

Greenhouse Gas Emission Inventories and Forecasts for Nine Western States

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WRAP/CCS Assistance Agreement

- ❖ Agreement Effective June 1, 2006
- ❖ Prepare Initial Inventory & Forecast (I&F) for 9 Western States:
 - » AK, CO, ID, MT, NV, SD, UT, WY, WA

WRAP GHG Emissions/Sinks

- ❖ Inventory and Reference Case Projections
 - » Inventory of historical emissions from 1990 to most recent data year
 - » Projection of emissions to 2020
- ❖ Preliminary analysis by CCS for further discussion and final revision

Pollutant Coverage

- ❖ Six gases per USEPA and UNFCCC guidelines
 - » Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur Hexafluoride (SF₆)
 - » Black Carbon considered separately

Source Coverage

- ❖ All major emitting sectors
 - » Electricity (generation / supply)
 - » Fossil Fuel Production, Transmission, & Distribution
 - » Residential, Commercial, Industrial Fuel Use
 - » Transportation
 - » Other Industrial Processes (non-fuel use)
 - » Waste Management (solid / liquid)
 - » Agriculture (livestock and crop production)
- ❖ Carbon sinks (sequestration)
 - » Terrestrial: Forestry, Agriculture
 - » Geological: CO₂ storage

Inventory Approach

- ❖ Standard US EPA and UN methodologies, guidelines, and tools
- ❖ Emphasis on transparency, consistency, and significance
- ❖ Preference for WRAP State, Tribal, or regional data, where available
- ❖ Consumption and production-based emissions from electricity generation
 - » Production – emissions from in-state generation
 - » Consumption – net emissions driven by State's electricity demand (imports / exports)

Projection Approach

- ❖ Reference case assumes no major changes from business-as-usual (BAU)
 - » Includes approved policies and actions to the extent possible (e.g. Energy Efficiency, Renewable Energy)
- ❖ Growth assumptions from existing sources
 - » State/Regional population & employment forecasts
 - » US Census and Bureau of Labor & Statistics
 - » US Energy Information Administration

States Included in this Presentation

❖ WRAP/CCS Assistance Agreement

» Nine western States:

– AK, CO, ID, MT, NV, SD, UT, WY, and WA

❖ Additional States

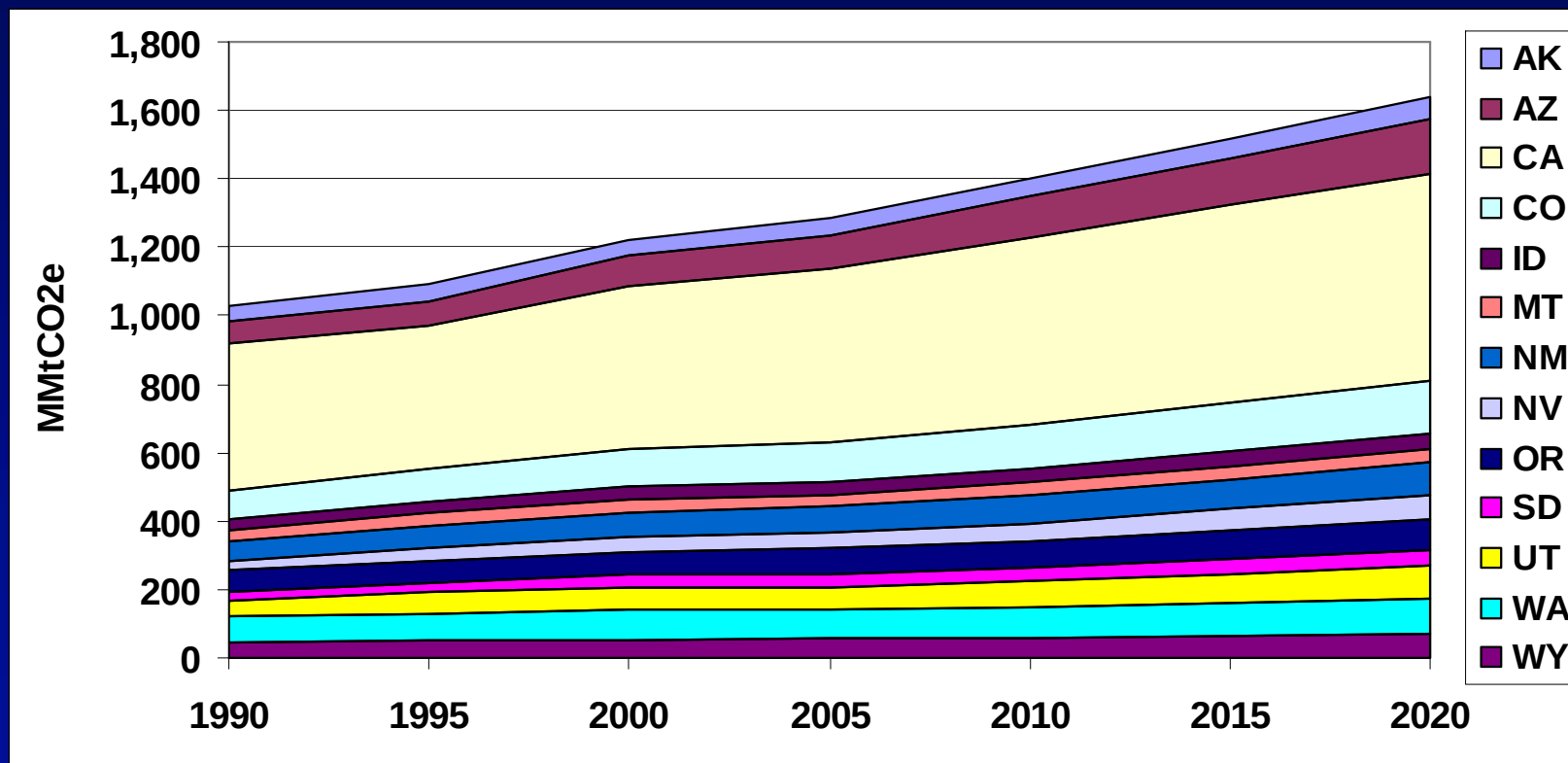
» AZ and NM:

– I&F prepared by States/CCS for Climate Action Plans

» CA and OR:

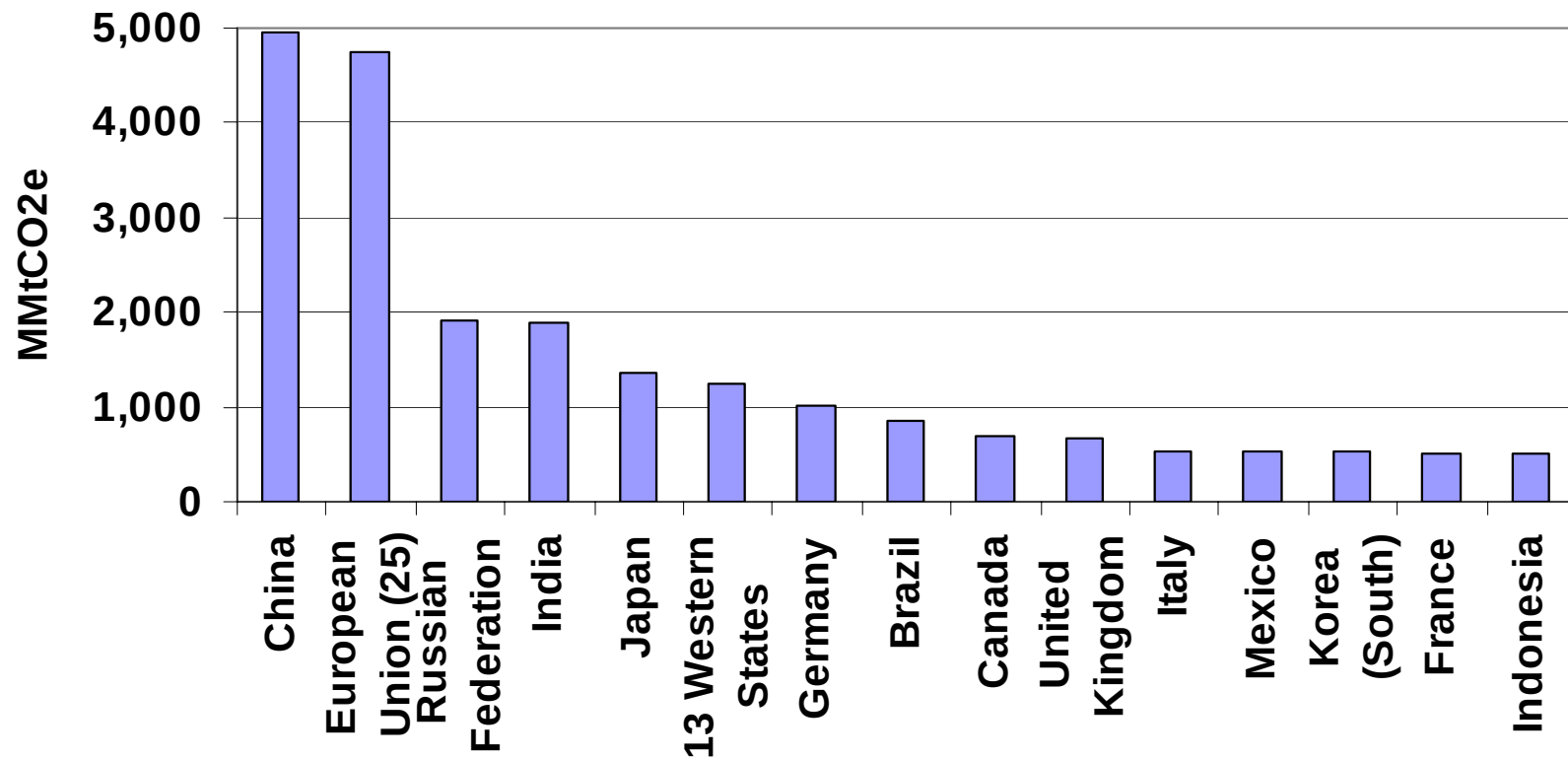
– I&F prepared by these two States

Gross GHG Emissions by State

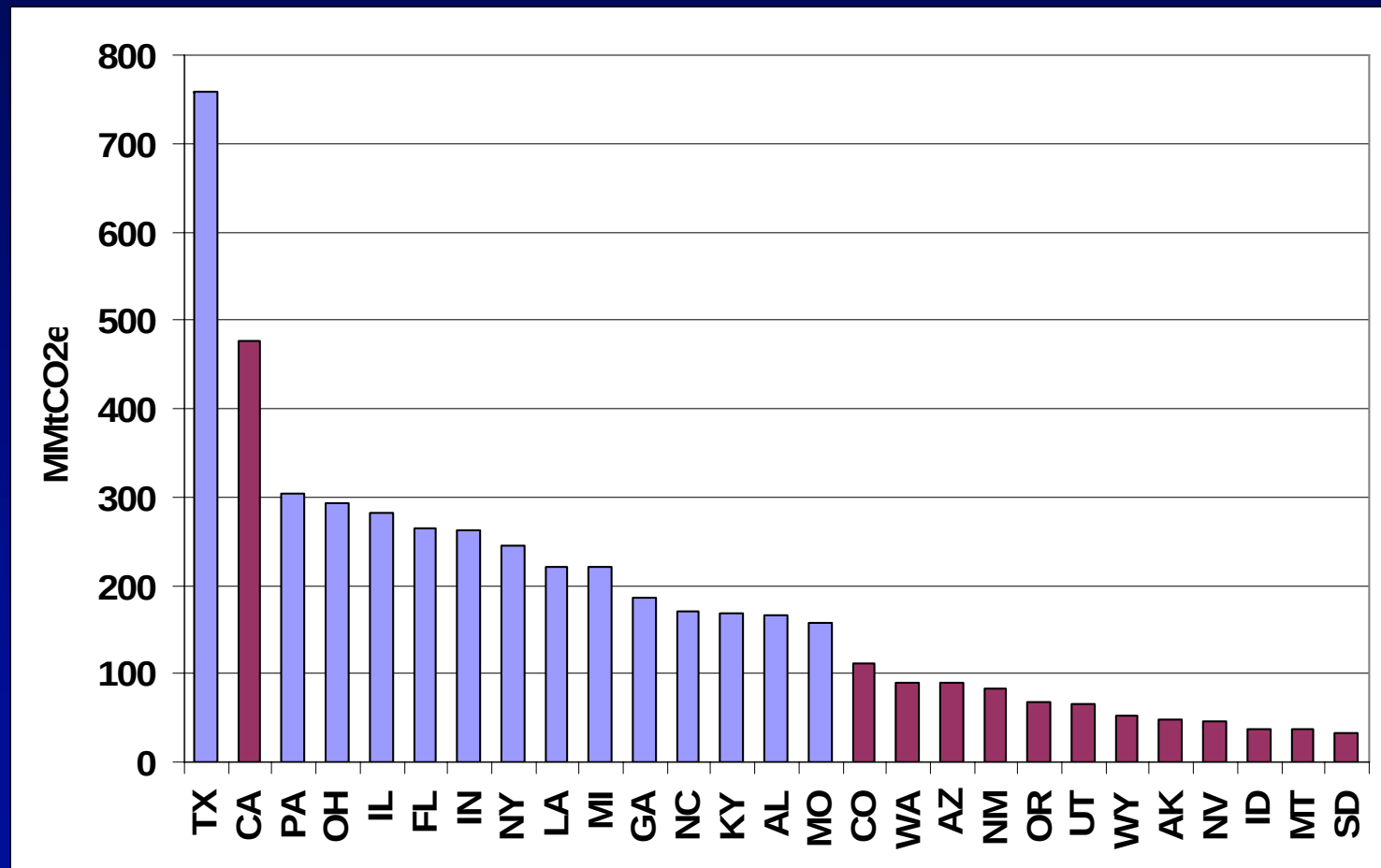


Gross Consumption-based GHG Emissions by State: Historical and Projected

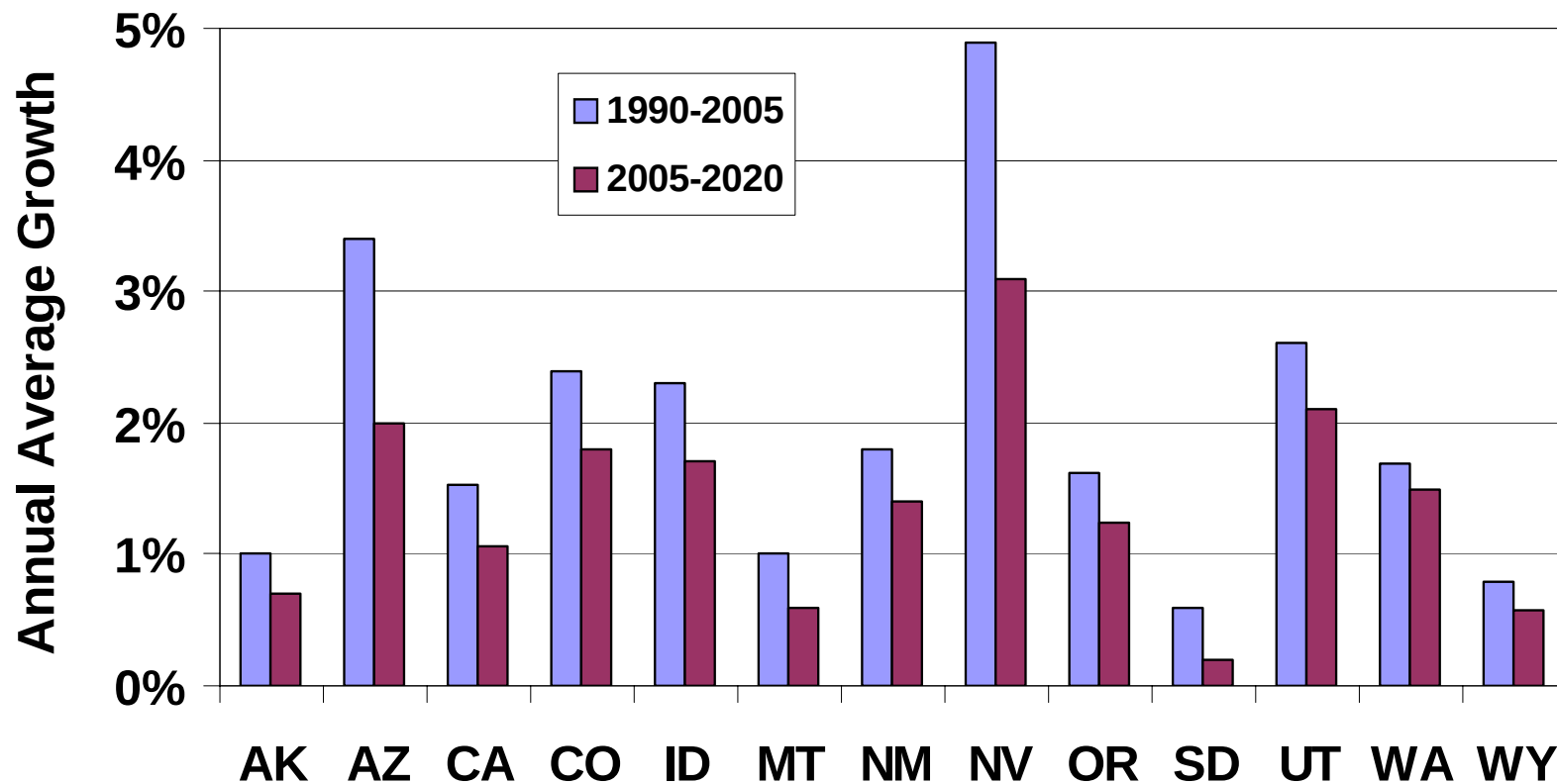
Ranking of 2000 GHG State and National Emissions



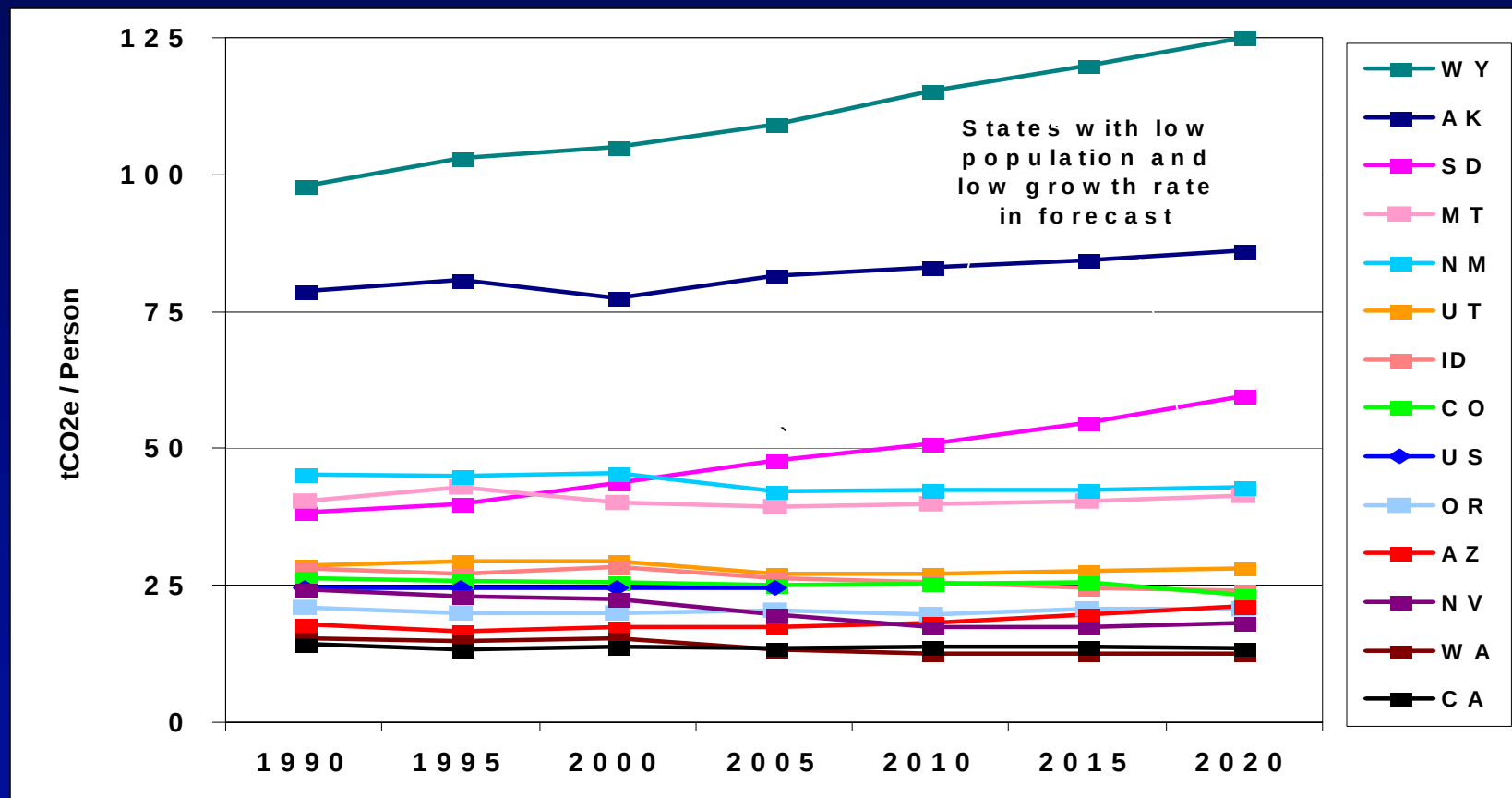
Ranking of 2000 GHG Emissions by State



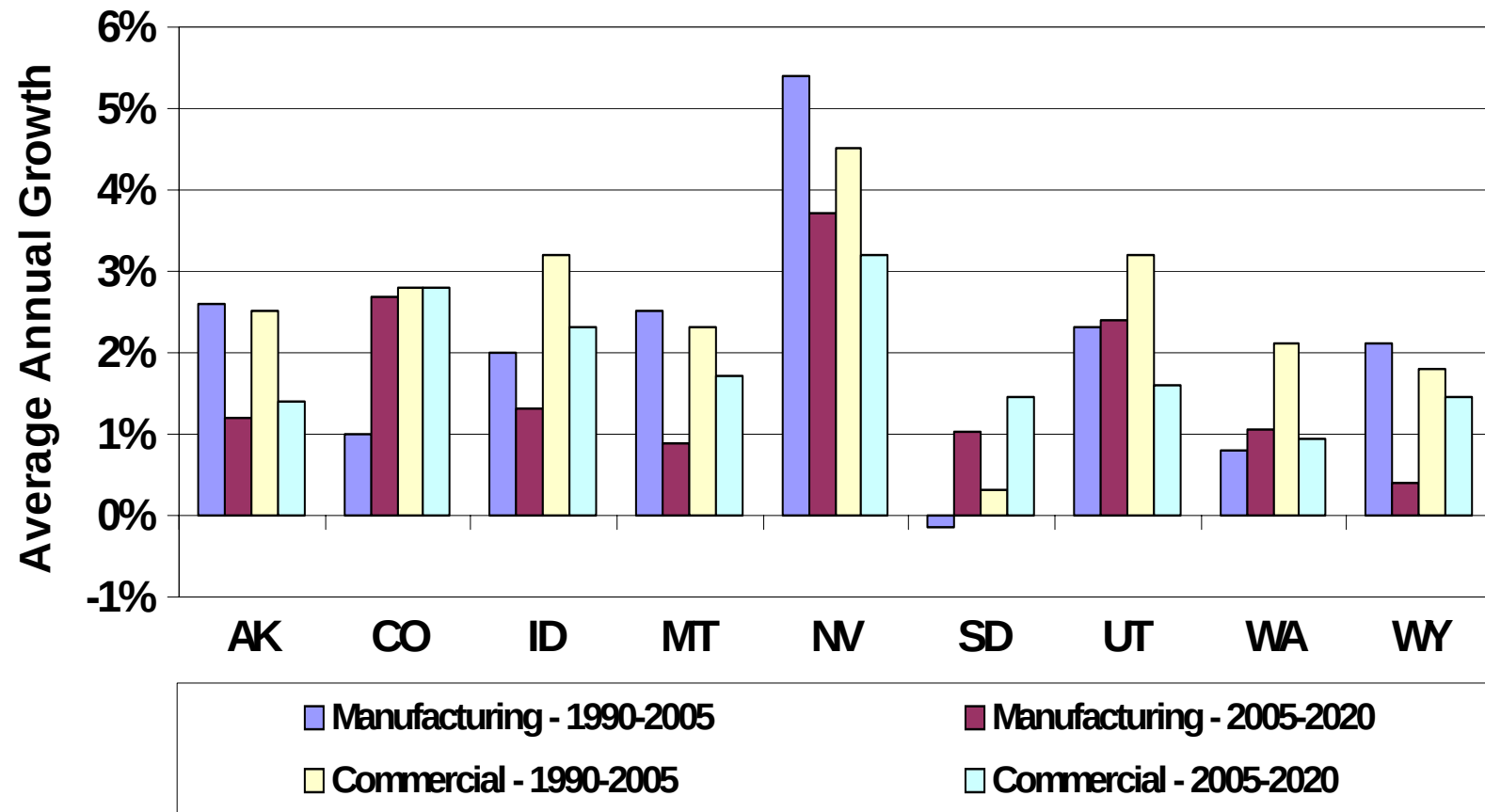
Population Growth



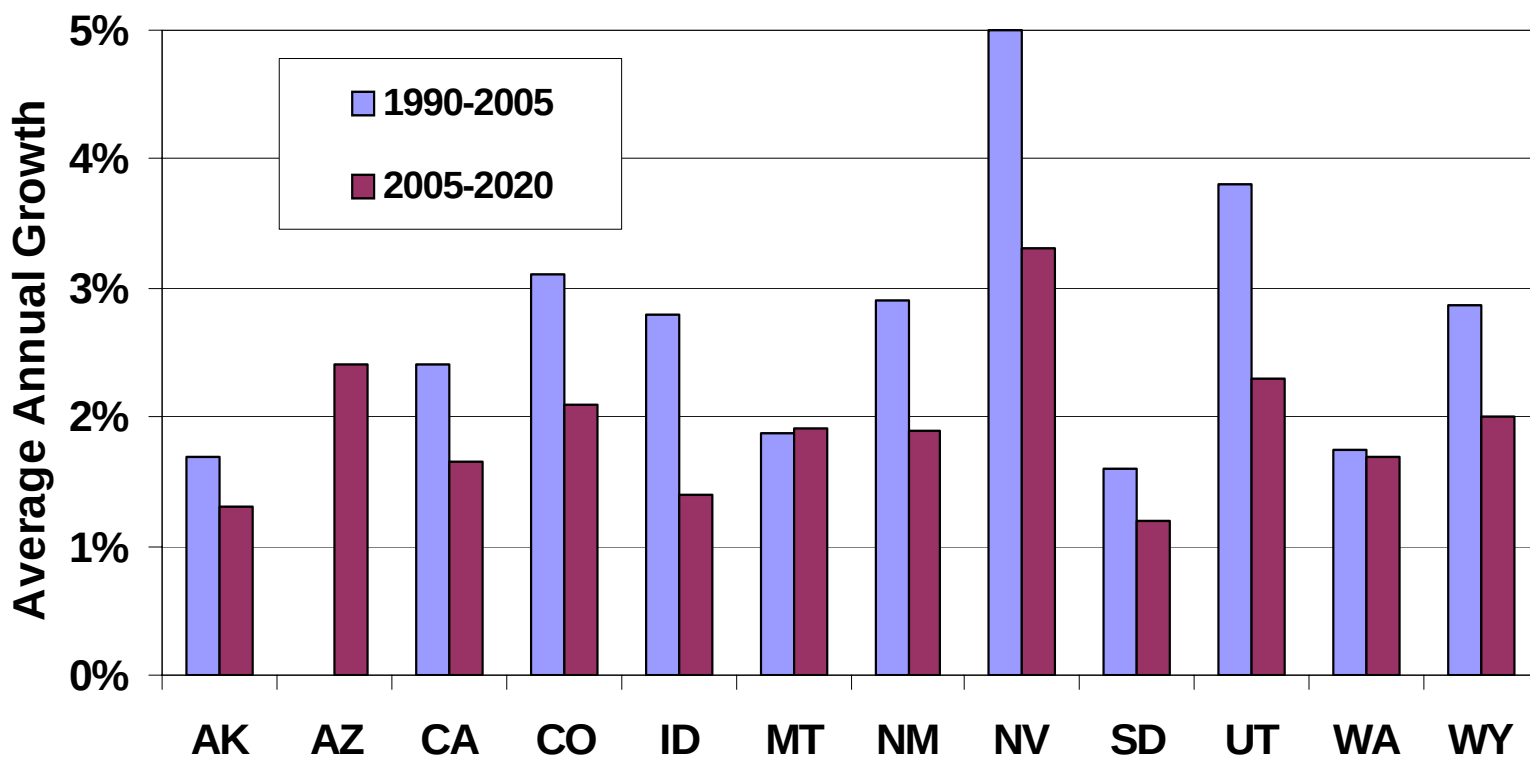
Gross GHG Emissions Per Capita



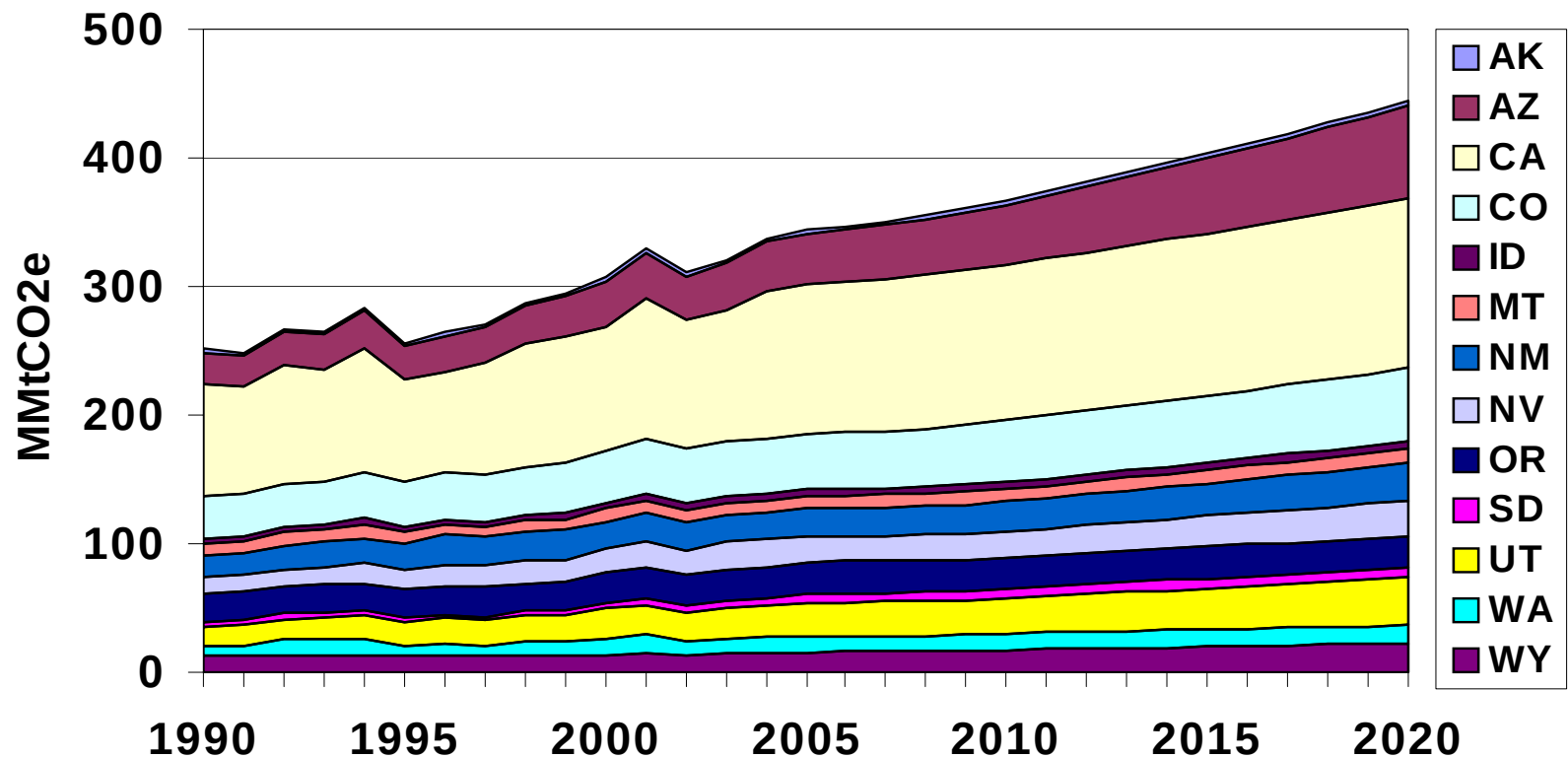
Employment Growth



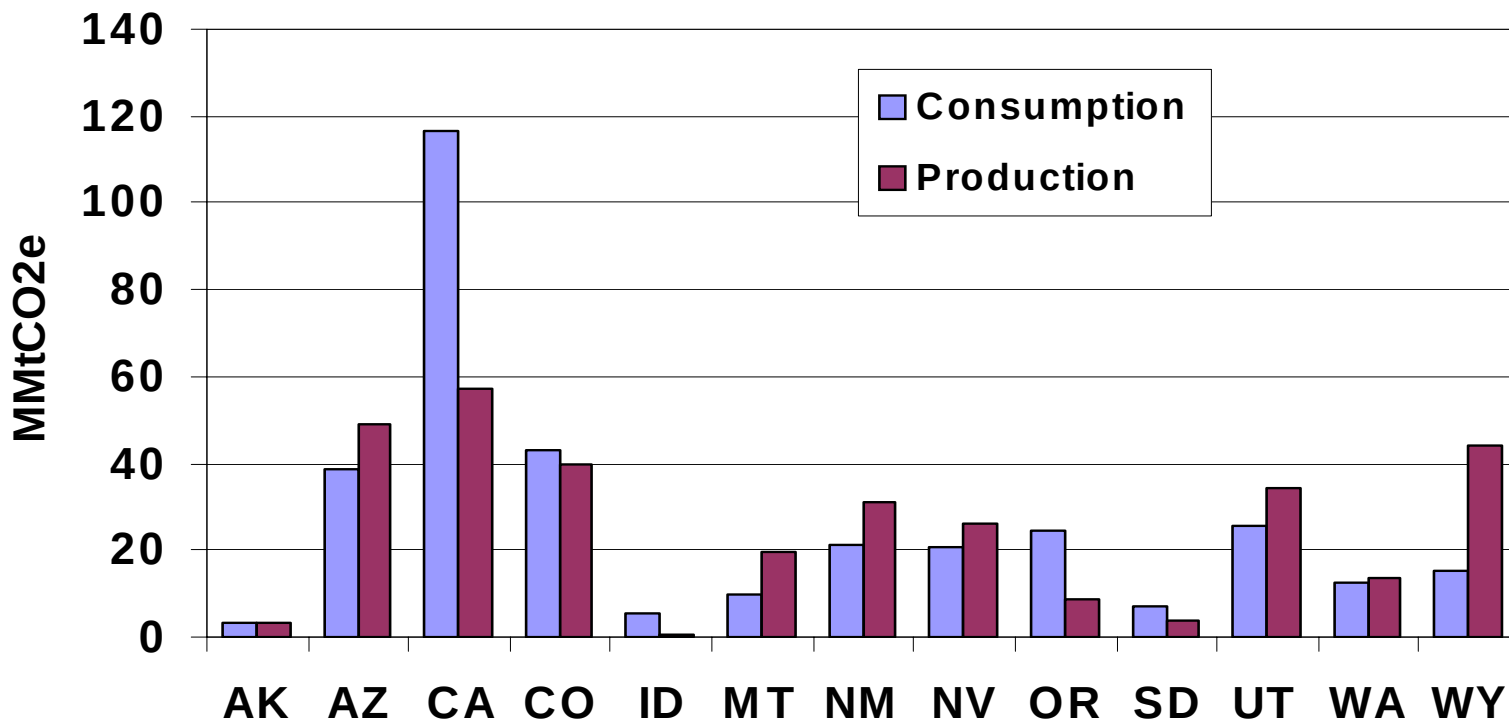
Vehicle Miles Traveled (VMT) Growth



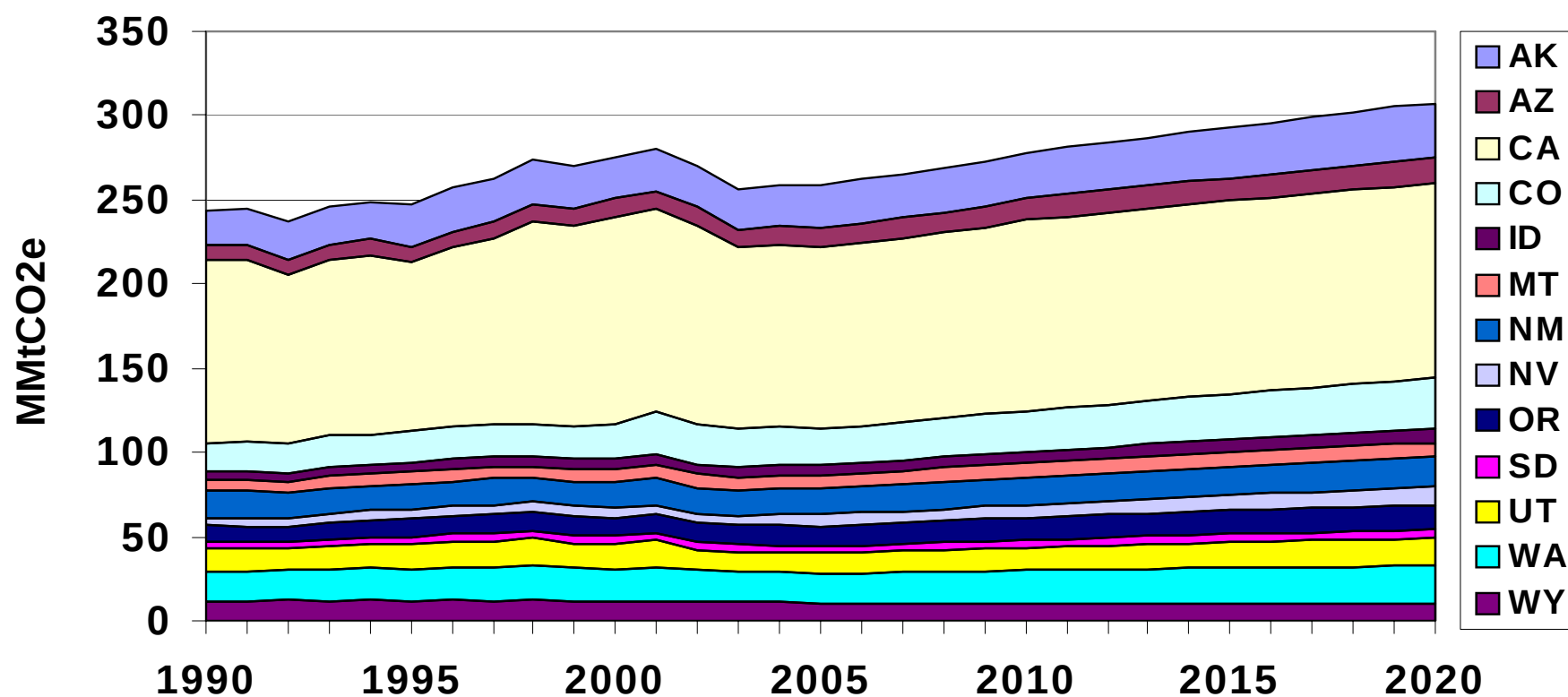
Electricity Supply (Consumption Based)



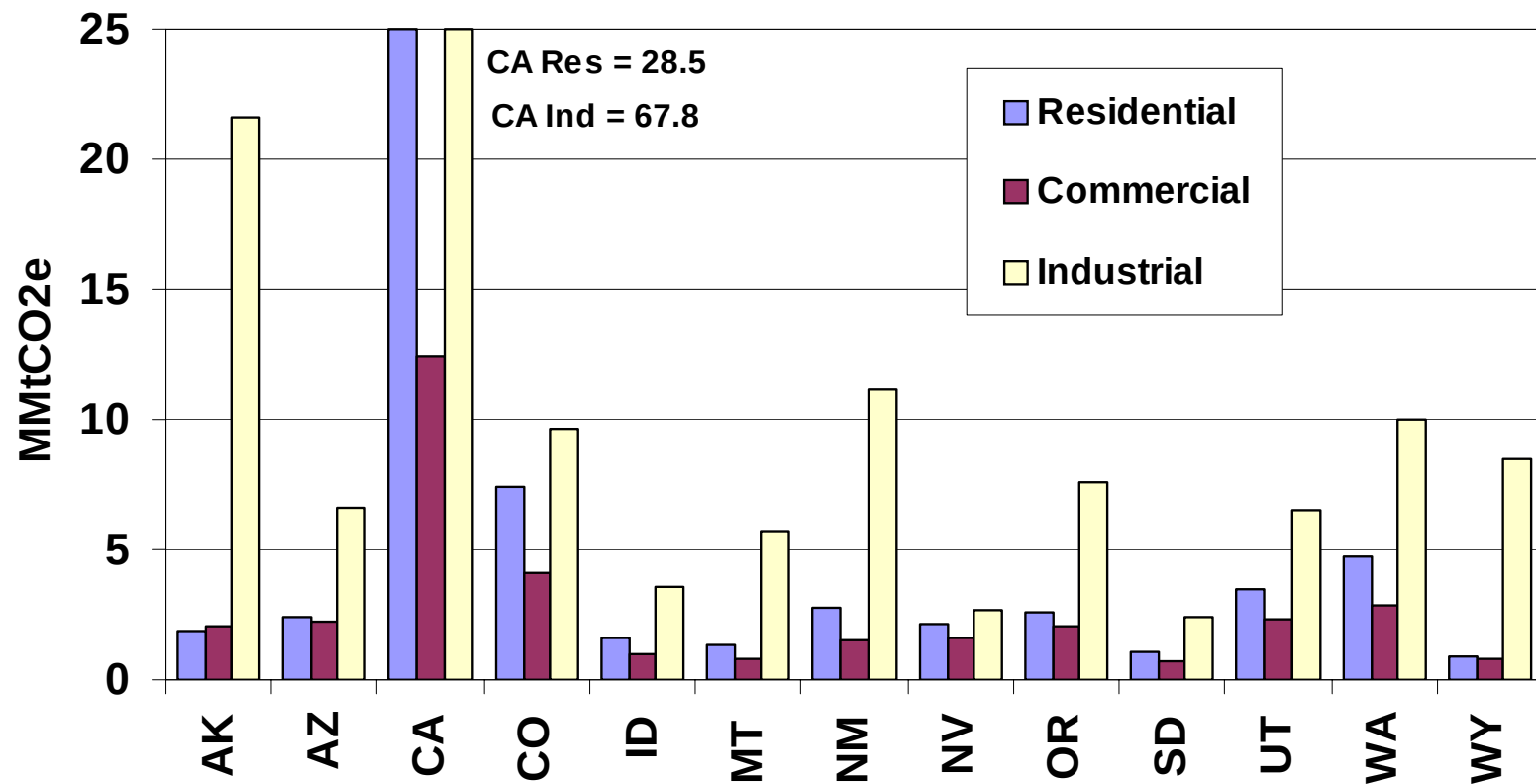
Electricity Supply (2005 Consumption vs. Production)



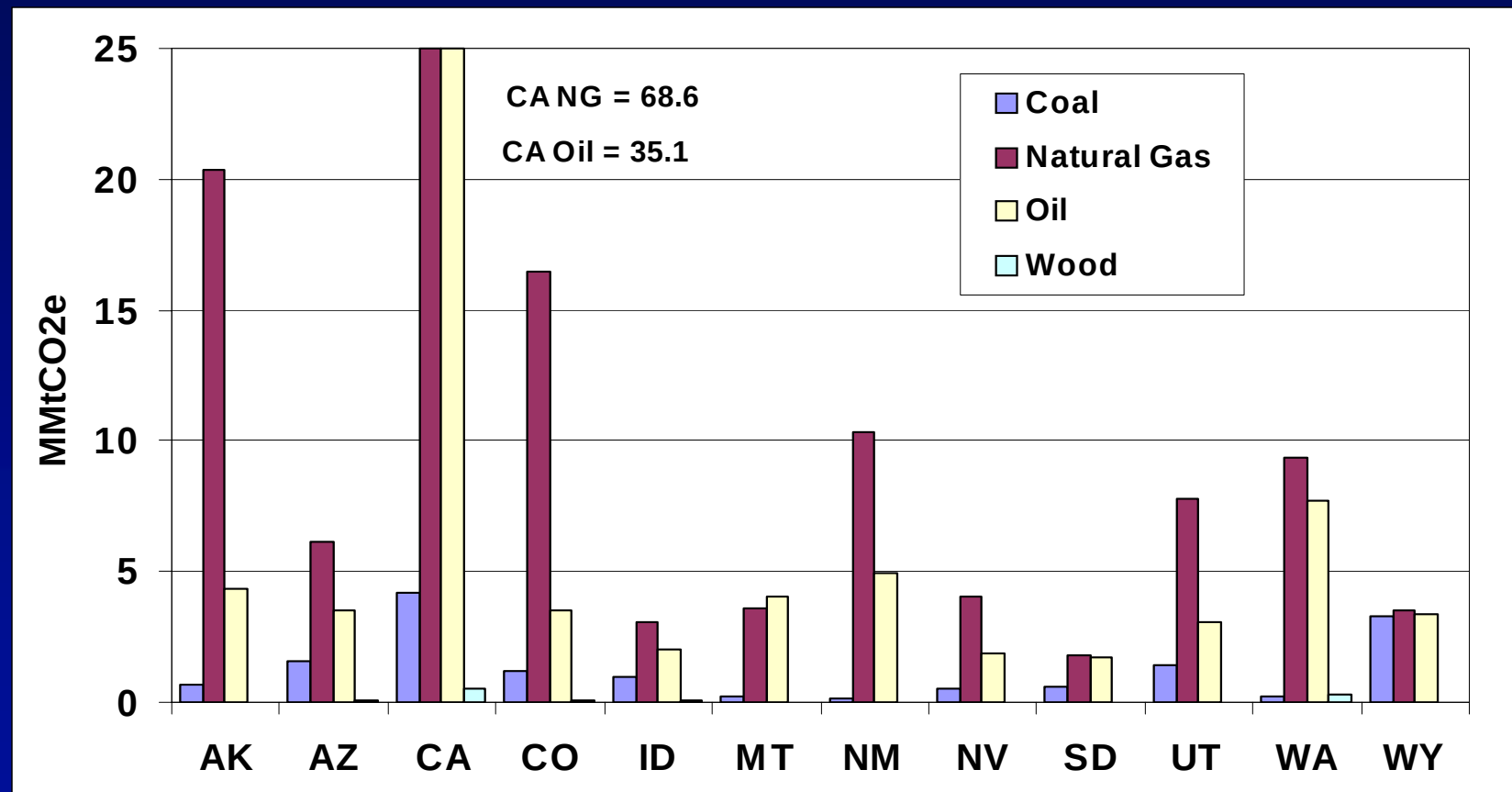
Residential, Commercial, Industrial (RCI) Fuel Use Emissions



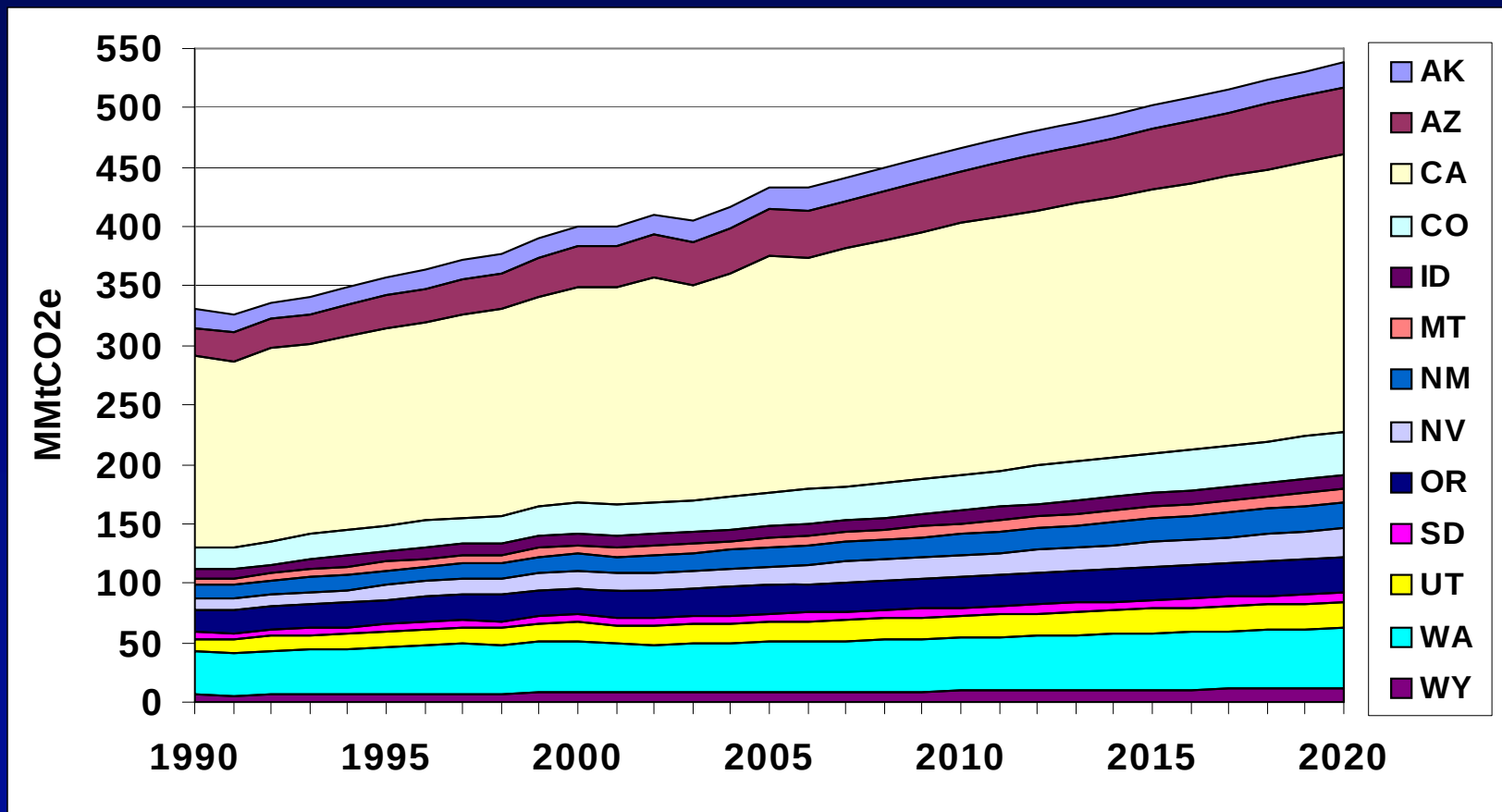
RCI Emissions by State and Sector, 2005



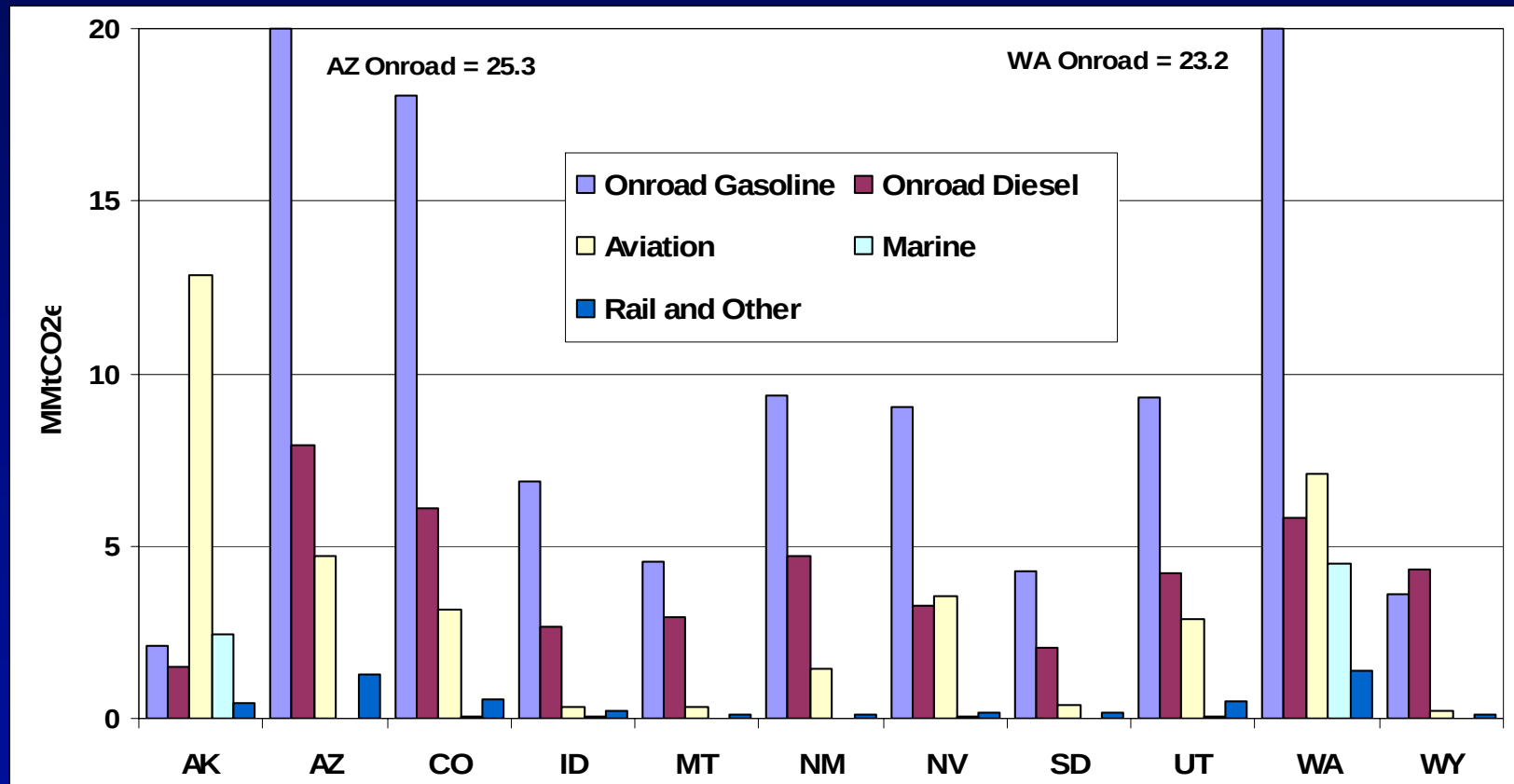
RCI Emissions by State and Fuel Type, 2005



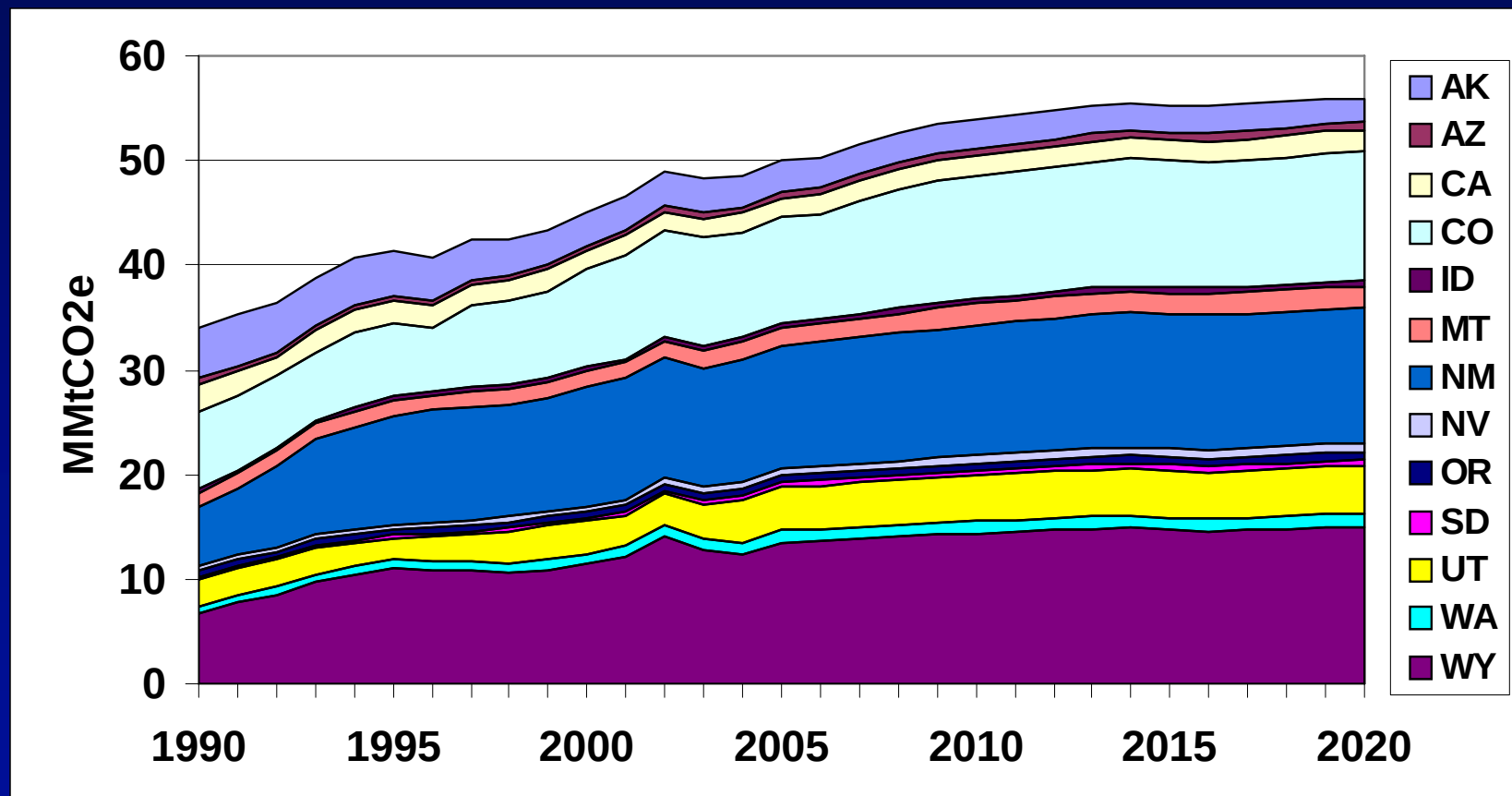
Transportation Emissions



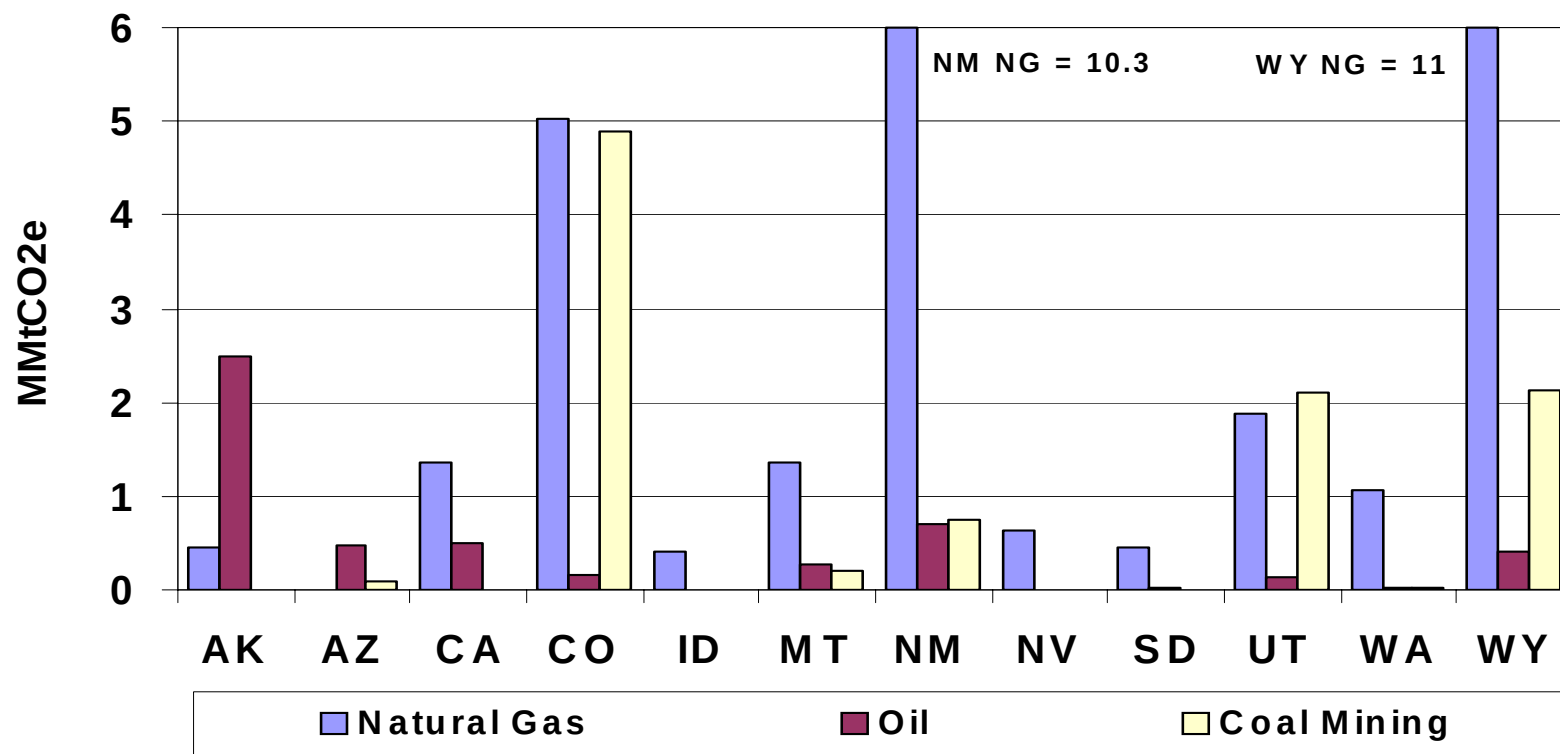
Transportation Emissions by State and Sub Sector, 2005



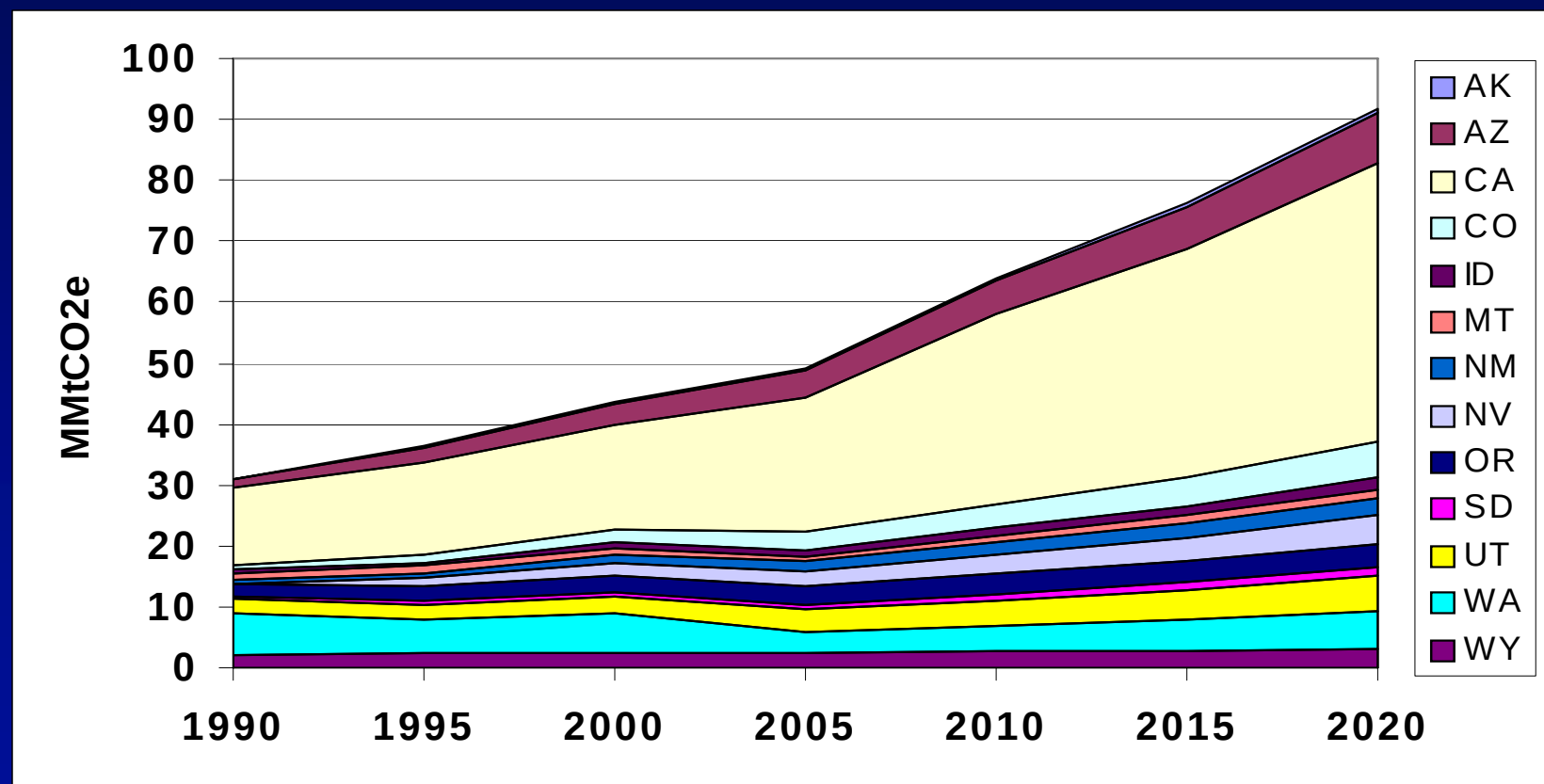
Fossil Fuel Production Emissions



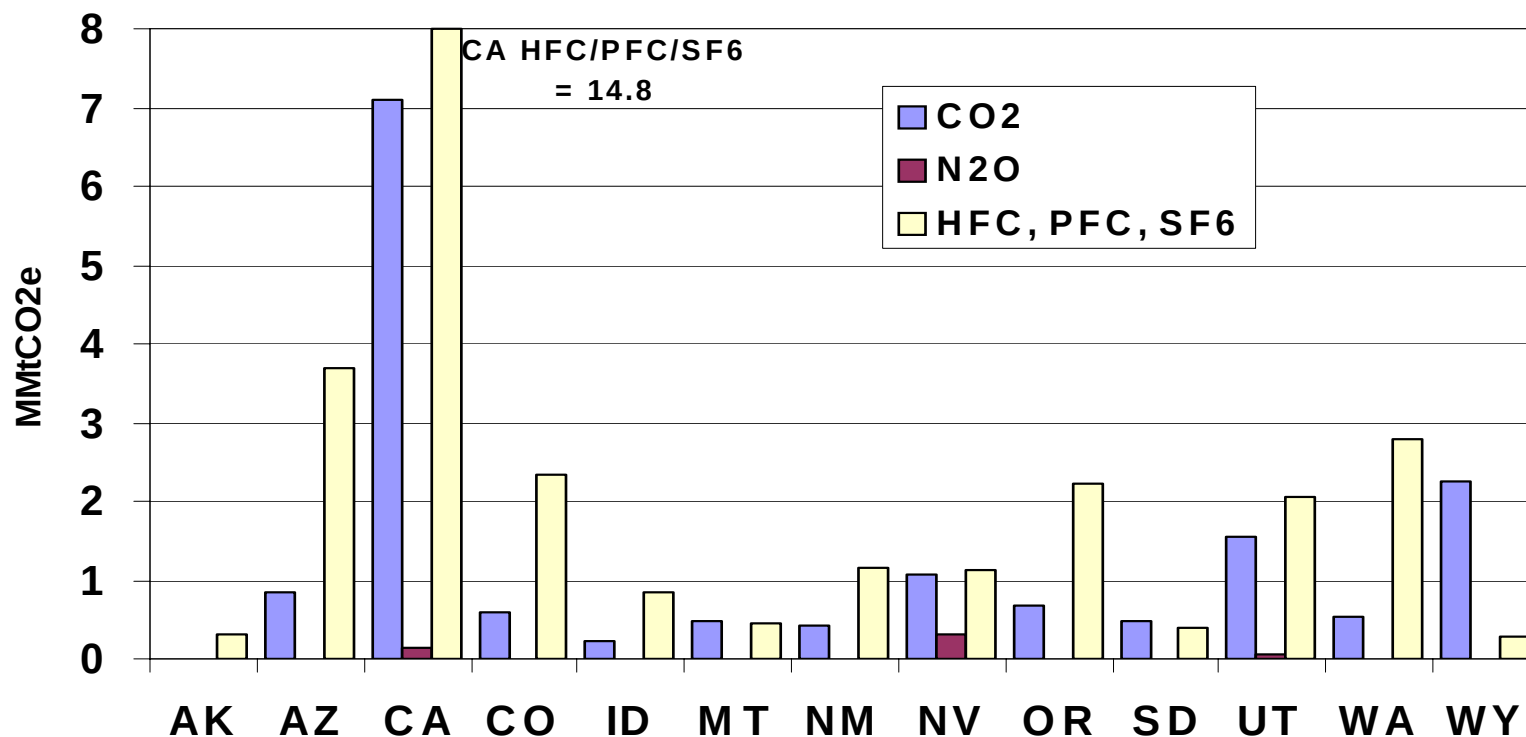
Fossil Fuel Production Emissions by State and Sub Sector, 2005



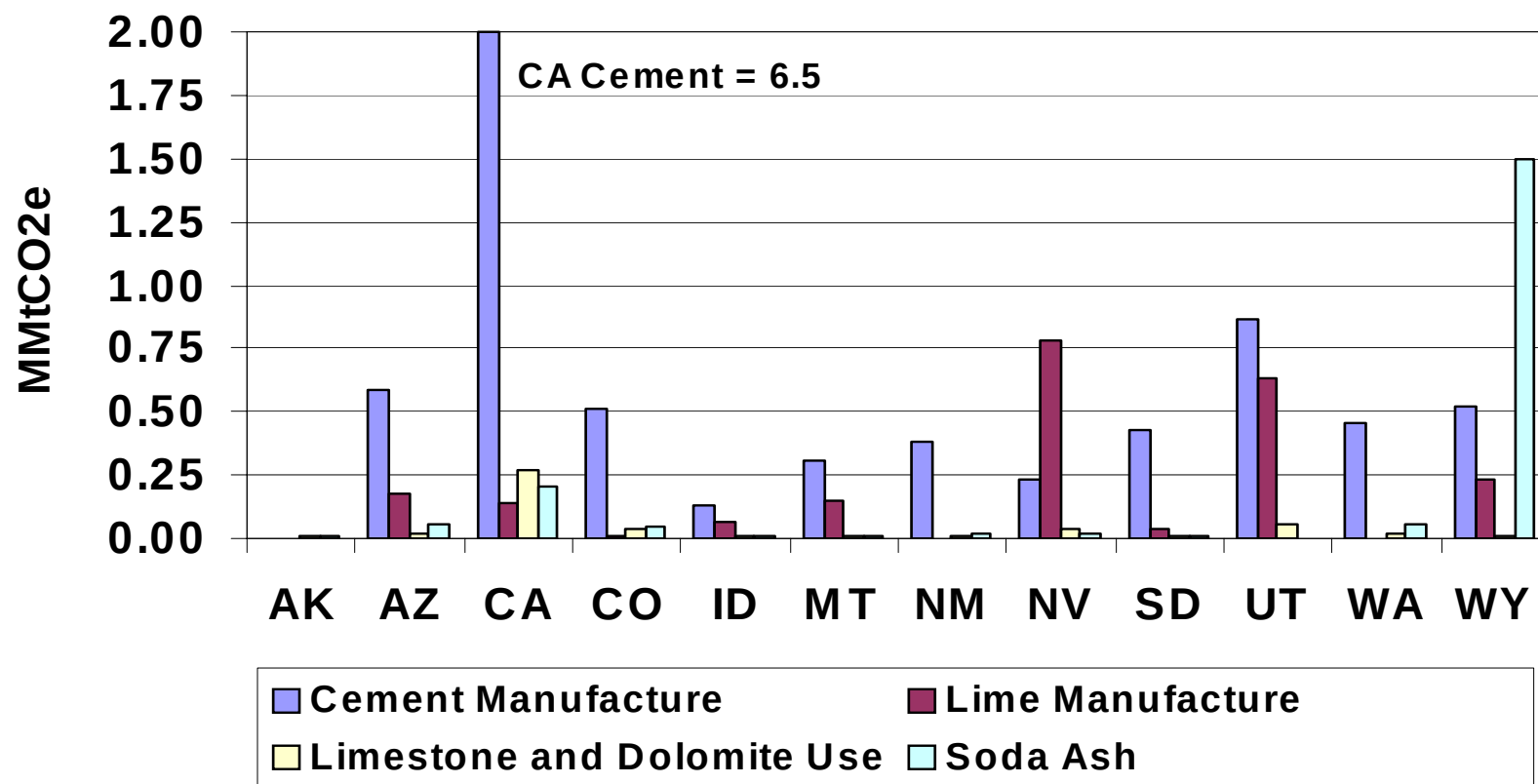
Industrial Processes (Non-Fuel Use) Emissions



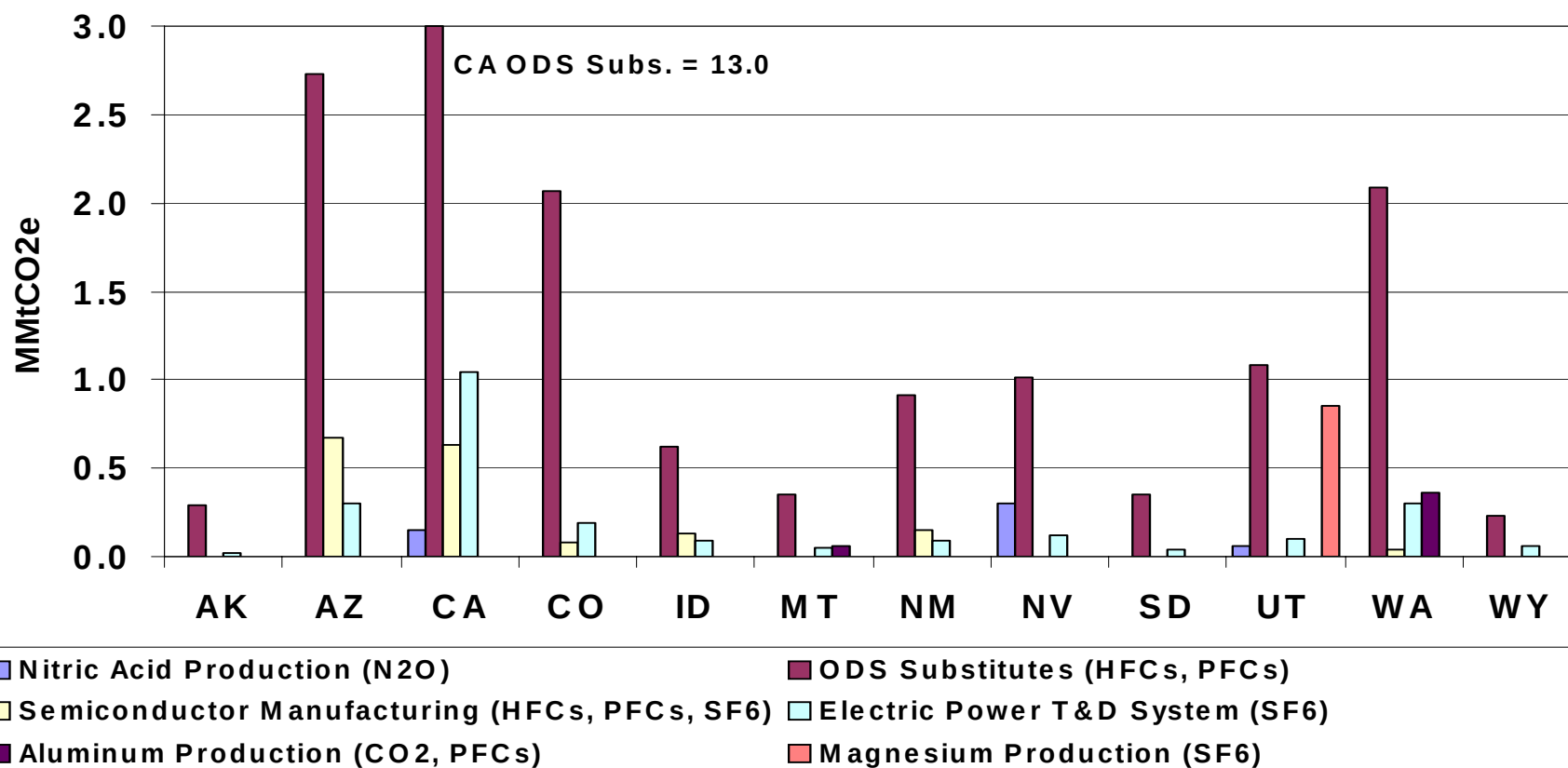
Industrial Process Emissions by State and Pollutant, 2005



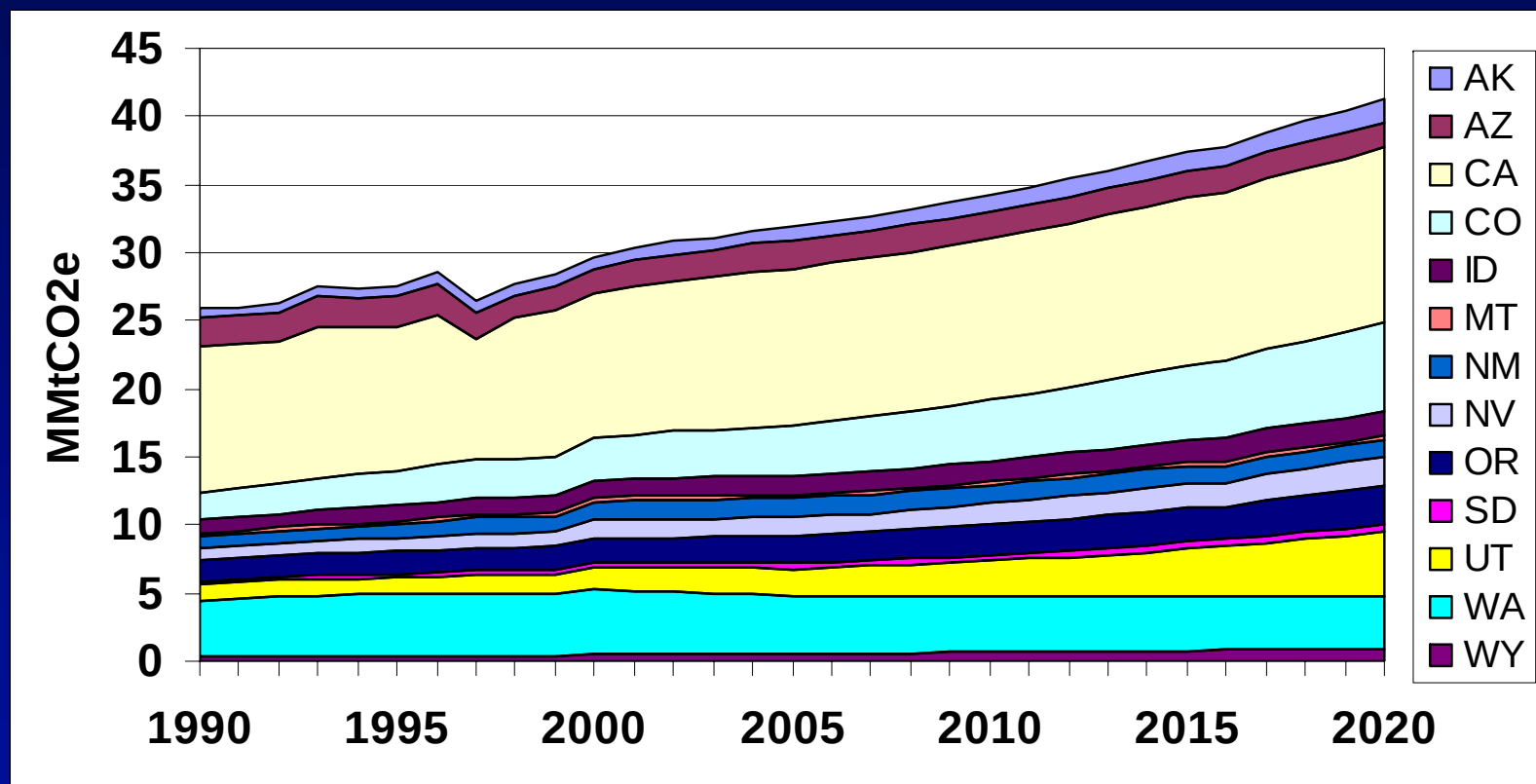
Industrial Process CO₂ Emissions by State, 2005



Industrial Process N₂O, SF₆, HFC, PFC Emissions by State, 2005

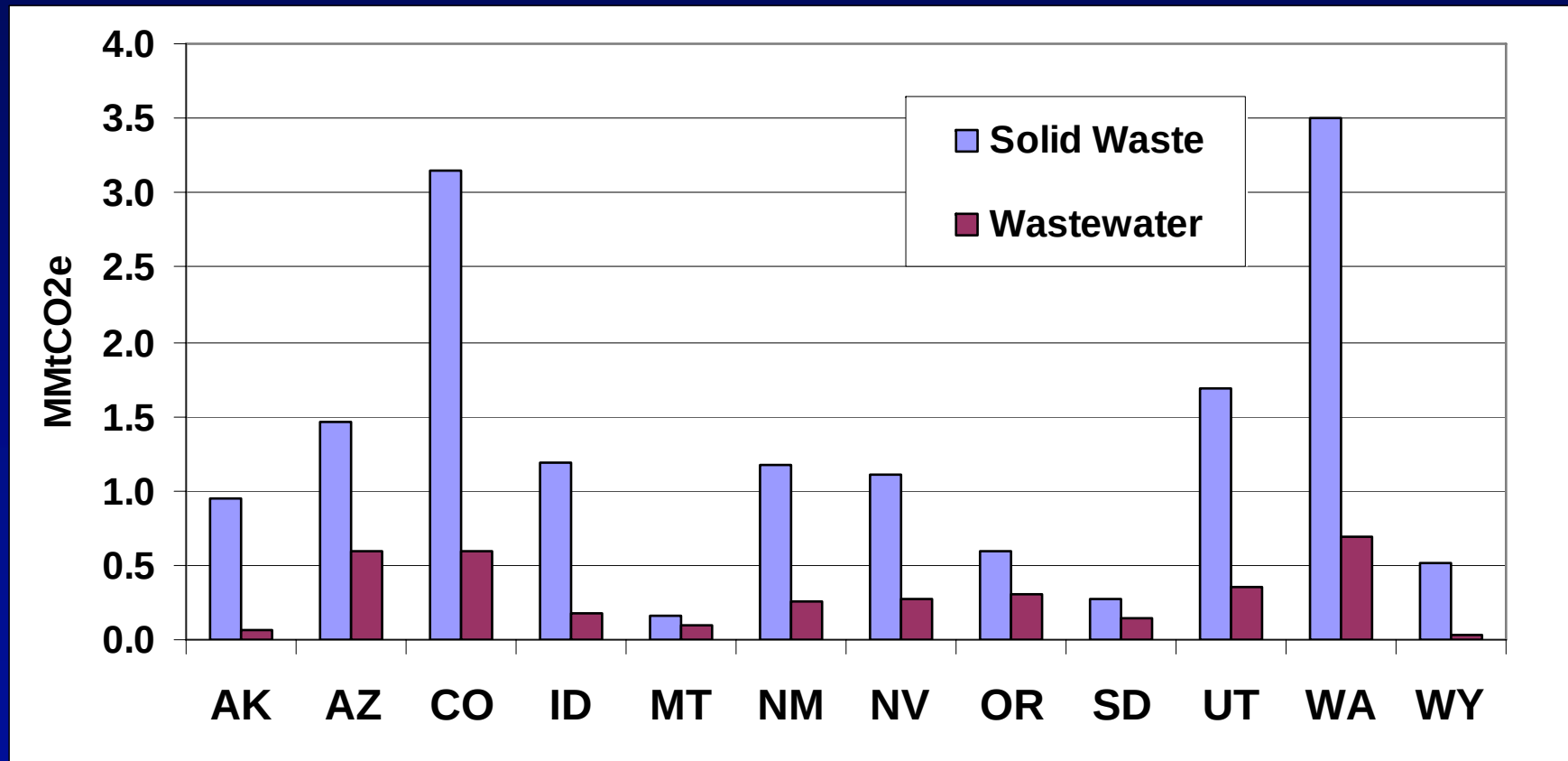


Waste Management Emissions

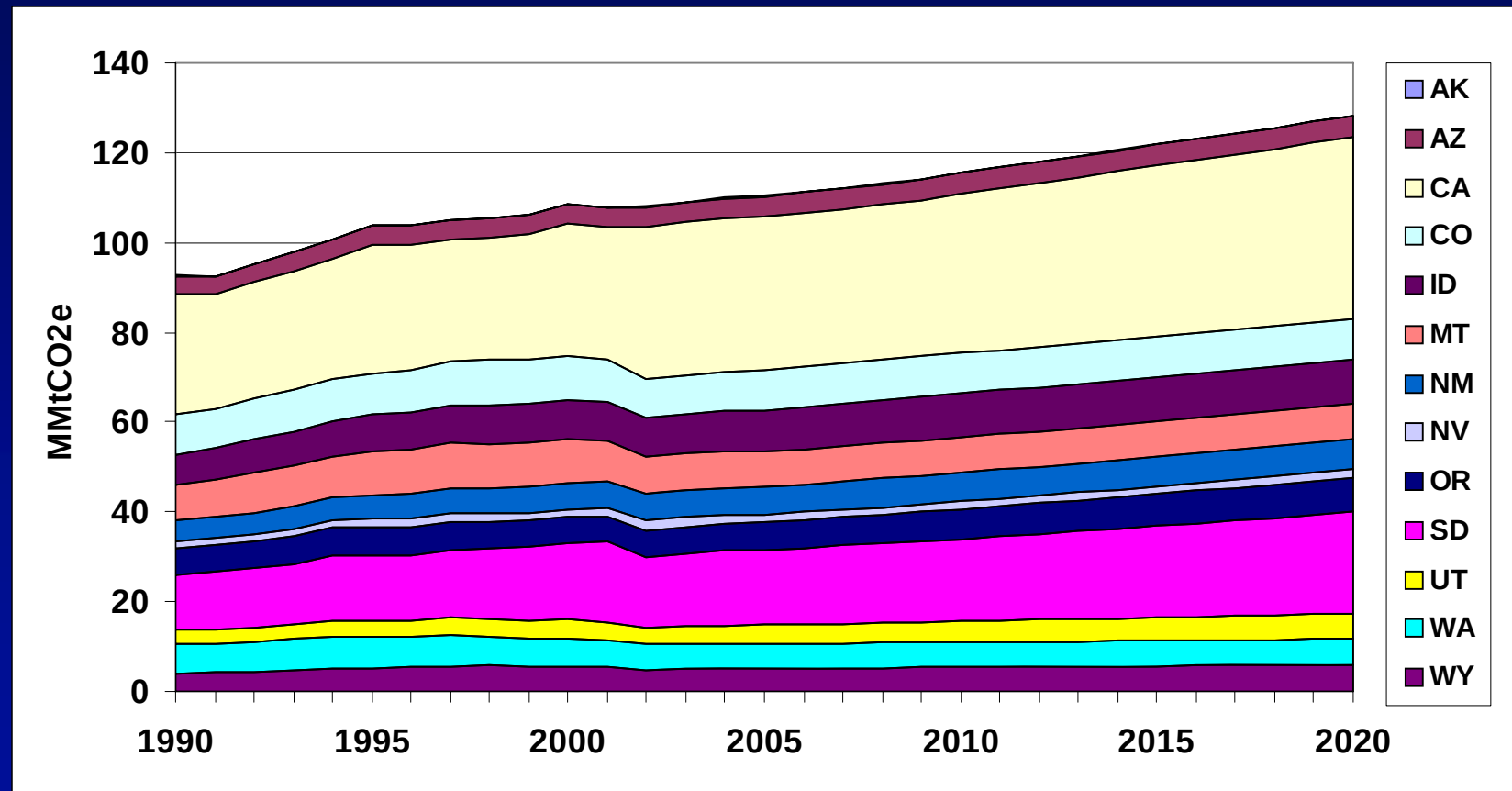


Municipal Solid Waste and Wastewater Treatment

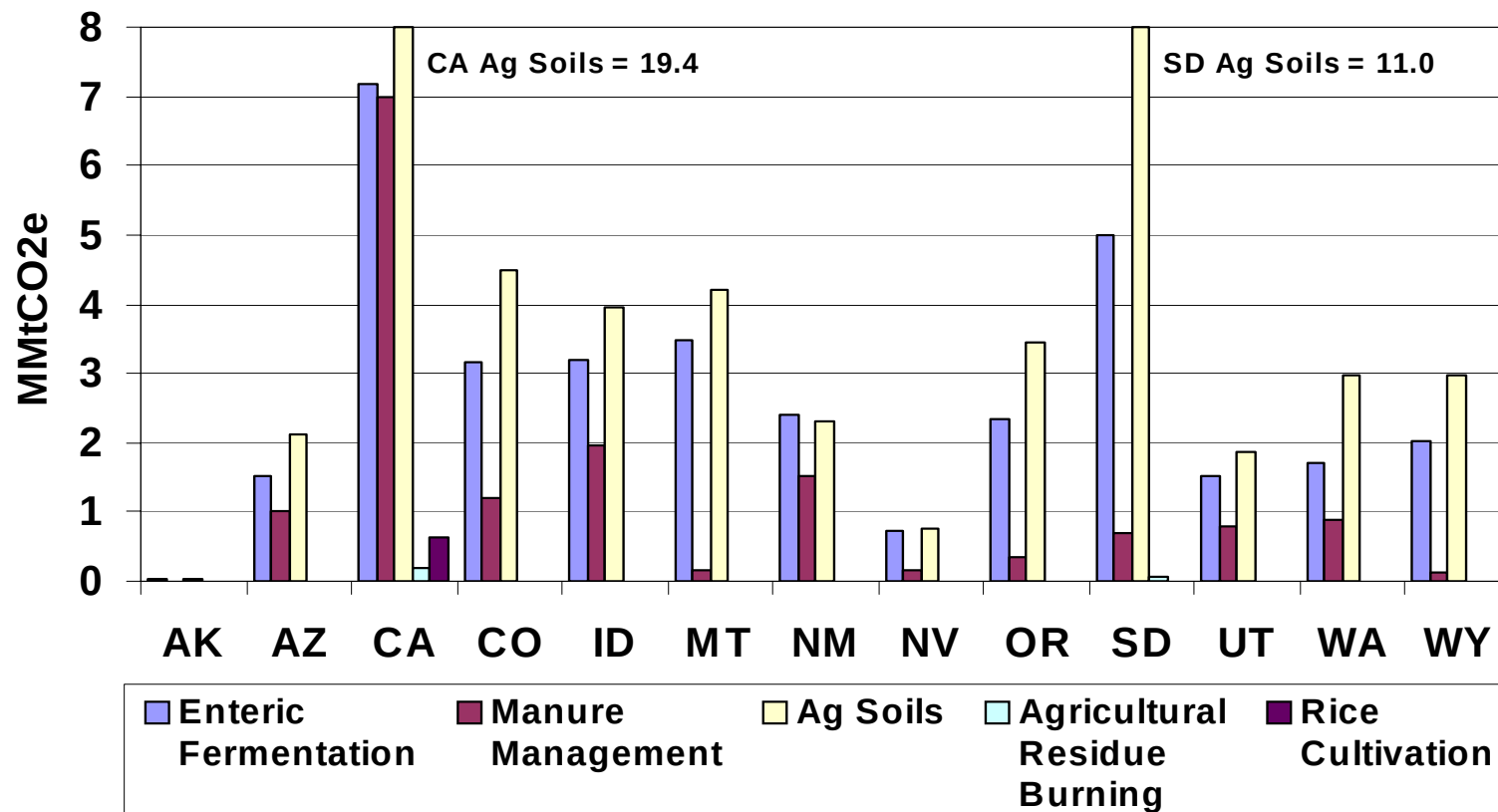
Waste Management Emissions, 2005



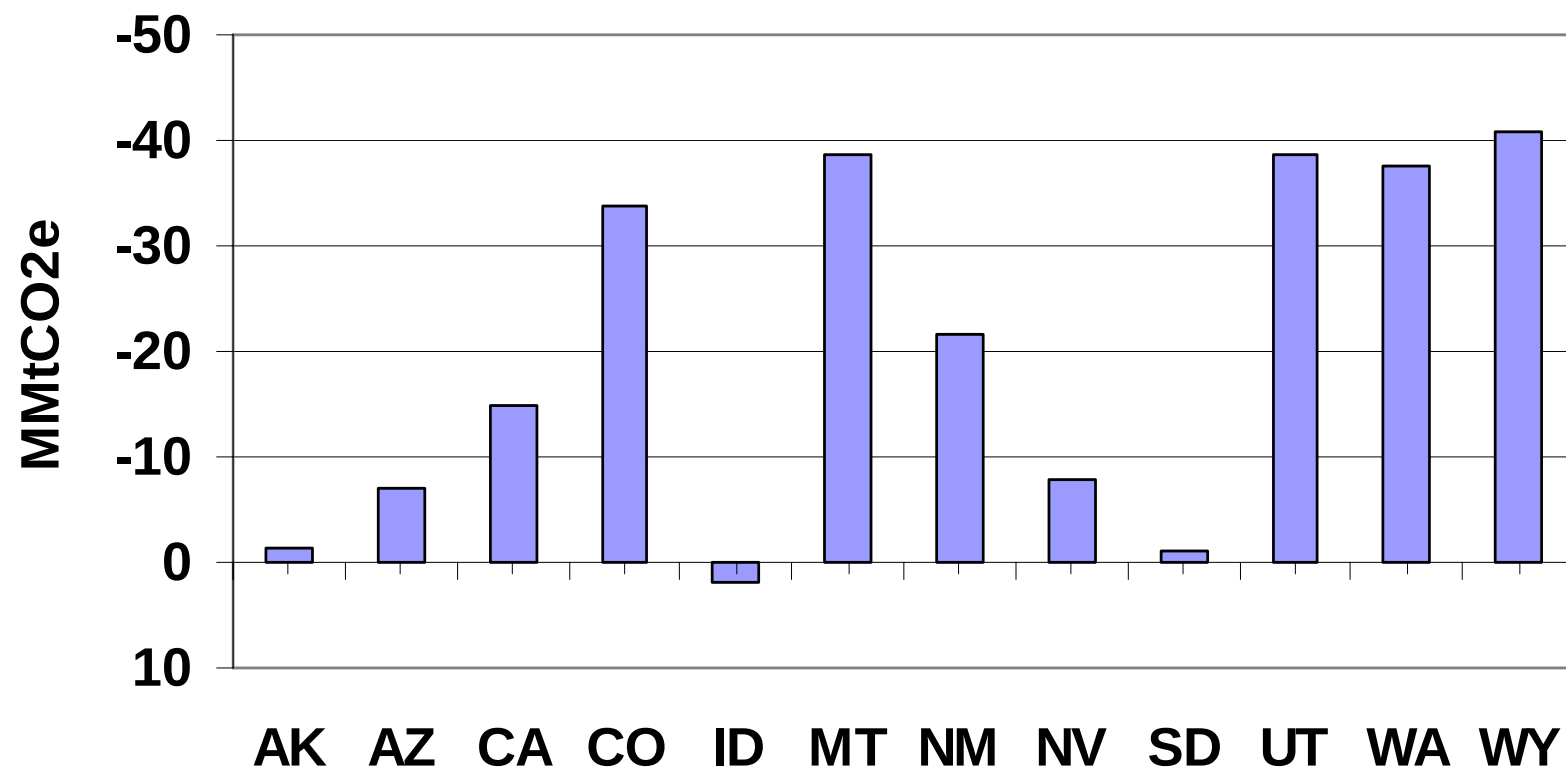
Agricultural Emissions



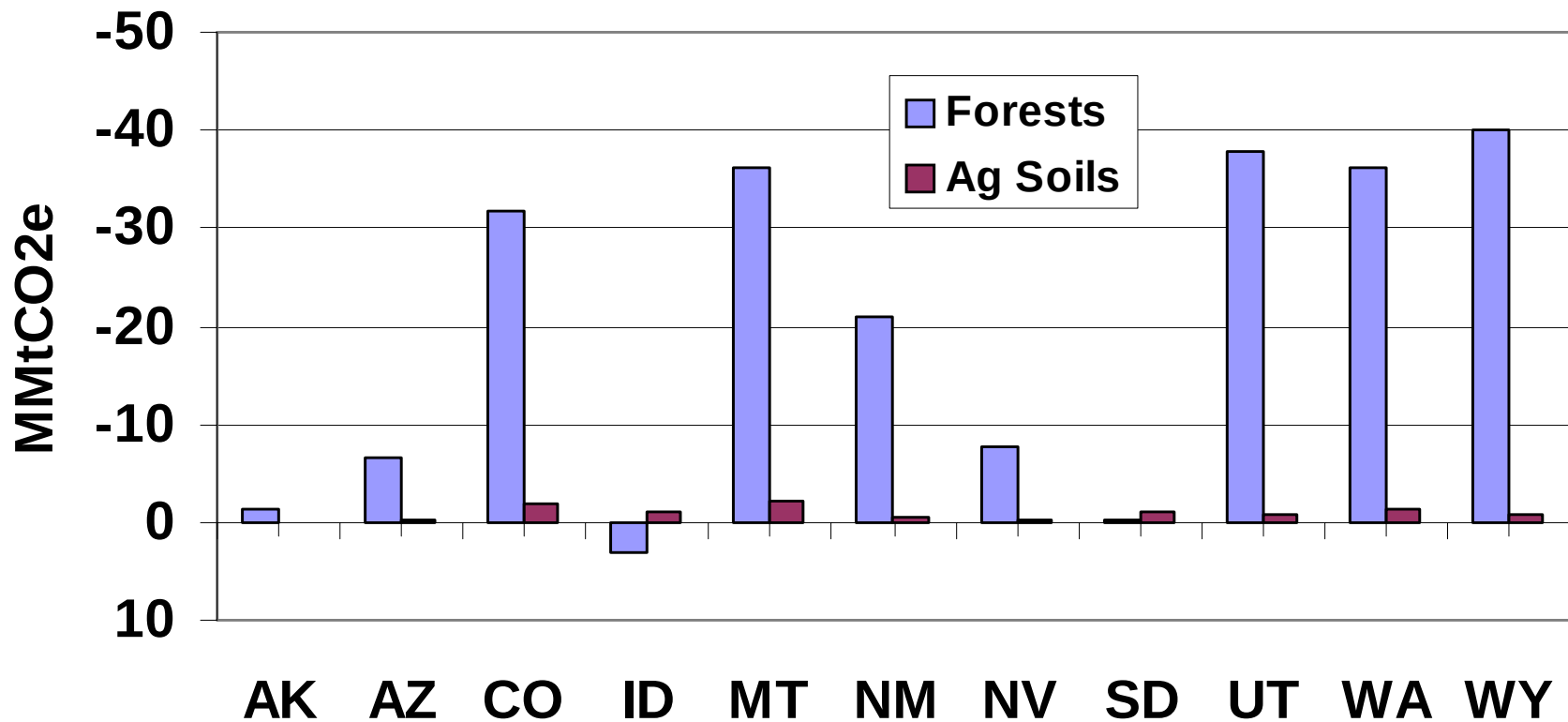
Agricultural Emissions by State and Sub Sector, 2005



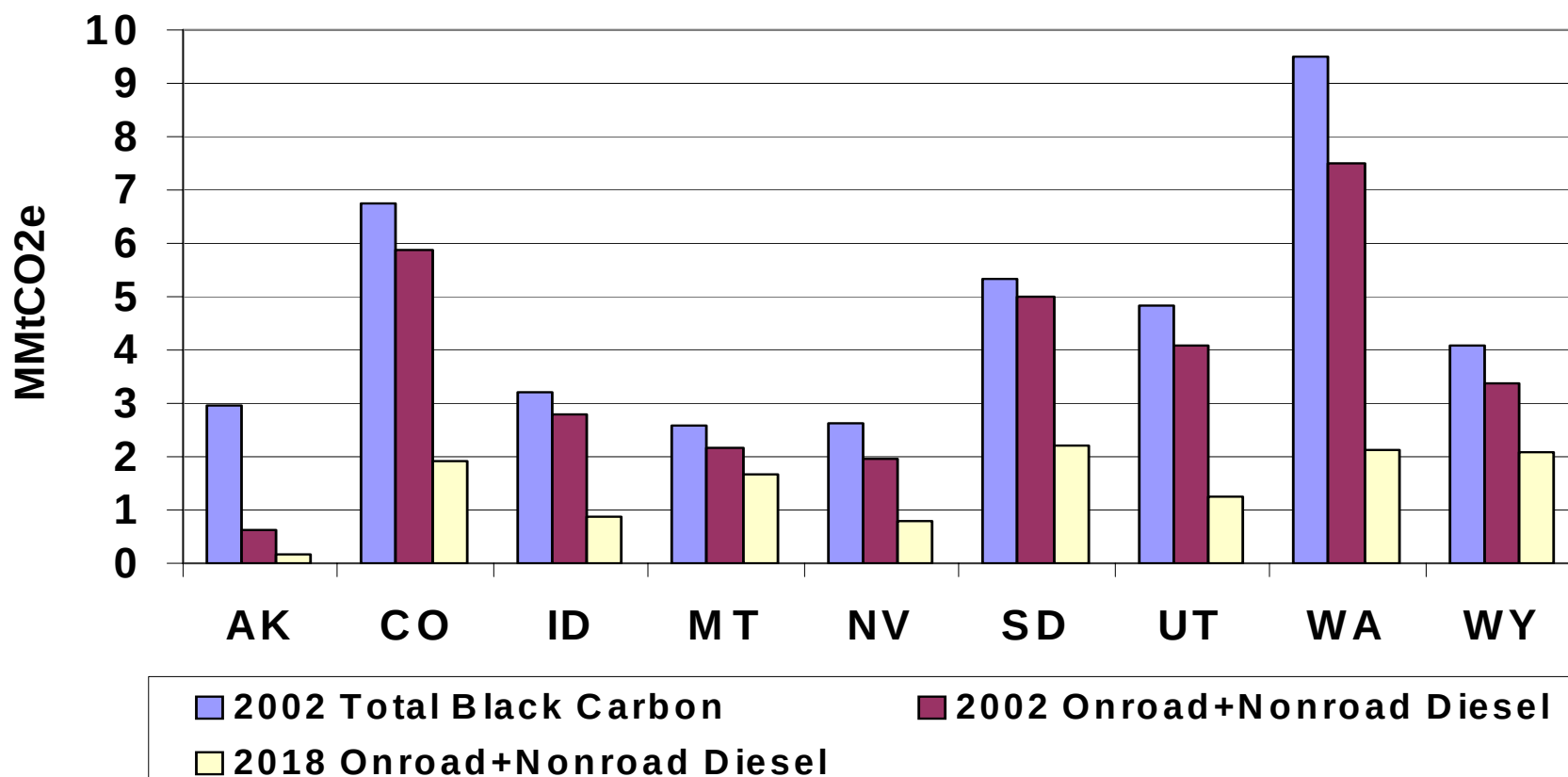
Forest and Agriculture Sinks



Forest and Agriculture Sinks by State and Sub Sector, 2005



Black Carbon Emissions



Total 2002 Emissions and Comparison of 2002 & 2018 for Primary Sub Sectors

For More Information

❖ Contacts for each state agency:

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