



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Energy Programs Office

Climate Change Advisory Committee Meeting

August 23, 2022

Tom Wolf, Governor

Ramez Ziadeh, Acting Secretary

Agenda

- **Introduction**
- Approval of June Minutes
- Presentation/Discussion – Advances in Nuclear and Future Uses
- Presentation/Discussion – Getting to Net-Zero Power
- Public Comment
- Break
- CCAC Officer Elections
- Presentation/Discussion – DRAFT 2022 GHG Inventory Report
- Updates
- Next Meeting
- New Business

CAP Implementation – Electricity Generation

August 23, 2021

GHG Reduction Strategy	Expected Implementation Timeframe
Maintain nuclear generation at current levels	Near term
Create a carbon emissions free grid	Long term

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Public Comment (15 min)



Break

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CCAC Officer Elections

- Nominations from the floor
- Voting
 - For members present in-person: Slips of paper will be provided for you to write down your vote. Votes will be collected by Lindsay and tallied.
 - For members present virtually: Use WebEx Chat feature to submit your vote *privately* to Lindsay Byron. Votes will be tallied along with in-person votes.



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Energy Programs Office

DRAFT 2022 Pennsylvania Greenhouse Gas Inventory Report (2019 Data Year)

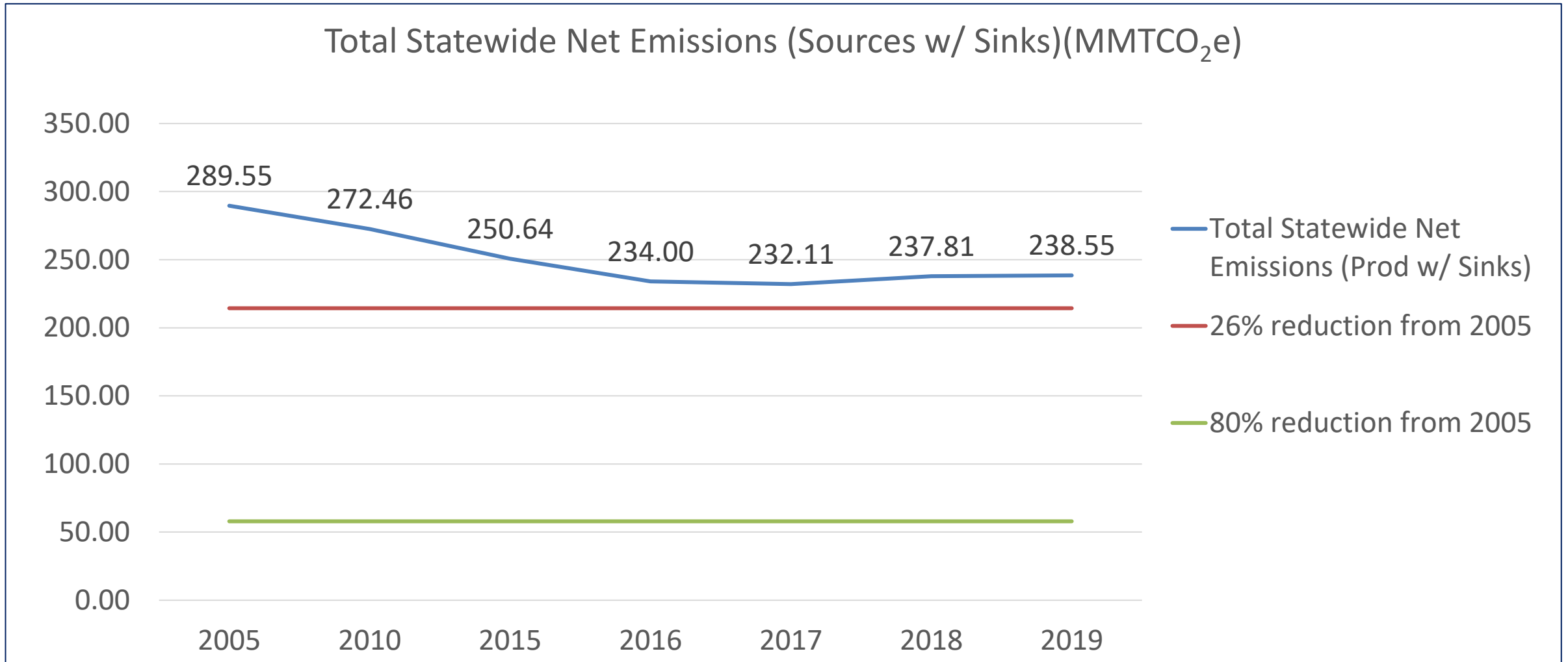
GHG Emissions Inventory

- State Inventory Tool (SIT)
 - Made available in March 2022
 - EPA updated all 11 modules with data through 2019
- Fuel consumption data for 2020 included from SEDS

GHG Emissions Inventory

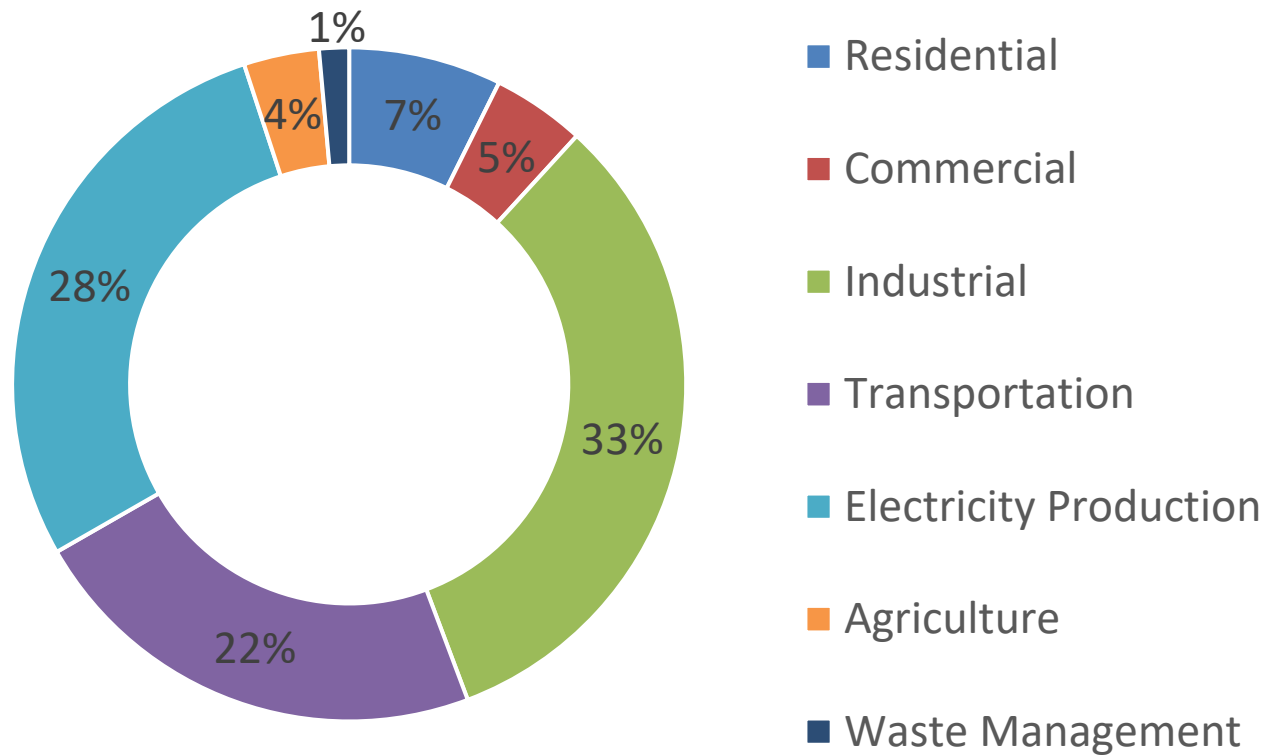
- 2019 data shows a net emissions increase from 2018. This is the second consecutive year with a GHG increase.
- Emissions increases occurred in the Industrial, Transportation, and Electricity Production sectors.
- Emissions decreases occurred in the Residential, Commercial, and Agricultural sectors.
- The Waste Management sector saw no significant change in emissions.
- There was a decrease in CO₂ sequestered in the LULUCF sector in 2019 compared to 2018.

GHG Emissions Inventory



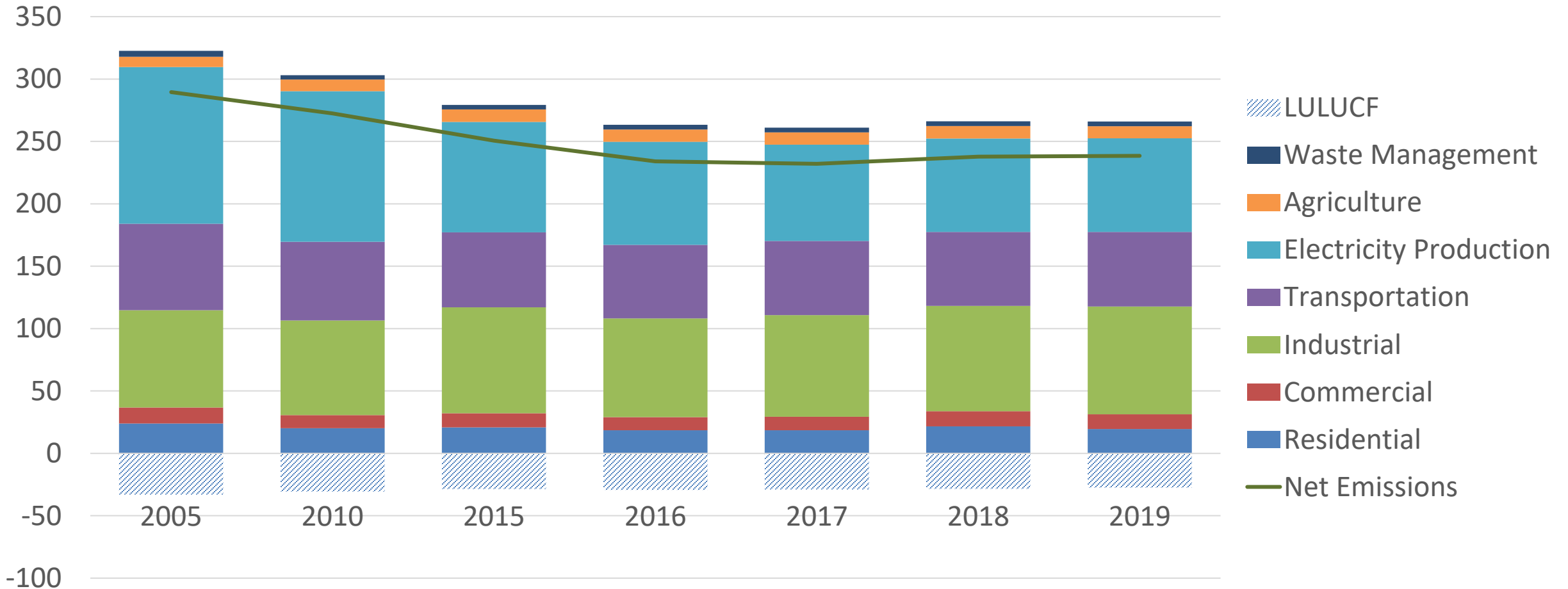
GHG Emissions Inventory

Pennsylvania 2019 GHG Emissions
% of Total by Sector



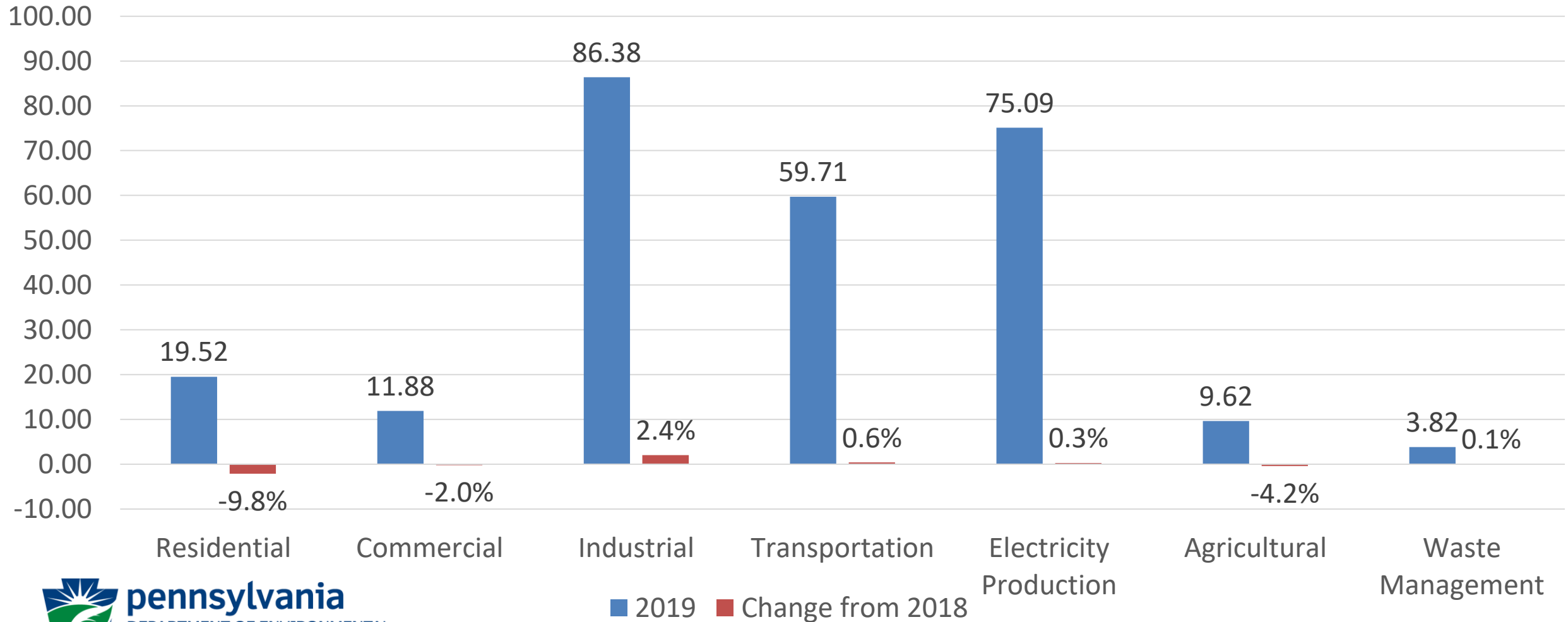
GHG Emissions Inventory

GHG Emissions (MMT_{CO2e}) by Sector

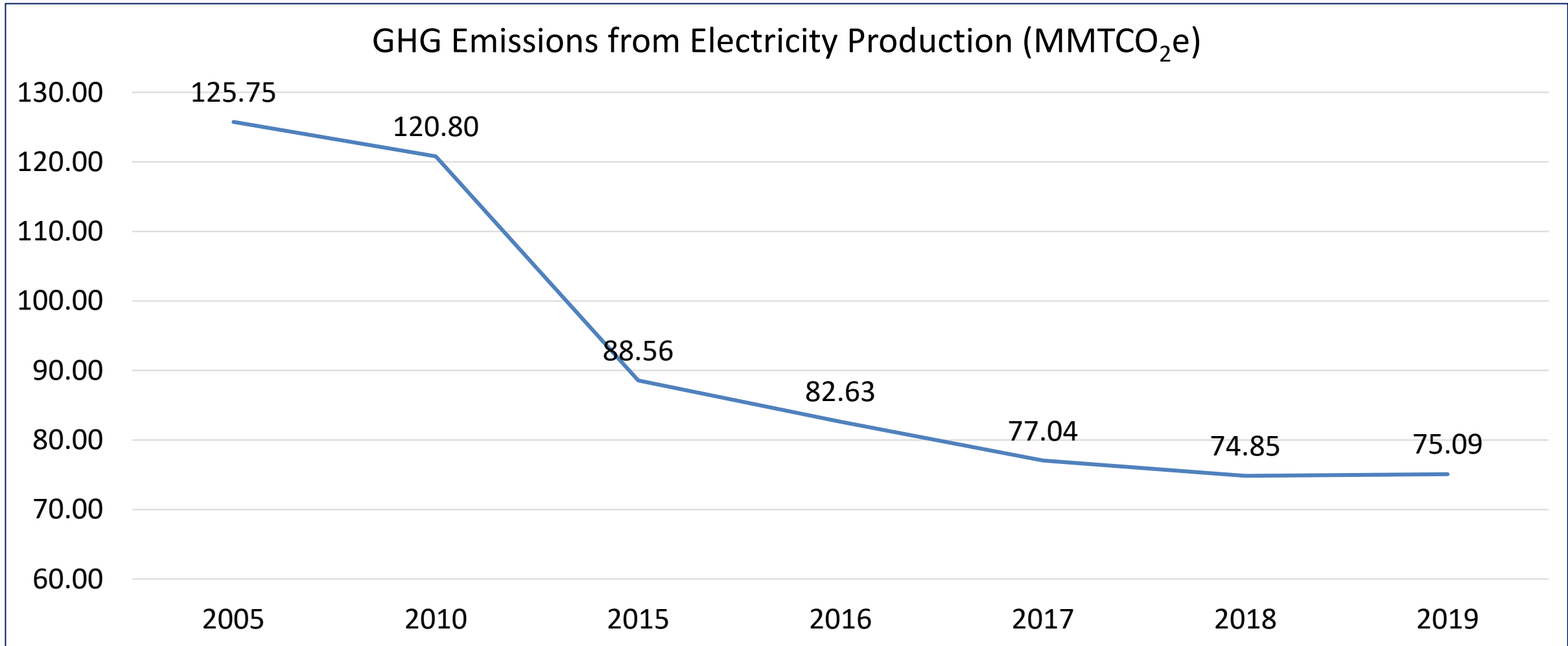


GHG Emissions Inventory

2019 GHG Emissions By Sector (MMT_{CO₂e})

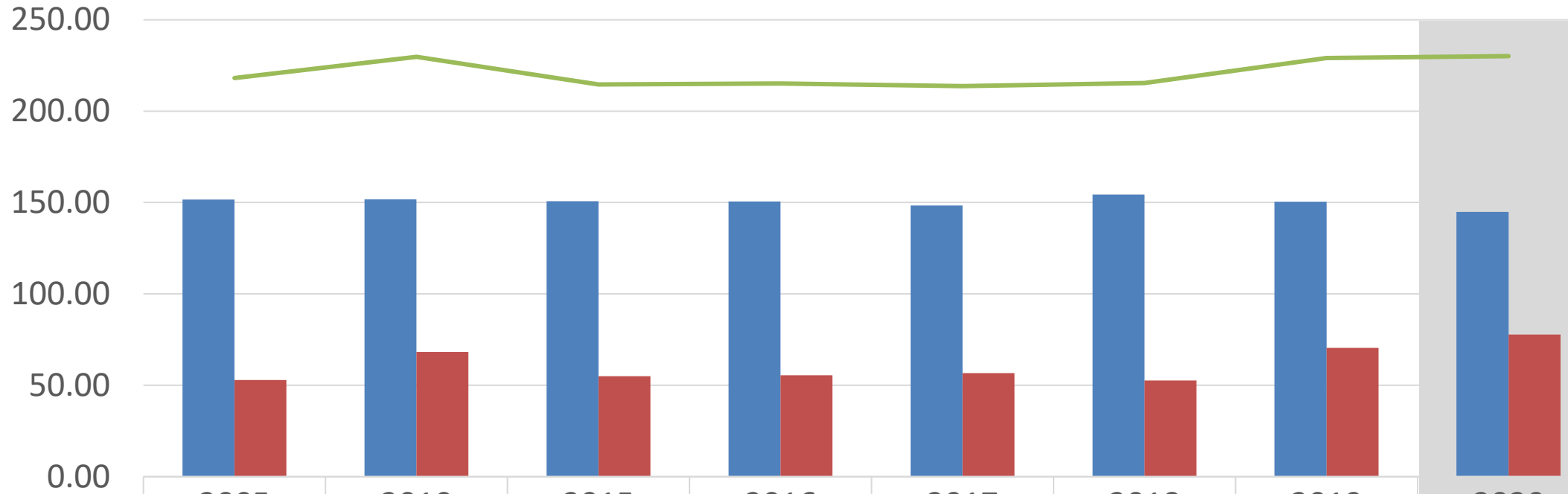


Electricity Production



Electricity Production

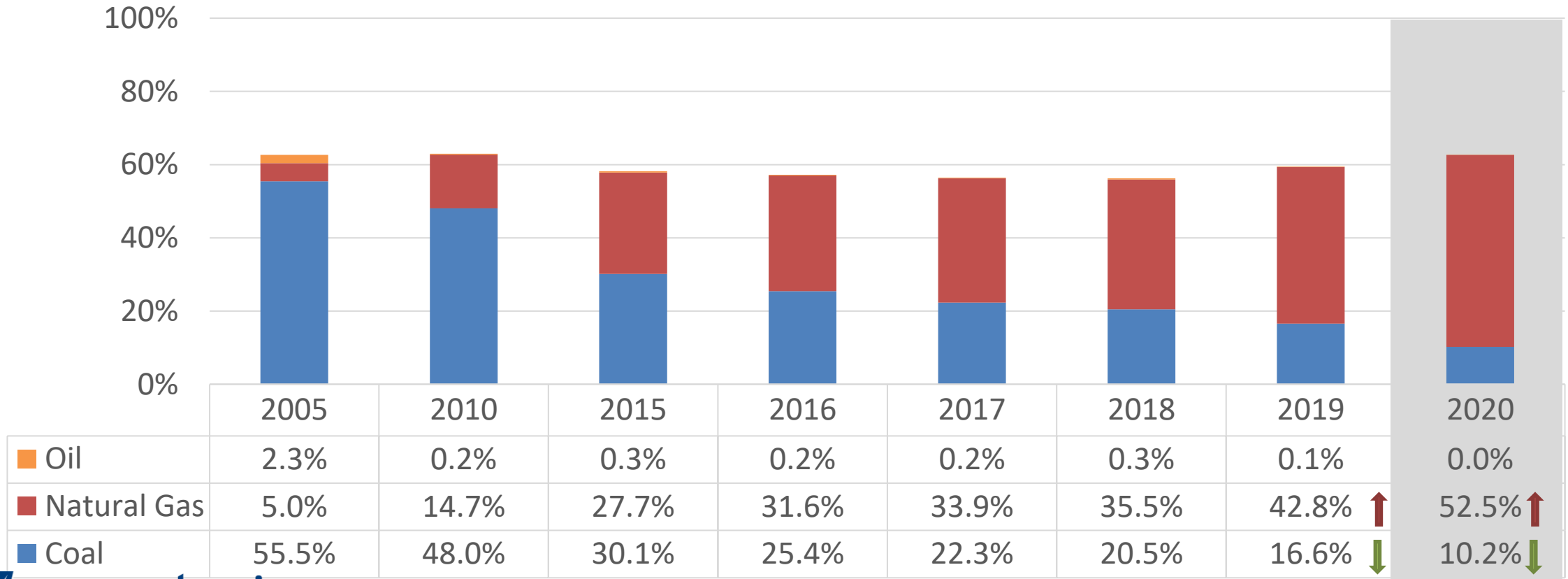
Total Electricity Generated, Consumed, and Exported (TWh)



	2005	2010	2015	2016	2017	2018	2019	2020
Electricity Consumed	151.56	151.75	150.67	150.53	148.33	154.37	150.40 ↓	144.86 ↓
Electricity Exported	52.86	68.26	54.93	55.49	56.61	52.57	70.48 ↑	77.81 ↑
Electricity Generated	218.09	229.75	214.57	215.07	213.64	215.39	229.00 ↑	230.14 ↑

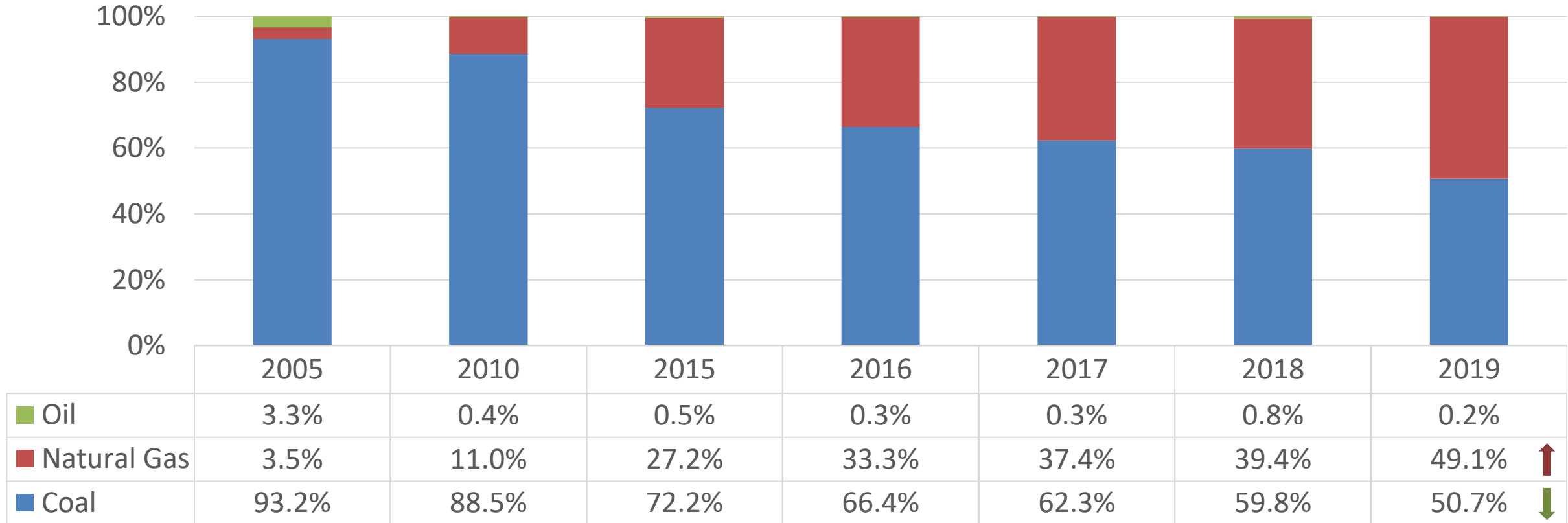
Electricity Production

Percent Electricity Production By Fuel Type



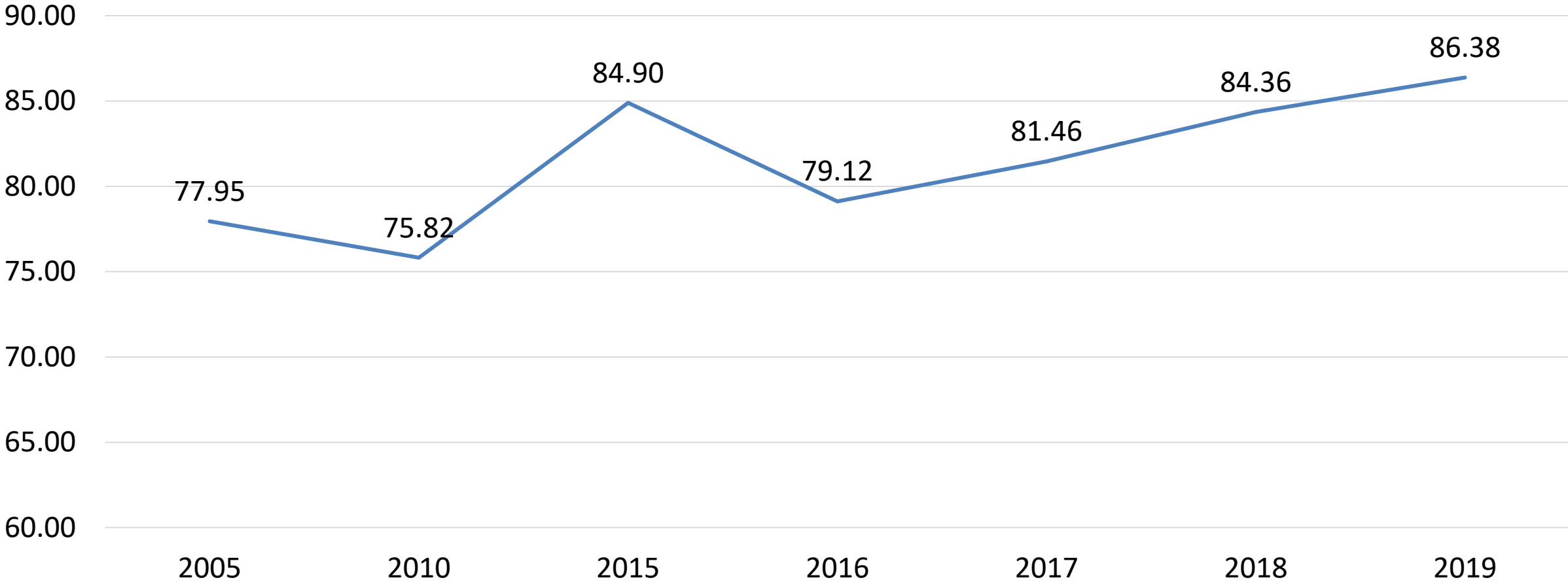
Electricity Production

GHG Emissions from Electricity Production Sector by Source
(% of Total)



Industrial Sector

GHG Emissions from Industrial Sector (MMT_{CO₂e})



Industrial Sector

GHG Emissions from Industrial Sector by Source (% of Total)

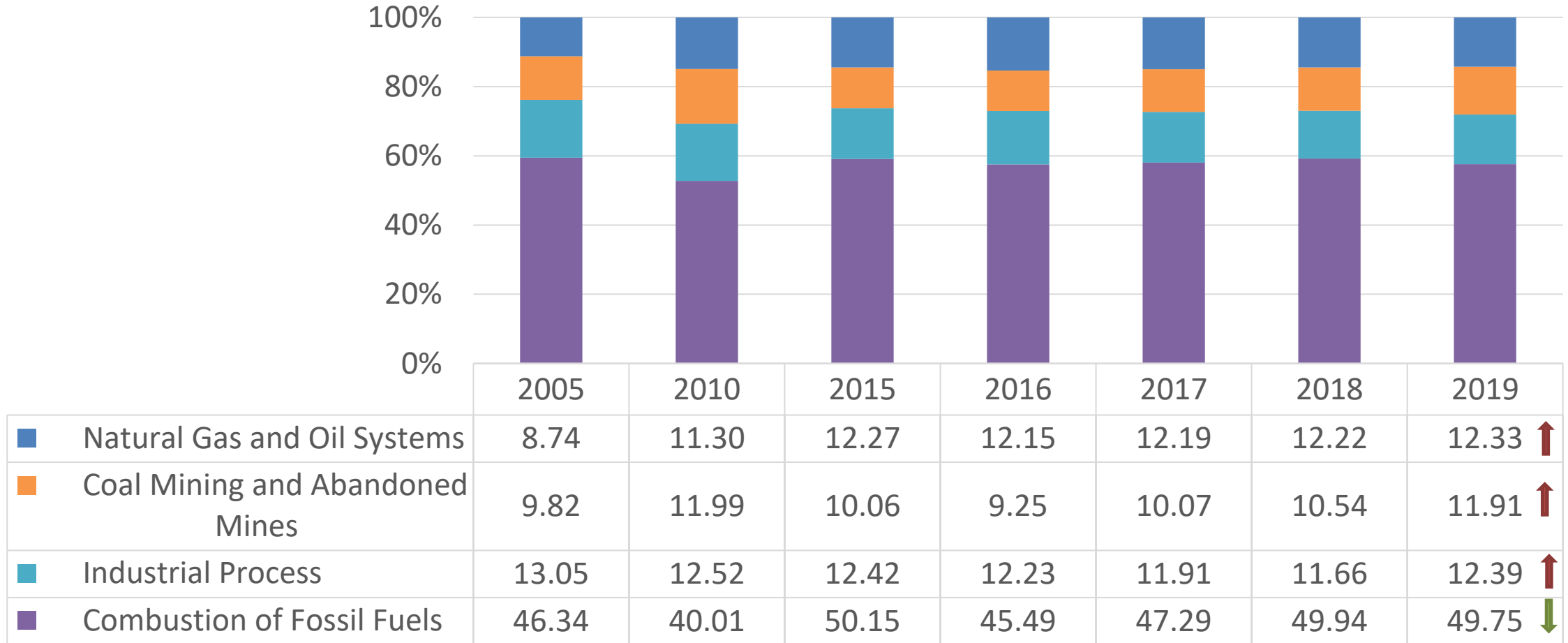
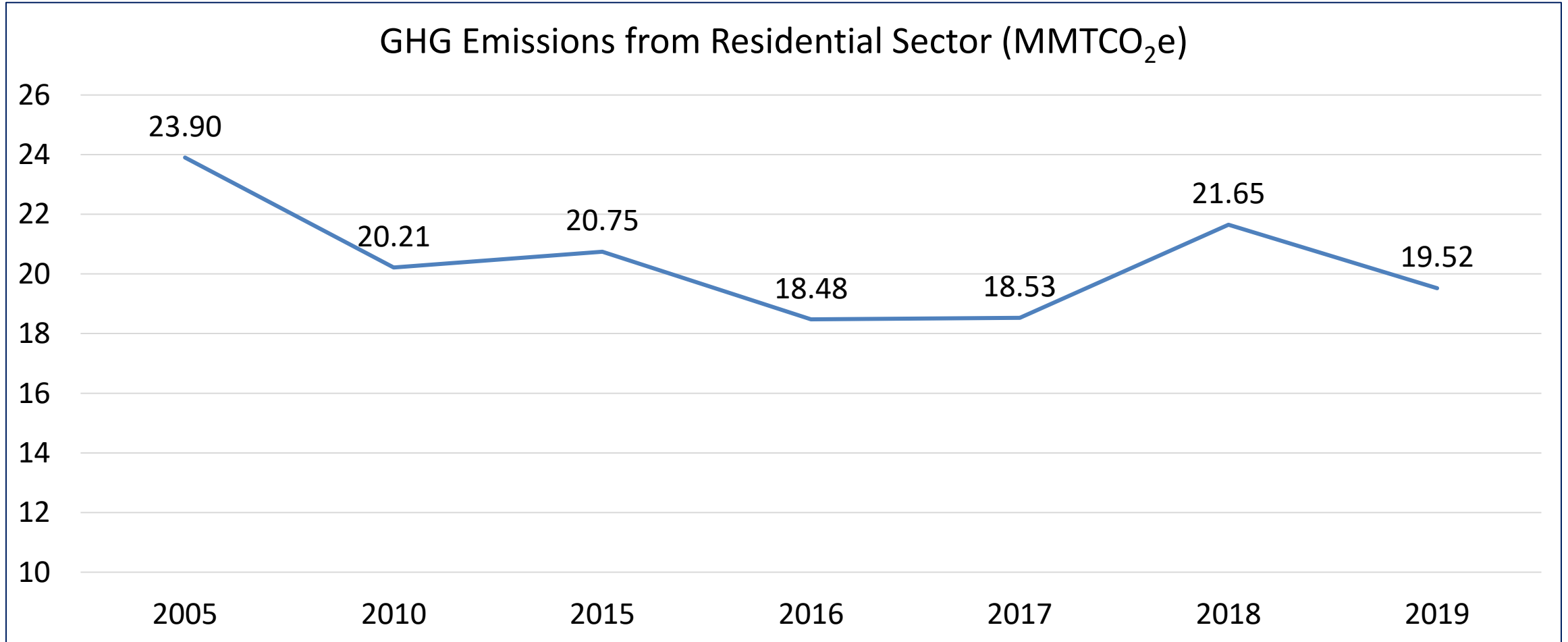


Table values presented in MMTCO₂e

Residential Sector



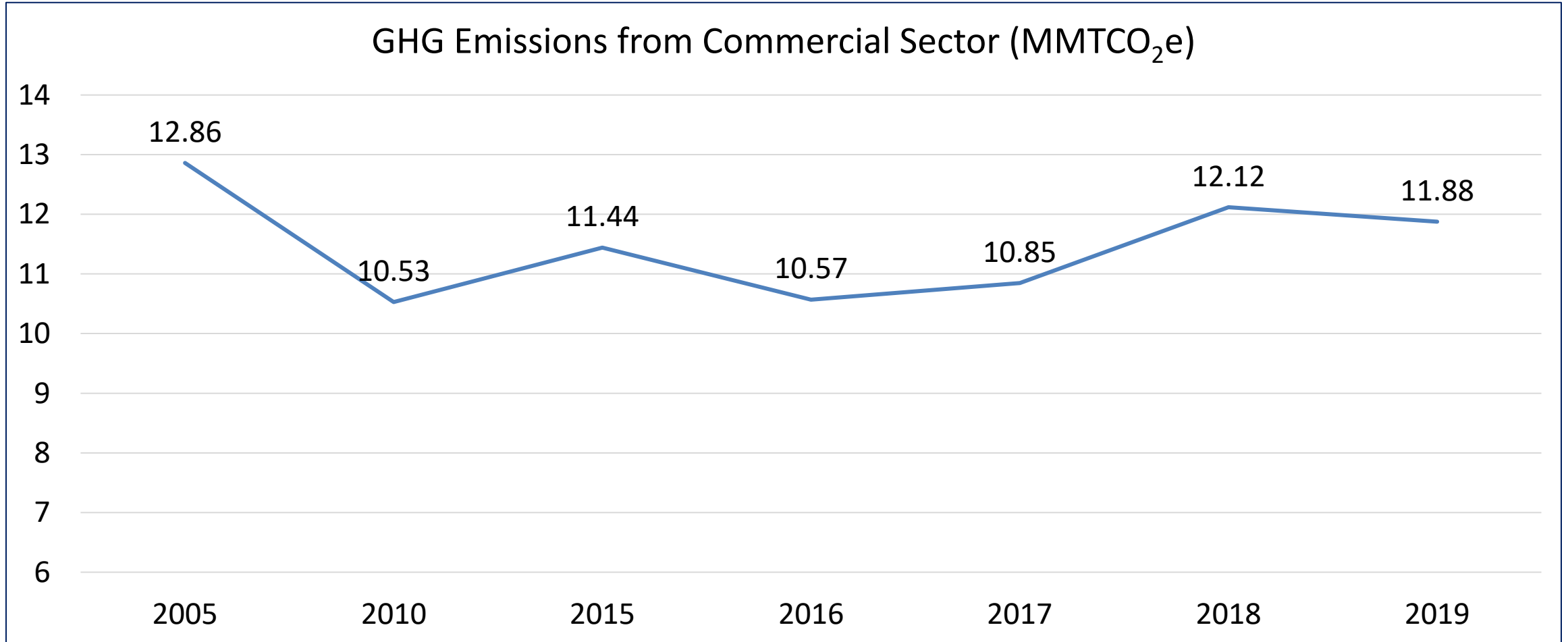
Residential Sector

Residential Emissions by Fuel Type (% of Total)



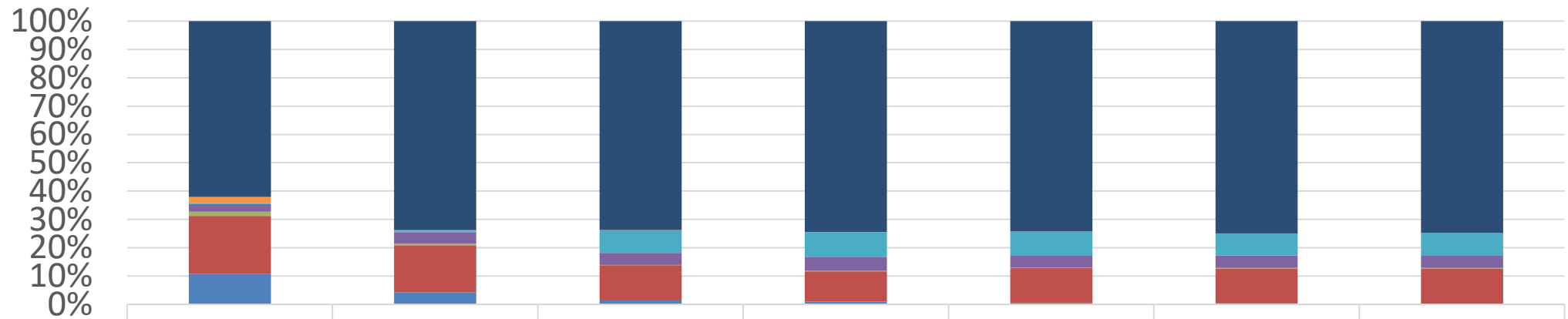
Table values presented in MMTCO₂e

Commercial Sector



Commercial Sector

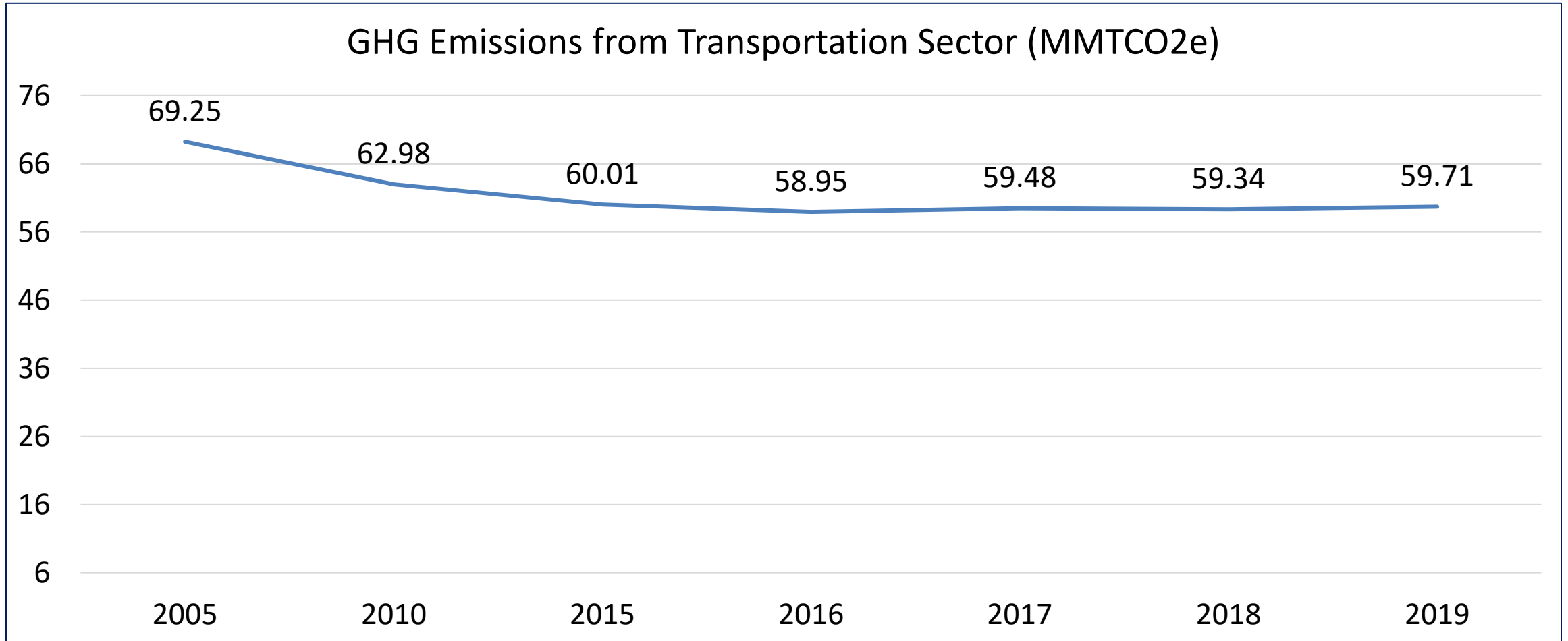
Commercial Emissions by Fuel Type (% of Total)



	2005	2010	2015	2016	2017	2018	2019
■ Natural Gas	7.98	7.77	8.43	7.87	8.05	9.08	8.89 ↓
■ Residual Fuel	0.30	0.04	0.00	0.01	0.00	0.00	0.00
■ Motor Gasoline	0.03	0.03	0.92	0.93	0.94	0.96	0.96
■ Propane	0.35	0.43	0.49	0.51	0.45	0.53	0.50
■ Kerosene	0.19	0.06	0.01	0.02	0.01	0.01	0.02
■ Heating Fuel	2.64	1.75	1.39	1.13	1.33	1.51	1.48
■ Coal	1.38	0.45	0.19	0.10	0.06	0.04	0.03

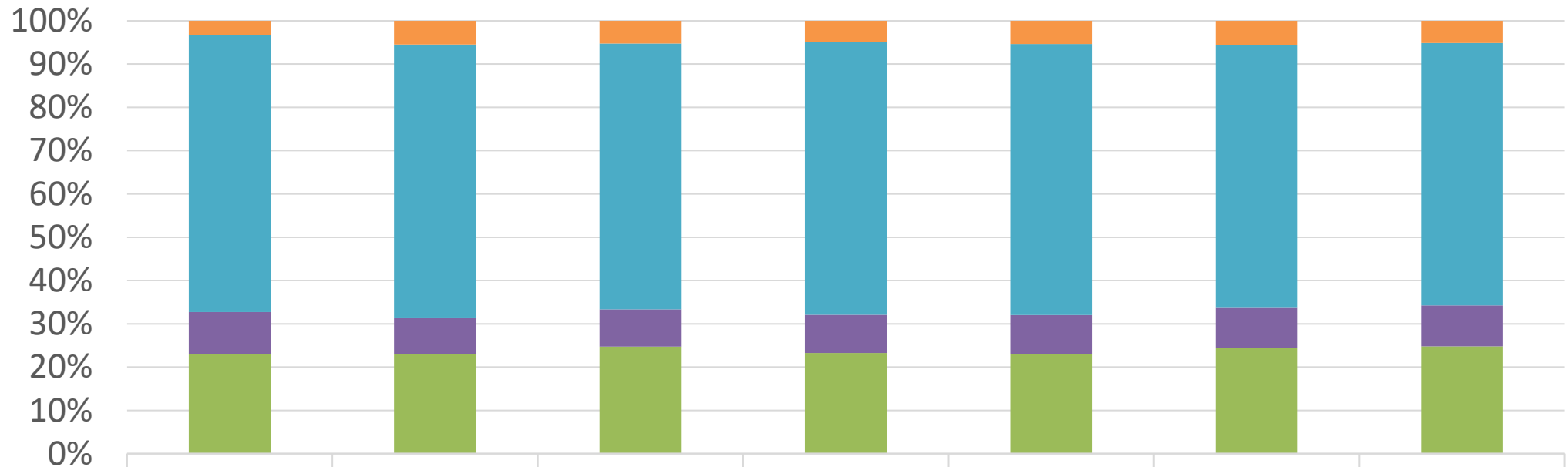
Table values presented in MMTCO₂e

Transportation Sector



Transportation Sector

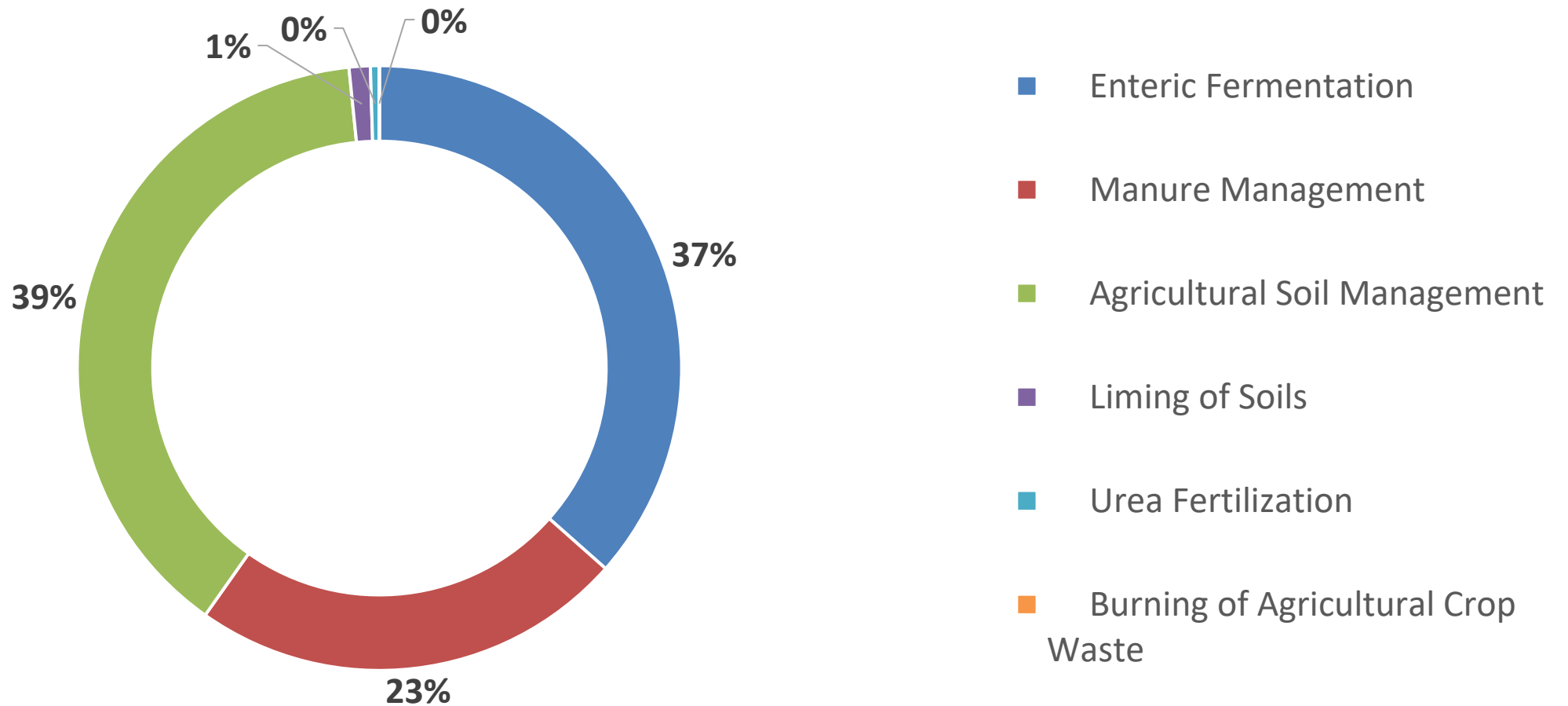
Transportation Emissions by Fuel Type (% of Total)



	2005	2010	2015	2016	2017	2018	2019
 Natural Gas	32,312	49,517	45,700	42,547	46,208	48,893	44,314 ↓
 Motor Gasoline	628,121	571,588	532,669	535,957	539,177	522,404	524,459 ↑
 Jet Fuel	95,404	74,774	74,673	74,912	77,287	79,228	82,141 ↑
 Diesel	225,678	208,177	214,410	198,257	198,552	210,825	214,525 ↑

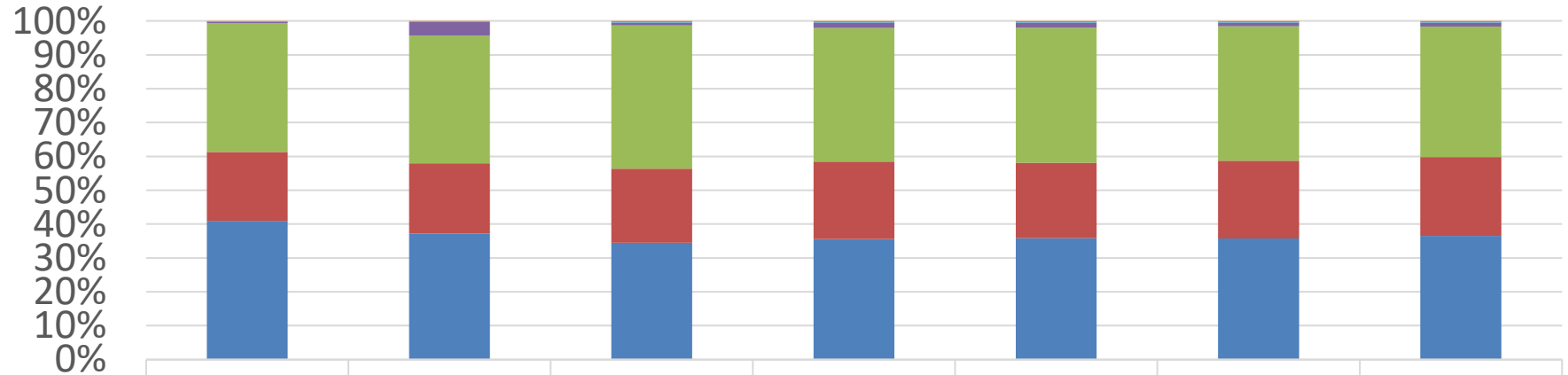
Waste Management Sector

2019 GHG Emissions, Waste Management Sector by Source



Agricultural Sector

GHG Emissions from Agricultural Sector by Source (% of Total)

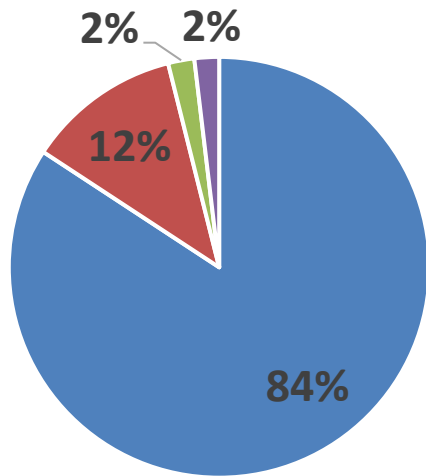


	2005	2010	2015	2016	2017	2018	2019
Burning of Agricultural Crop Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Urea Fertilization	0.02	0.03	0.04	0.04	0.04	0.04	0.04
Liming of Soils	0.03	0.38	0.08	0.16	0.15	0.11	0.11
Agricultural Soil Management	3.13	3.49	4.20	3.90	3.98	3.99	3.71 ↓
Manure Management	1.68	1.93	2.17	2.26	2.22	2.31	2.24
Enteric Fermentation	3.37	3.44	3.43	3.51	3.57	3.59	3.51

Table values presented in MMTCO₂e

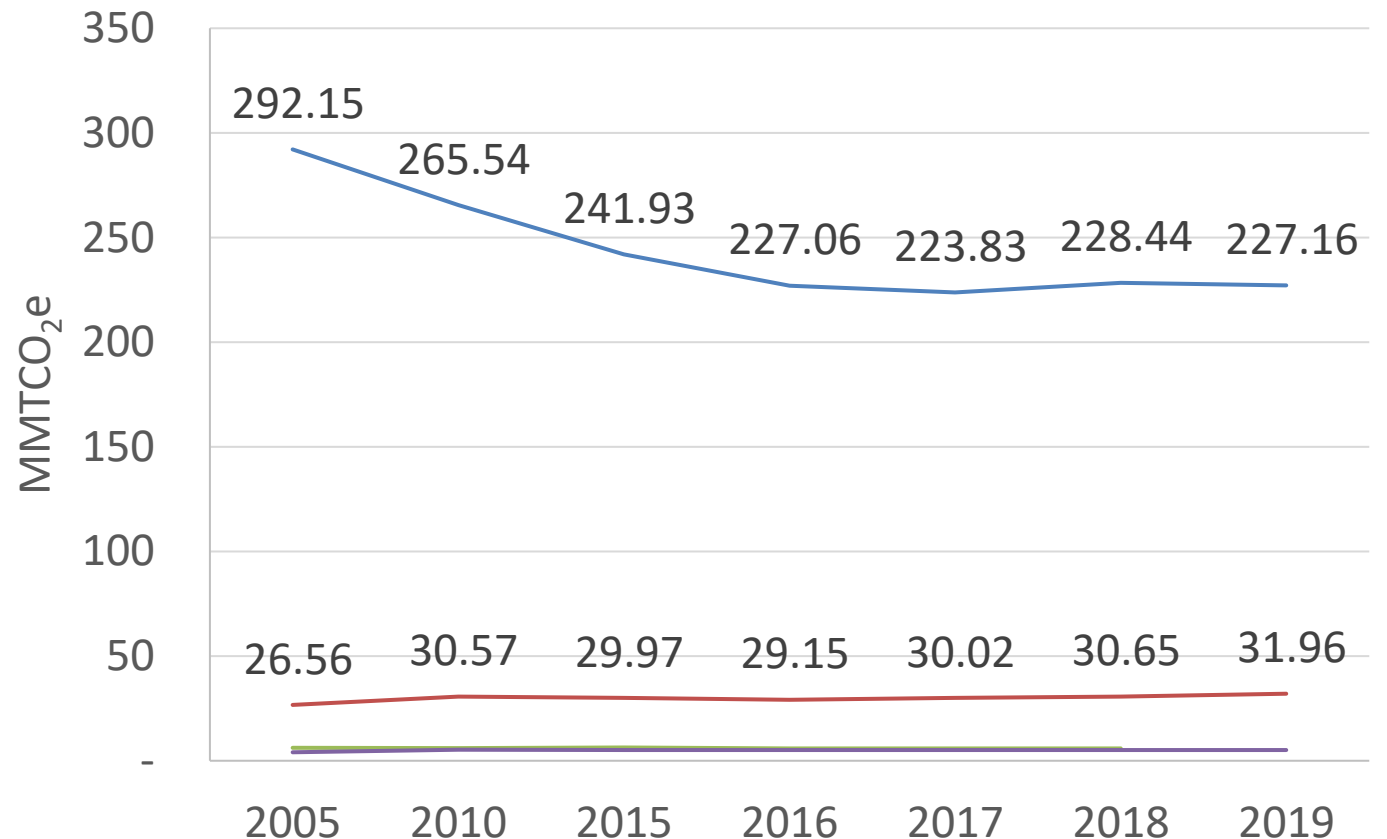
Summary by Gas

GHG Emissions by Gas, 2019



- Gross CO2
- CH4
- N2O
- HFC, PFC, SF6 and NF3 Emissions

GHG Emissions by Gas, 2005-2019



- Gross CO2
- CH4
- N2O
- HFC, PFC, SF6 and NF3 Emissions



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Energy Programs Office

Questions?

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DEP Updates

Pennsylvania Climate Action to Benefit Disadvantaged Communities

- EPO's [Clean Energy Program Plan](#): “Consider effects on equity, access, and inclusion and the needs of and effects on vulnerable communities”.
- DEP's Draft [Environmental Justice \(EJ\) Policy](#) : DEP will “Create and implement outreach and engagement strategies to ensure participation by, and feedback from, EJ Area residents, community organizations and communities vulnerable to climate change impacts in climate planning and investment initiatives. Public input processes involving EJ communities should be conducted early in the planning process and provide a meaningful opportunity to impact the outcome”.
- DEP plans to hire a contractor to develop a plan for community engagement, facilitate that engagement, solicit and coordinate input from DACs and experts on diversity, equity and inclusion (DEI), and develop a guide that answers questions related to implementation of climate strategies for maximum benefit to DACs and how to measure success. This guide will be useful not only as EPO prepares the 2024 Climate Impacts Assessment and CAP, but also as we develop programs to deploy federal Bipartisan Infrastructure Law funding.

DEP Updates

DEP Climate Outreach Efforts:

- 6/23/22 – FEMA Region 3 The Regional Interagency Steering Committee / Regional Advisory Council (RISC / RAC) Meeting
- 6/27/22 – Local Climate Action Event Planning Meeting with CONNECT
- 7/6/22 – Discussion with State of DE on development of LCAP

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2022 Meeting Planning

Proposed Themes:

- ~~February 22 – Transportation~~
- ~~April 14 – Agriculture & LULUCF~~
- ~~June 23 – Buildings~~
- ~~August 23 – Electricity Generation~~
- **October 25 - Industrial & Fuel Supply
(additional topics)**
- December 13 – Climate Adaptation

CAP Implementation – Industry, Fuel Supply, Waste

October 25, 2021

GHG Reduction Strategy	Expected Implementation Timeframe
Increase industrial energy efficiency and fuel switching	Near term
Increase production and use of biogas/renewable gas	Midterm
Incentivize and increase use of distributed Combined Heat and Power	Near term
Reduce methane emissions across oil and natural gas systems	Midterm
Reduce food waste	Near term
Reduce waste generated by citizens and businesses and expand beneficial use of waste	Near term

Next Meeting – Proposed Agenda

October 25, 2022 – Industrial and Fuel Supply:

- Introduction
- Approval of August Minutes
- **Presentation TBD**
- **Environmental Justice/Equity TBD**
- Public Comment
- Break
- **Local government climate action – LCAP Participant TBD**
- **DEP Updates**
- **Next meeting's agenda: Dec. 14, Climate Adaptation**
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