# Brief Summary of Oil and Gas Emissions for 2016v1 version: Base and future years

J Vukovich, USEPA

October 7, 2019

Summary of Oil and Gas Emissions in v1 platform

#### Differences from beta: base year

- Pennsylvania provided unconventional well-related emissions
  - EPA O&G tool used for conventional well-related emissions
  - Impact: NOx up 16K tons and VOC down 56k tons
- Illinois provided updated active well information
  - 48K active wells in 2016beta but actual active wells about 20K
  - Impact: NOx down 14k tons and VOC down 48K tons
- Virginia provided new 2016 Natural Gas transmission emissions

Summary of Oil and Gas Emissions in v1 platform

- Differences from beta: future-year projections
  - Production-related sources (SCCs in nonpoint and NAICS in point sources) used AEO2019 reference case (used AEO2018 in beta)
    - TCEQ submitted projections direction for non-point sources
  - Projected transmission point sources using AEO2019
  - Used 4-year average (2014-2017) emissions dataset for nonpoint exploration-related sources
  - Added NJ control information for pipeline compressor(s)
  - Used VA natural gas transmissions future year emissions
- WRAP Baseline inventory has arrived!
  - QA review in process
  - Future year scenario coming soon

# Summary of Oil and Gas Emissions in v1 platform Controls

Controls estimated

Few closures in point source inventory

NSPS impacts estimated and applied

Non-point sources

Oil and Gas and RICE

Point sources

Oil and Gas, RICE, Natural Gas Turbines, Process Heaters

#### EIA State production vs. VOC emissions (2016v1)



5

# EIA State production vs. VOC emissions (2016v1)



#### EIA State production vs. VOC emissions (2016v1)



### Exploration sources analysis (non-point)

8

#### National Exploration yearly trends and 4 year average

Parameter (all US states)	Year2014	Year2015	Year2016	Year2017	4 year average
Total Well Completions	40,306	22,754	15,605	21,850	25,129
Unconventionl Well Completions	20,896	11,673	7,610	11,617	12,949
Total Oil Spuds	36,104	17,240	7,014	14,322	18,670
Total Natural Gas Spuds	4,750	3,168	4,244	4,025	4,047
Total Coalbed Methane Spuds	239	130	141	222	183
Total Spuds	41,093	20,538	11,399	18,569	22,900
Total Feet Drilled	327,832,580	178,297,779	106,468,774	181,164,800	198,440,983

# Exploration NOX emissions by state for recent cases

2 year average (2014 and 2016) was used for beta projections 4 year average (2014-2017) being used for v1 projections 2014fd=2014NEIv2, 2016ff=beta and 2016fh= version 1

stid	st_nm	cattype	poll	2014fd	2016ff	2016fh	2yr avg (2014+2016)	4yr avg (2014-2017)
48	Texas	EXPLORATION	NOX	66363	21845	21845	43543	38514
8	Colorado	EXPLORATION	NOX	14682	16559	16559	5714	6159
42	Pennsylvania	EXPLORATION	NOX	11579	12613	7775	1755	12212
40	Oklahoma	EXPLORATION	NOX	18317	5549	5549	9376	9003
38	North Dakota	EXPLORATION	NOX	27647	5426	5426	12740	11376
22	Louisiana	EXPLORATION	NOX	2999	1395	1395	1735	1730
35	New Mexico	EXPLORATION	NOX	5060	1374	1374	2493	2626
39	Ohio	EXPLORATION	NOX	3430	995	995	1592	1729
56	Wyoming	EXPLORATION	NOX	11120	372	372	669	684
54	West Virginia	EXPLORATION	NOX	605	353	353	395	305
49	Utah	EXPLORATION	NOX	1636	139	139	620	467
17	Illinois	EXPLORATION	NOX	386	111	111	270	179
30	Montana	EXPLORATION	NOX	2150	109	109	835	503
20	Kansas	EXPLORATION	NOX	650	88	88	250	177
5	Arkansas	EXPLORATION	NOX	1924	72	72	719	548
28	Mississippi	EXPLORATION	NOX	9	61	61	188	116

# Base vs. Future year state emissions analysis Non-point

























# Base vs. Future year state emissions analysis Point



Max: 2.986e+03 Min: 0.0













