MINNESOTA POLLUTION CONTROL AGENCY

2024 MPCA Mercury Updates

2024 Statewide Mercury TMDL Oversight Committee Meeting

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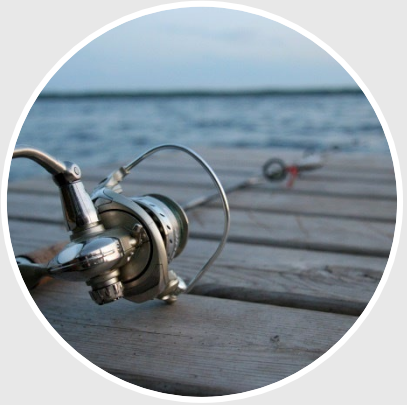
Topics

- Why we're here
- Progress towards the statewide mercury TMDL goal
- Emission inventory review
- Mercury reduction efforts
- EPA's updates to taconite standards

What’s the problem we are trying to solve?

Mercury Impaired Waters

Mercury impairments in Minnesota are mainly based on fish tissue concentration



Mercury Exposure

Mercury emissions eventually move into our ecosystem and bodies

Fish Consumption Advisories

Minnesota Department of Health safe eating guidelines

Mercury Reductions

Minnesota’s goals to reduce the amount of mercury that ends up in our waters

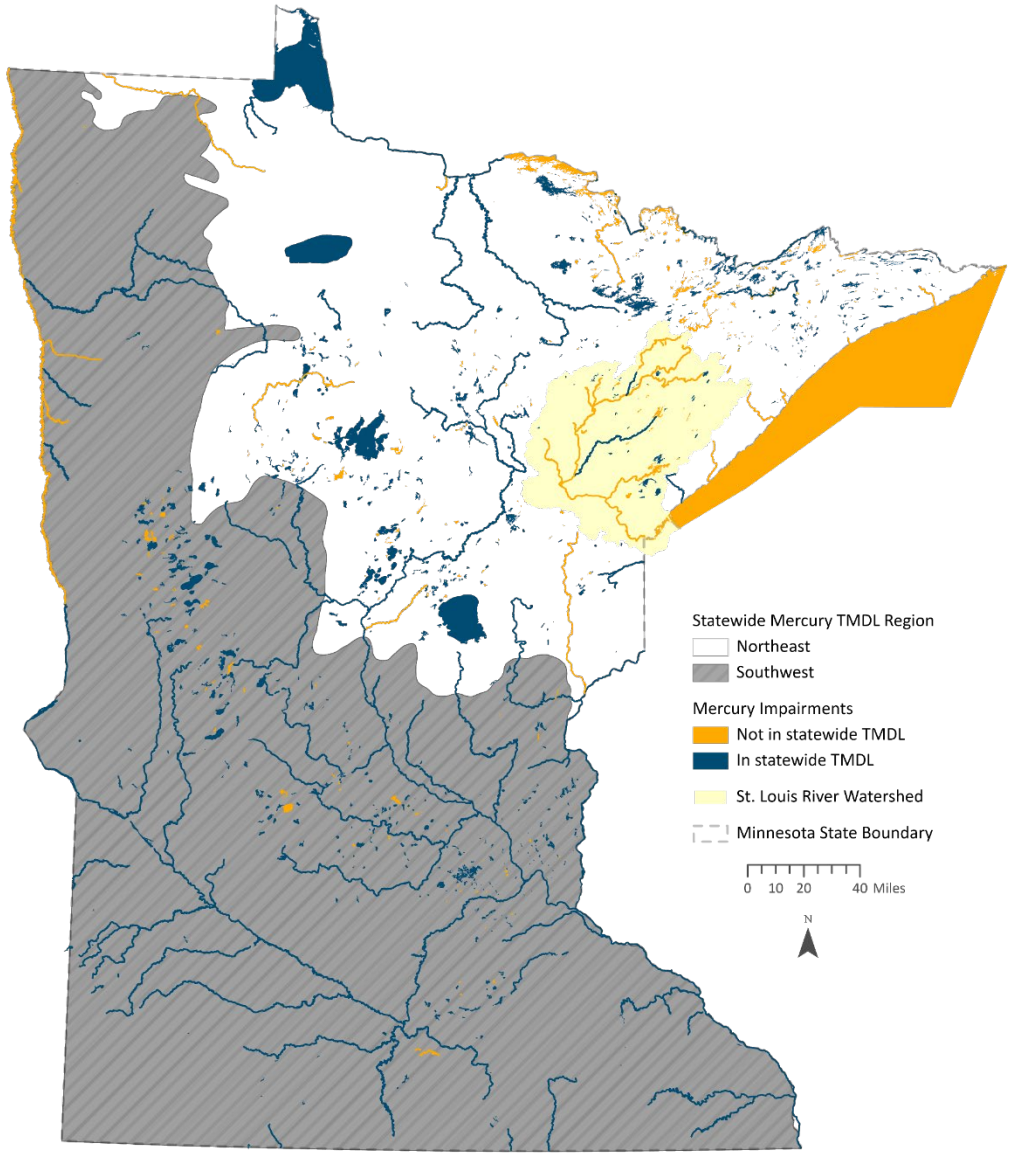
Minnesota’s statewide mercury TMDL

- GOAL - reduce statewide mercury air emissions to 789 pounds per year
  - TMDL approved by U.S. EPA in 2007
  - TMDL Implementation Plan in 2009
  - Mercury Reduction and Reporting rule adopted in 2014
- Statewide TMDL Oversight Committee (2008 - Present)
  - Convened based on stakeholder recommendations
  - MPCA called for stakeholders to recommend source-specific reduction targets

Oversight group charge

- Meet during fall each year from 2009 - 2025
  - (at least once every 3 years after 2013)
- Review and evaluate progress toward achieving the Mercury TMDL goals
- Determine if additional measures are needed to meet these goals
- Provide advice to the MPCA on implementing the Mercury TMDL
- Review changes to the mercury emissions inventory
- Review other actions and scientific information that could affect implementation of the Mercury TMDL

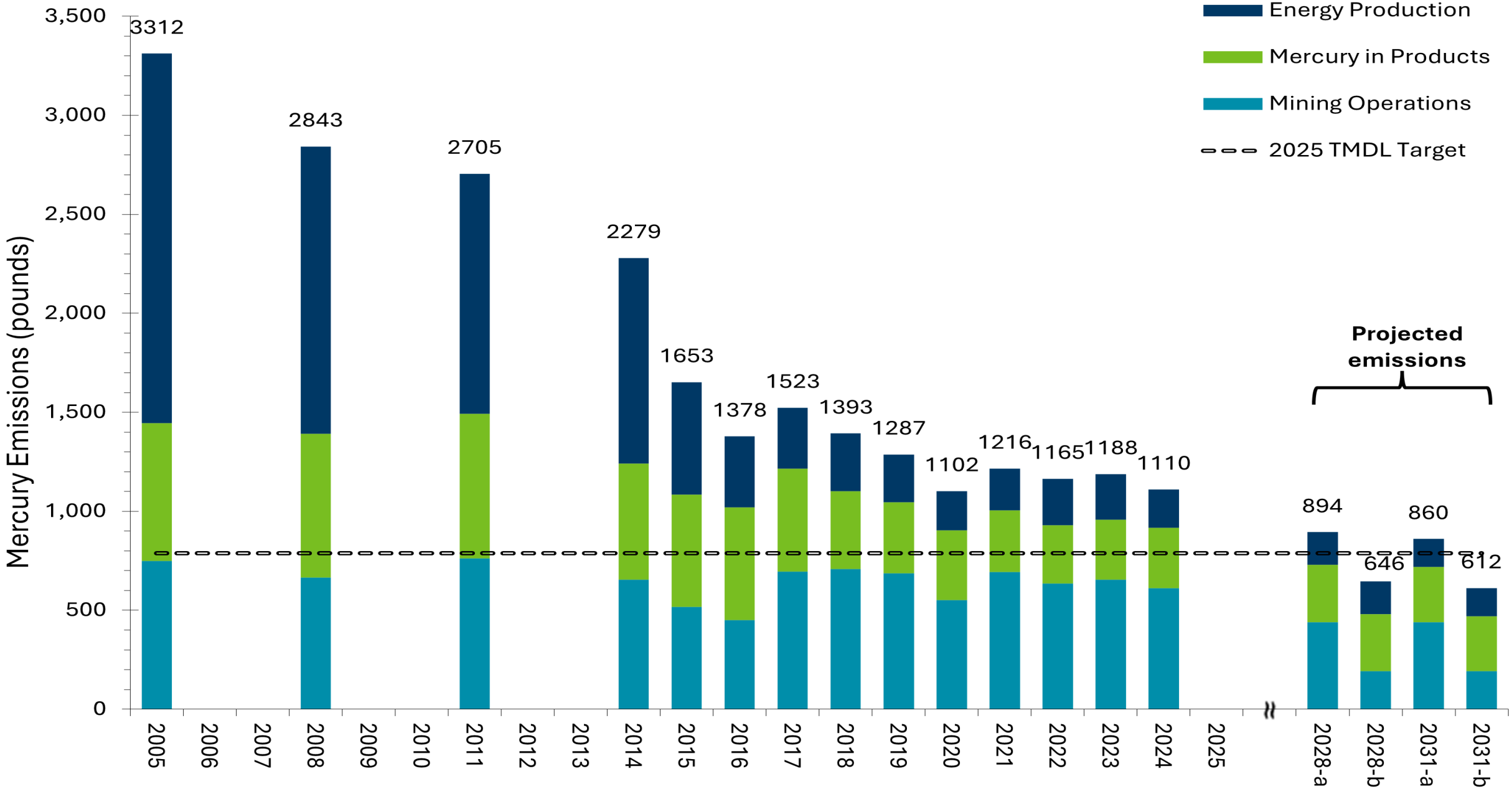
Mercury impaired waters



- 6,338 total impairments in 2,847 waterbodies
  - 1,696 mercury impairments in 814 waterbodies
- We've missed our 2025 mercury reduction goal established in the statewide TMDL
  - Statewide emissions have leveled off
  - Continue to improve/revise our estimation methods (e.g., dental & cremation mercury)
- Still need to address mercury impairments that aren't under the statewide TMDL

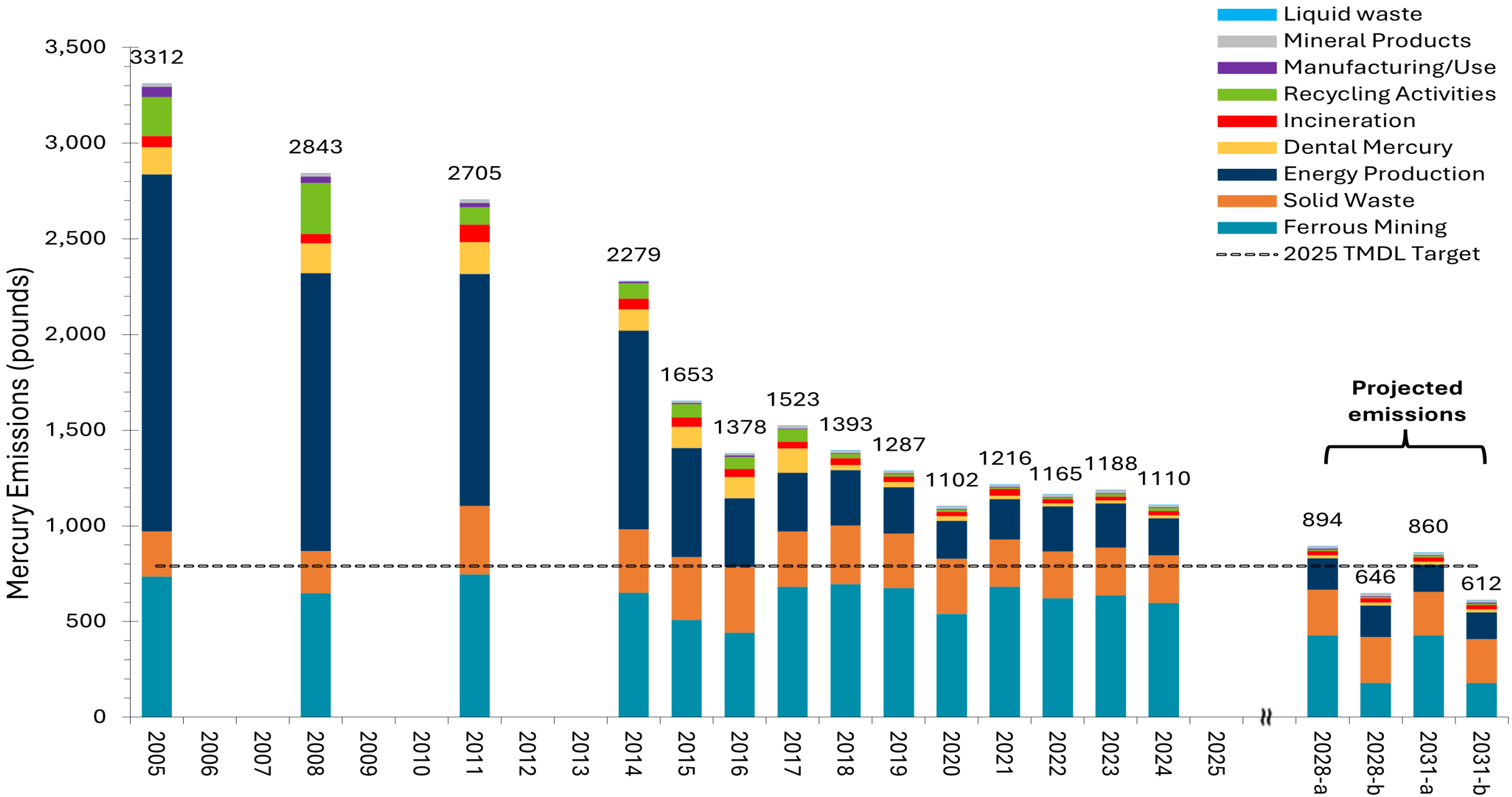
Minnesota’s annual mercury emissions

- Mercury emission inventory updates
  - 2023 (final) and 2024 (early draft) point source emissions
  - Revised calculation methodology for mercury emissions from cremation and dental fillings
  - Created projections for 2028 and 2031
- Notable takeaways
  - Emissions from mercury in products continues to decrease
  - Emissions from coal-fired energy production continues to drop with retirements
  - Emissions from taconite remain level, new comparisons for MPCA and EPA projections



a - This projection is based on the taconite industry meeting the MACT mercury limit (emissions limit of 1.4×10^{-5} lb/LT).

b - This projection is based on the taconite industry meeting the required 72% reduction specified in Minn. R. 7007.0502.



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Minnesota’s mercury emissions inventory

- Detailed review of the updated 2023-2024 emissions inventory
- Statewide Mercury TMDL Emissions Inventory Spreadsheet

Sales ban - fluorescent lamps & bulbs

- Two bills introduced in 2024 session
  - HF 3326 and SF 3345
  - Signed into law as part of HF 3911
- Prohibits sales of certain mercury-containing lighting
  - January 1, 2025 - Ban began for certain types
  - January 1, 2026 - Expands for new types
  - Selling fluorescent and mercury lamps (w-hw4-21)

Grants to reduce mercury/sulfate

- Budgetary items from 2023 Legislative session
  - $16.7M in grants to implement technologies to treat “difficult-to-manage pollutants” at taconite facilities
  - $2.1M in funding for UMN through NRRI for economic development of state resources
  - Appropriation is available until June 30, 2027
- Workplans submitted so far
  - $1.4M at US Steel - Keetac to conduct a long term ACI trial utilizing existing wet scrubber
  - $0.7M at NRRI to create generic designs of a sulfate treatment process to integrate the treatment process into existing wastewater treatment facilities

Taconite mercury reduction plans

- Sent deficiency letter to facilities (January 6, 2023)
  - Identified reasons for finding the facilities' submitted plans deficient
  - Requested facilities revise plans to implement one of the three identified technologies
  - Requested facilities resubmit the plans within six months of EPA final action on revised federal taconite standards
- Received responses from both Cleveland-Cliffs and US Steel

Response to MPCA deficiency letters

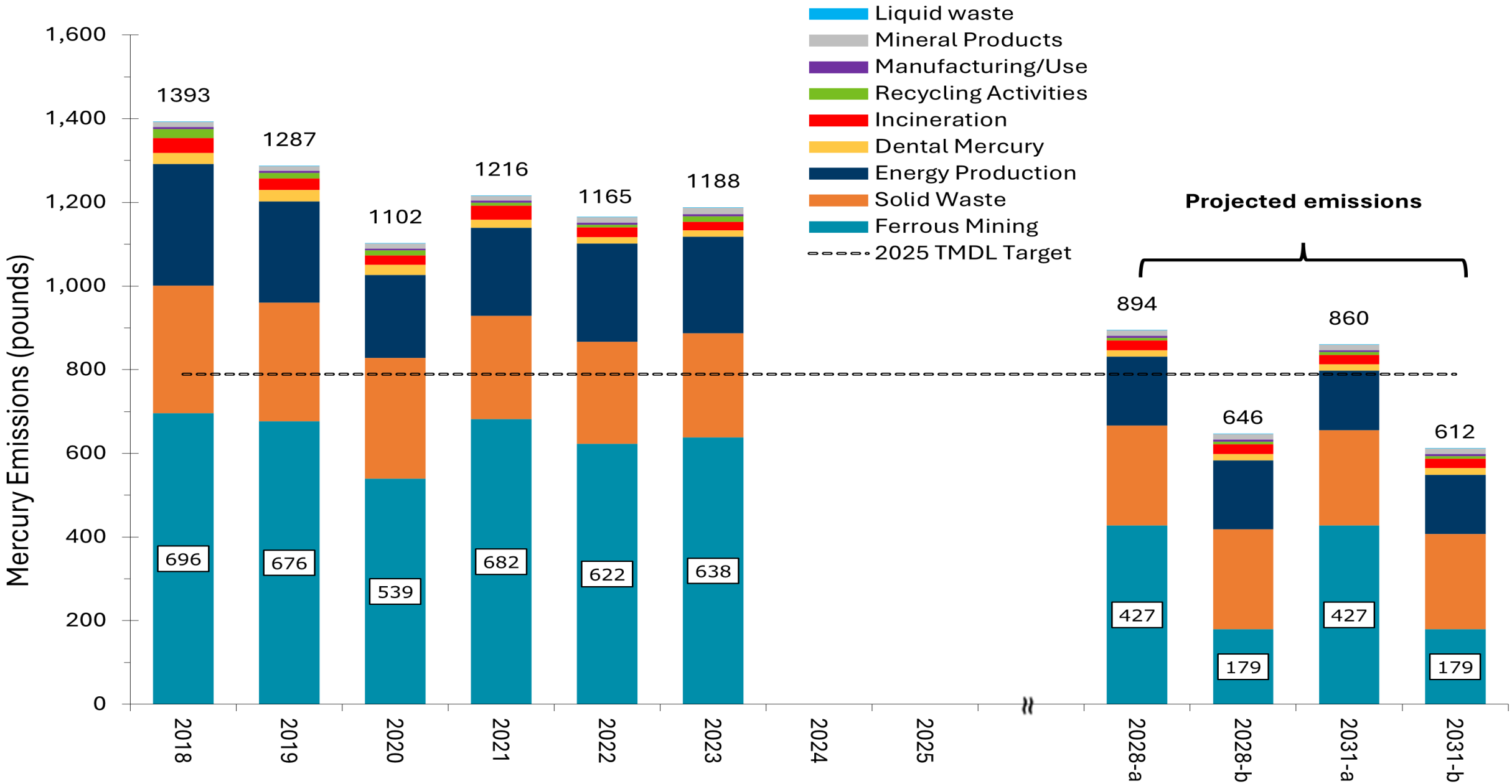
- US Steel Response
  - Disagreed that the plan was deficient but provided a technical memo to address the identified deficiencies
  - Continuing to research mercury reduction control technologies to understand feasibility of implementation while mitigating concerns
- Cleveland Cliffs Response
  - Requested an extension to review additional technical data and reasserted that the technologies are not feasible
  - Proposing to reduce emissions through the temporary idling of facilities and providing updated reduction plans if idled facilities resume operation

EPA’s Taconite Iron Ore Processing Standard

- Clean Air Act (CAA) and the National Emissions Standards for Hazardous Air Pollutants (NESHAP)
  - Requires EPA to promulgate NESHAPs for major sources of HAPs
  - Identifies HAPs, including mercury
  - Requires that EPA evaluate whether there are technology improvements every 8 years
- Taconite Risk and Technology Review (Taconite RTR)
  - Comments, petitions, and early stakeholder input/review
  - Proposed rule published in May 2023; Final rule published in March 2024

Summary of EPA's final taconite standards

- Establishes mercury emission limits for indurating furnaces
  - Existing furnaces: 14 pounds per million long tons of pellets produced (lb/MMLT) or an average 13 lb/MMLT across multiple furnaces at one facility
  - New furnaces: 3.1 lb/MMLT
- Final Rules (March 2024)
  - Keeps the same limits as proposed (results in roughly a 33% reduction from the industry)
  - Requires the installation of new wet scrubbers and activated carbon injection (ACI)
  - Established March 2027 as the compliance date for the new standards



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More to come on federal taconite standards

- EPA standards don’t go far enough to reach our statewide mercury goals, but they still require a reduction that will necessitate installing mercury controls
- Multiple petitions for review/reconsideration and stay
  - Tribes and NGOs - Petitions for reconsideration
  - Industry - Petitions for review, reconsideration, and stay of implementation
  - Minnesota & Michigan - Amicus briefs
- Presidential exemptions under the Clean Air Act for Section 112 (HAPs)

Moving forward

- Greater emissions reductions are needed to meet the goal of the statewide mercury TMDL.
  - Minnesota met our 2018 reduction goals, but more work is needed to meet the 2025 goal
  - Further reductions are needed from mining-related mercury and mercury in products category
  - About 73% of our waters will reach the goal if the TMDL reductions are fully implemented
  - The remaining 27% need more work to resolve the higher mercury levels in fish
- Continue to promote mercury emission reductions within the state as well as regionally, nationally and globally