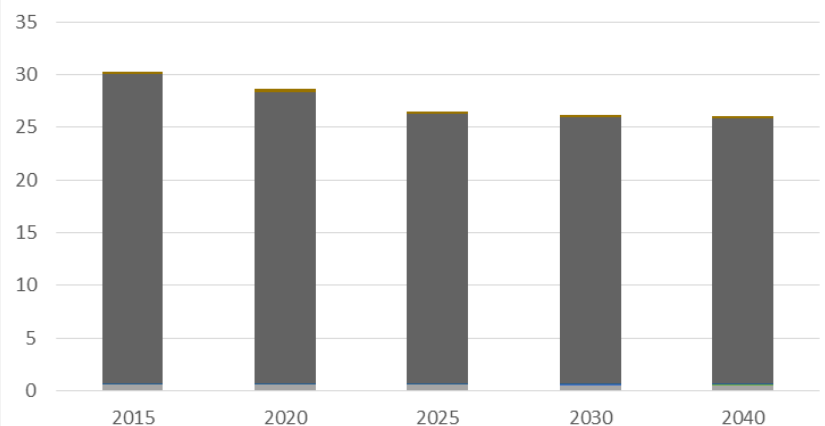
■ Fugitive
■ Industrial processes
■ Solvents
■ Agriculture
■ Waste

Projected NH_3 emissions

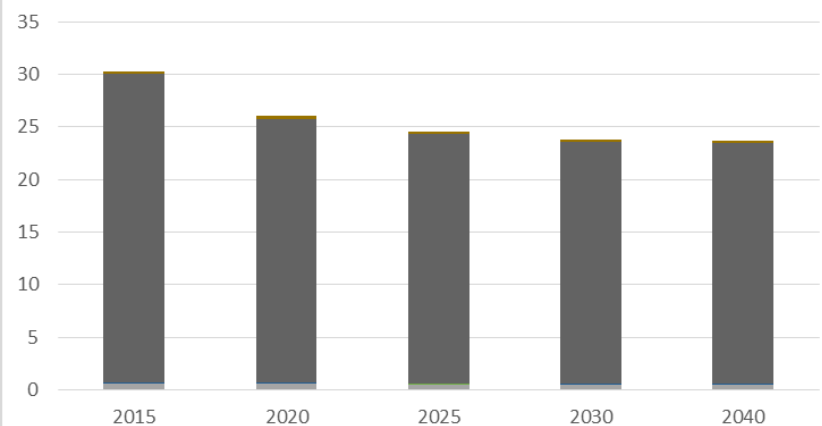
Emisie NH_3 (kt)



NH_3 (WEM)

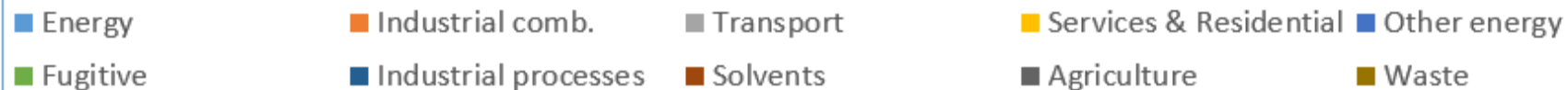
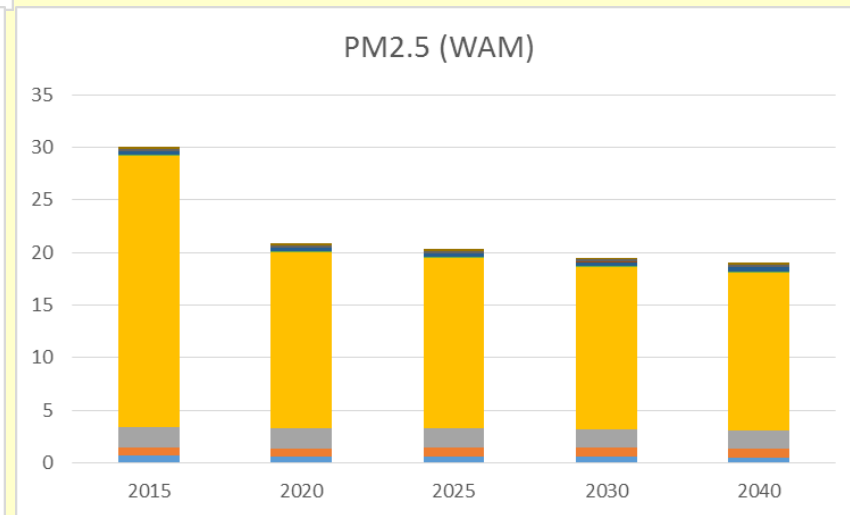
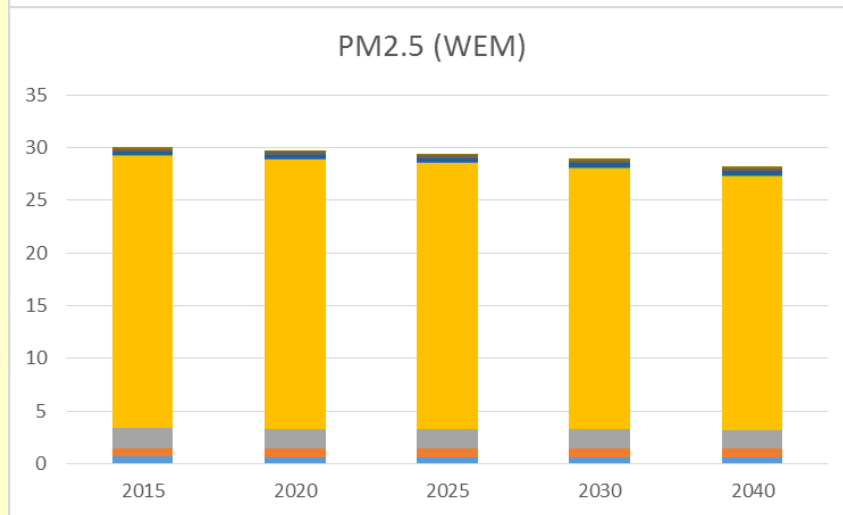
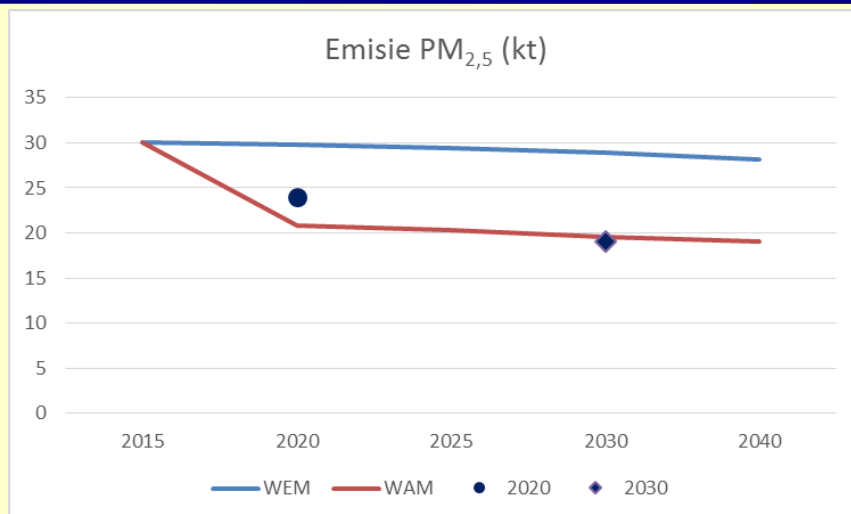


NH_3 (WAM)



■ Energy ■ Industrial comb. ■ Transport ■ Services & Residential ■ Other energy
■ Fugitive ■ Industrial processes ■ Solvents ■ Agriculture ■ Waste

Projected PM_{2,5} emissions



Ďakujem za pozornosť

