

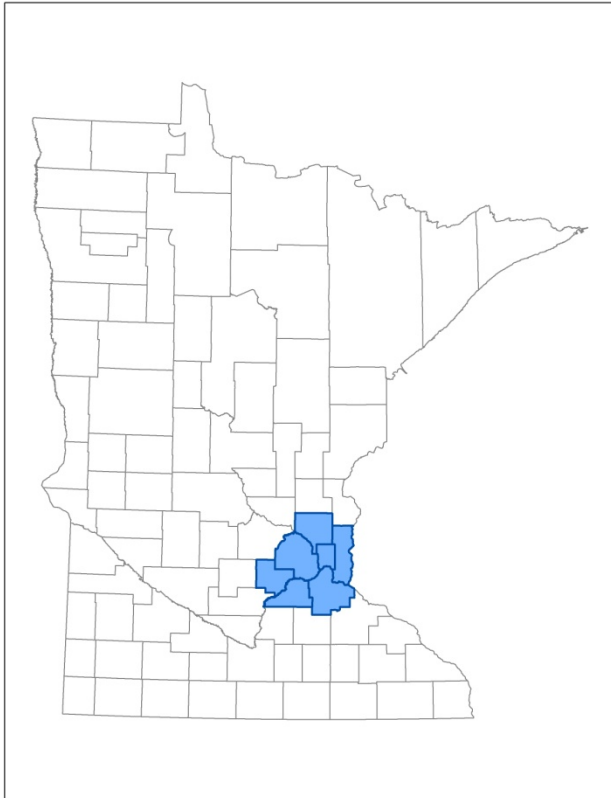
# Solids Management at the Metro Plant

Bill Cook, Engineering Services Manager  
Technical Services Department

Environment Committee: October 14, 2014



# Metropolitan Council Solids Management Portfolio



- **Metro – 175 mgd**
  - 3-120 dtpd FBRs
- **Seneca – 23 mgd**
  - 2-36 dtpd MHIs
- **Blue Lake – 25 mgd**
  - 3 Anaerobic Digesters + Drying + LA
- **Empire – 10 mgd**
  - 5 Anaerobic Digesters + LA
- **4 Regional Plants – 9 mgd**
  - Hauled to Metro

mgd = million gallons per day

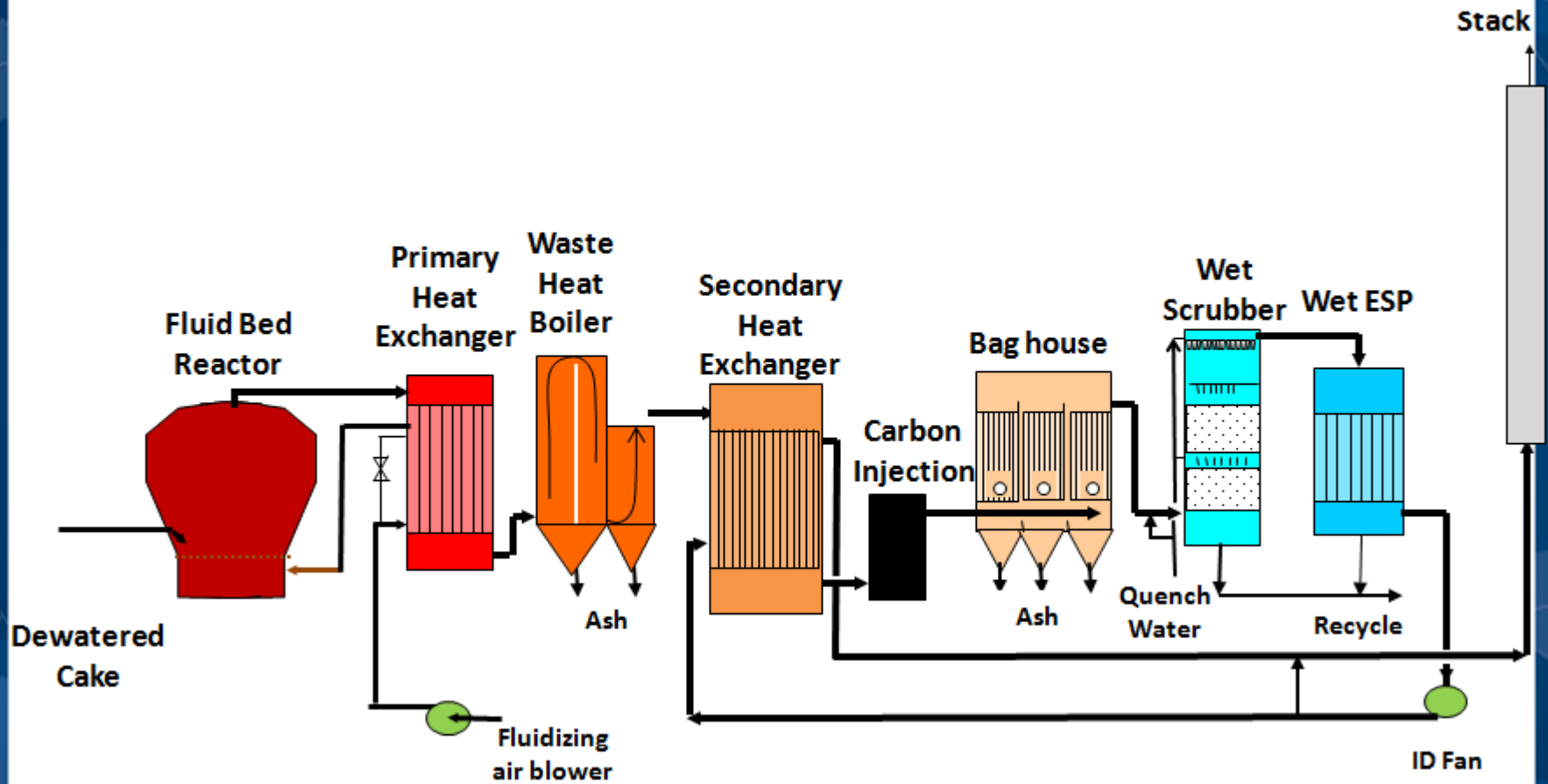
dtpd = dry tons per day

FBRs = fluidized bed reactors

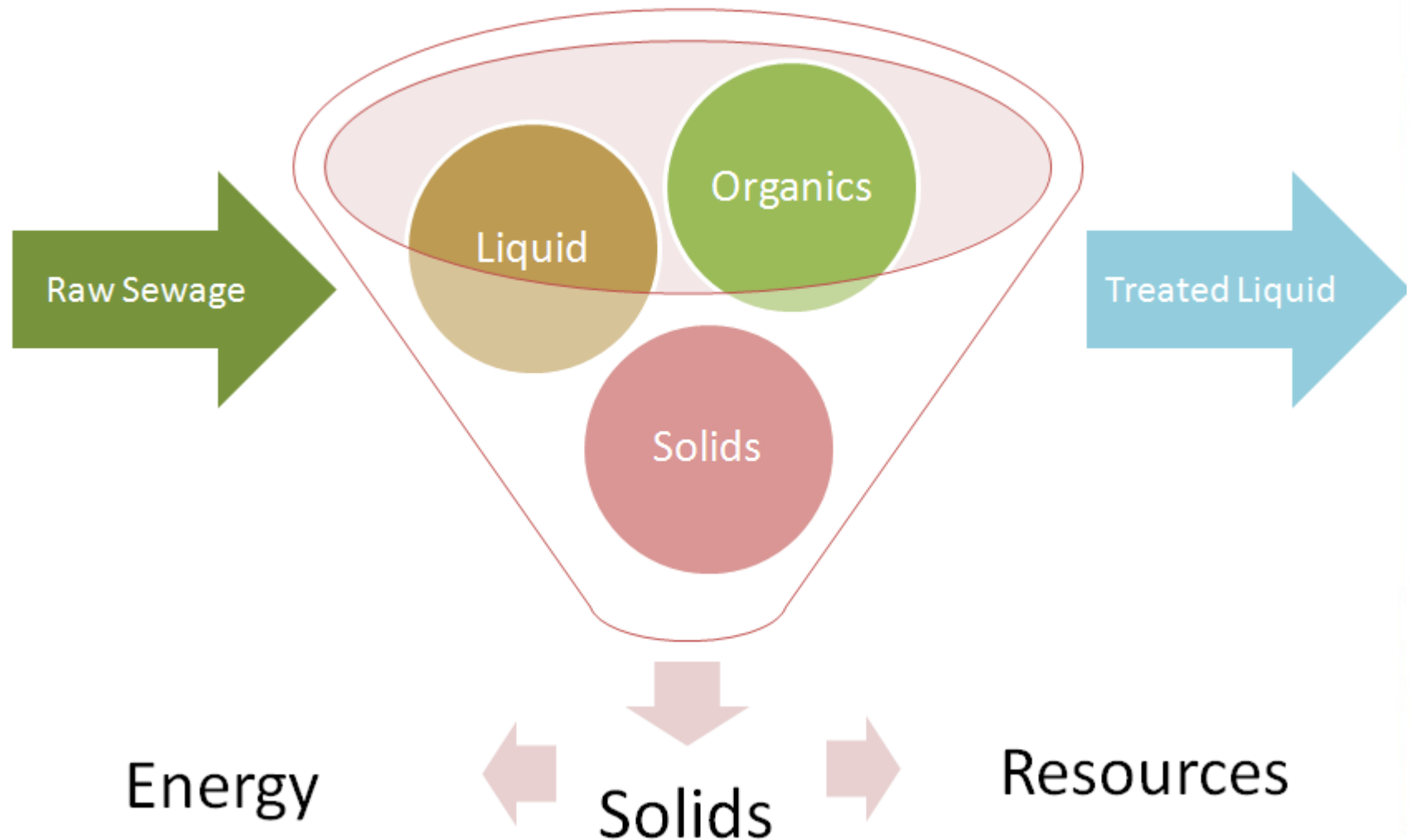
MHIs = multiple hearth incinerators

LA = land application

# Metro Incineration Operates with Heat Recovery & Advanced Air Pollution Control



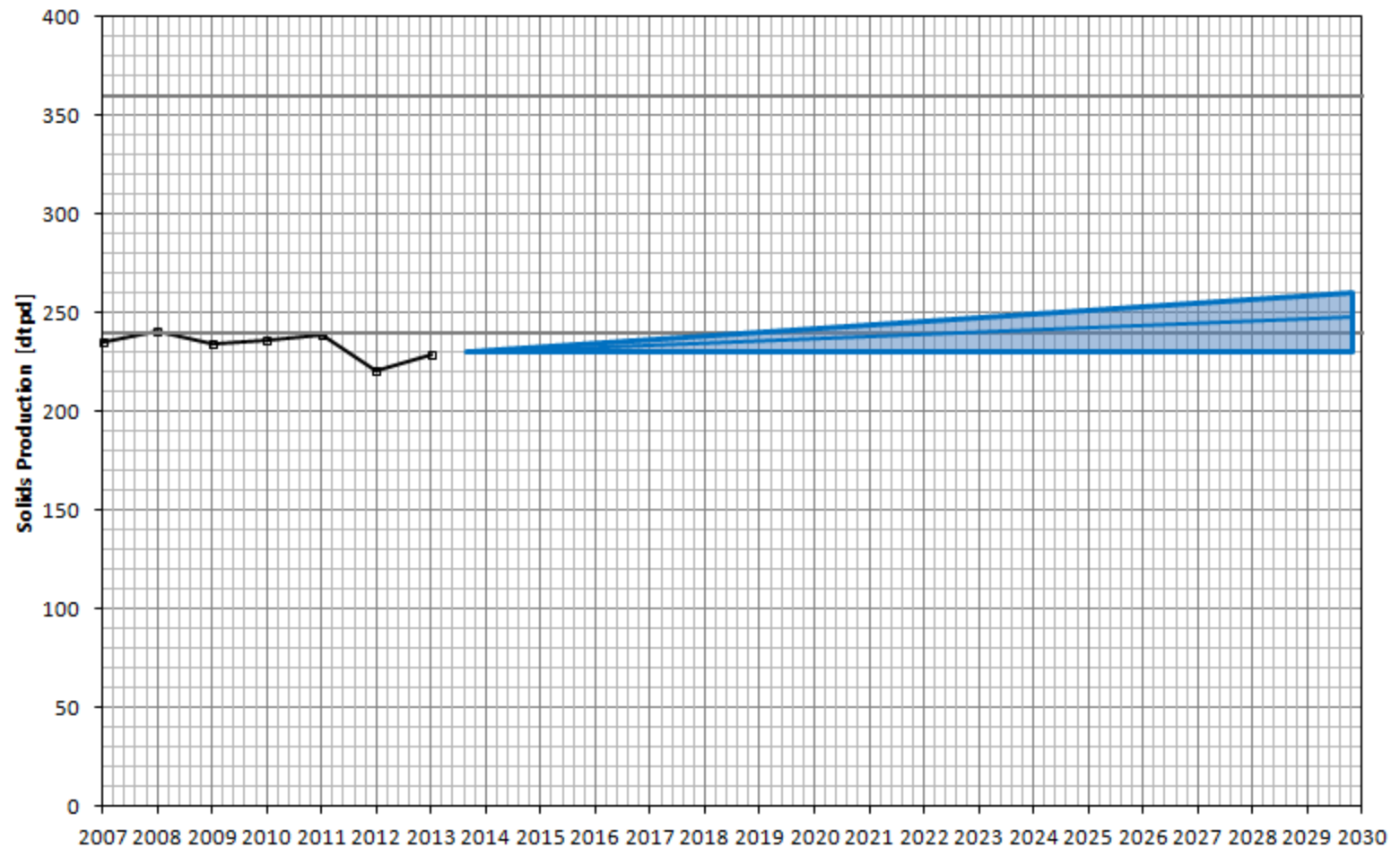
# Value in our Wastewater Solids



# Sustainable Solids Planning

- Economic
  - Future flexibility
  - Net present value
- Social
  - Impacts to community
- Environmental
  - Air quality
    - Maximum Achievable Control Technology (MACT) compliance
      - New for 2016
  - Greenhouse gas
- Resource Recovery
  - Energy
  - Ash reuse

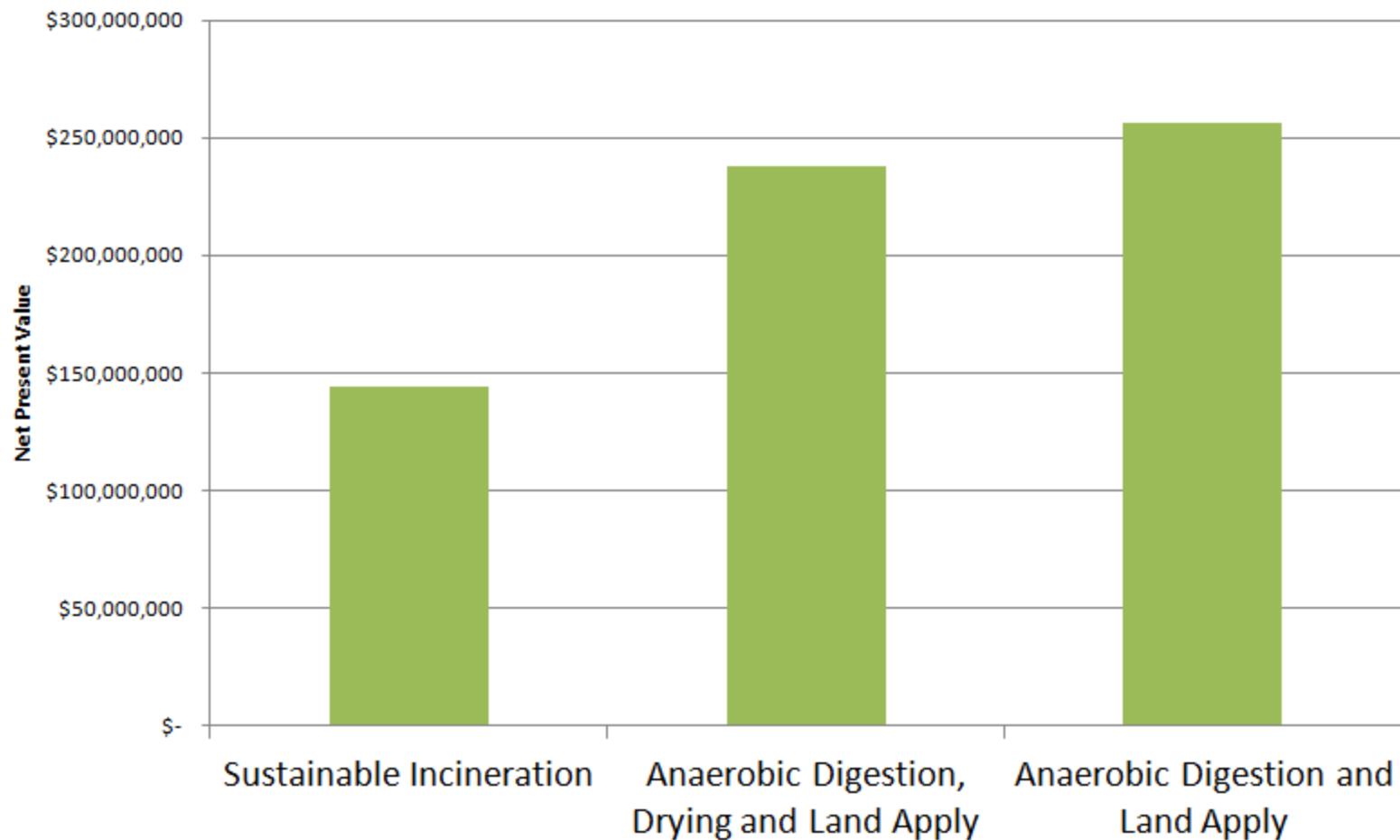
# Solids History and Projections



# Alternatives

- Sustainable incineration
- Anaerobic digestion, drying and land application
- Anaerobic digestion and land application

# Economic Evaluation Explores Differences Between Technologies

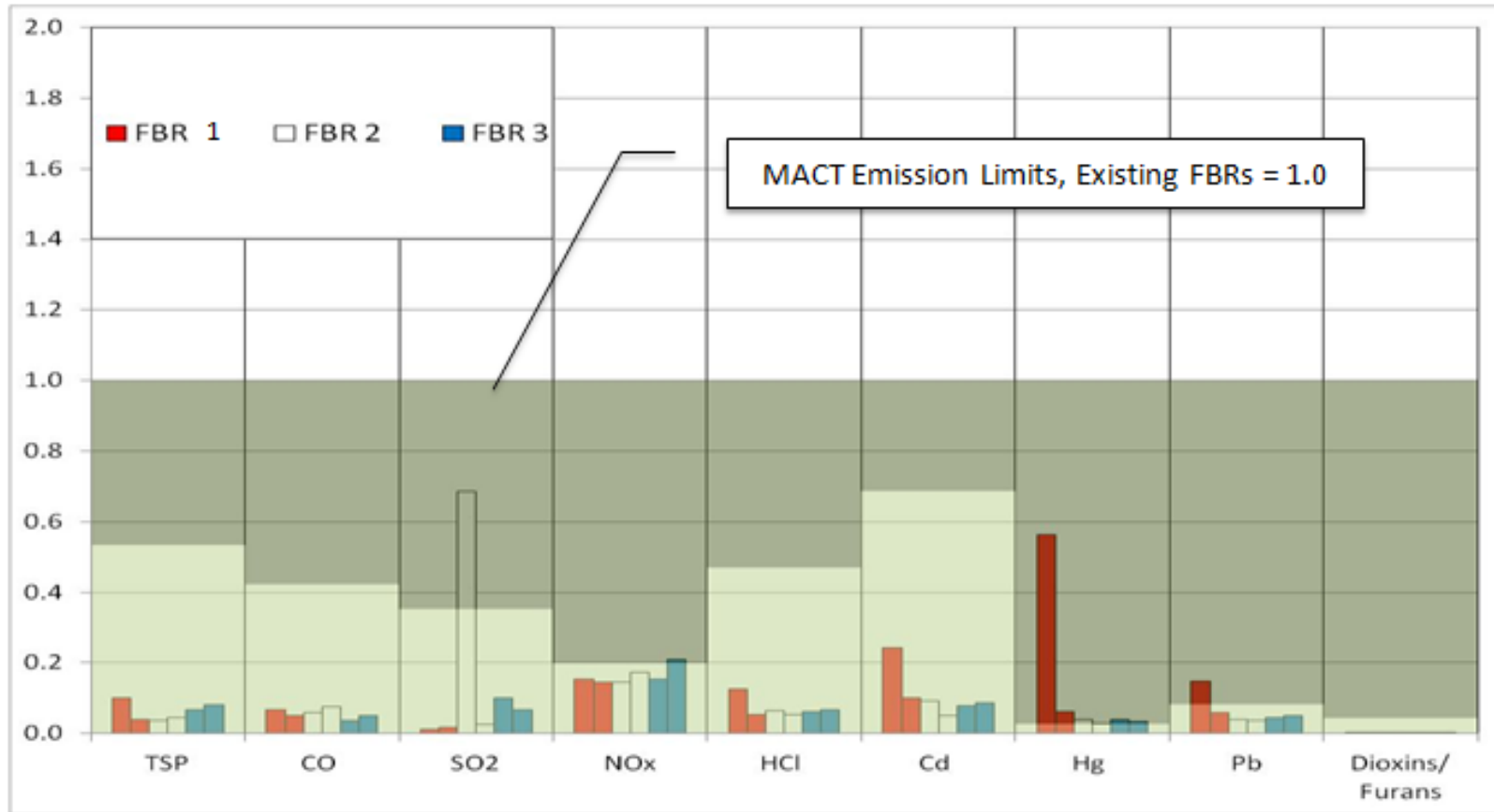




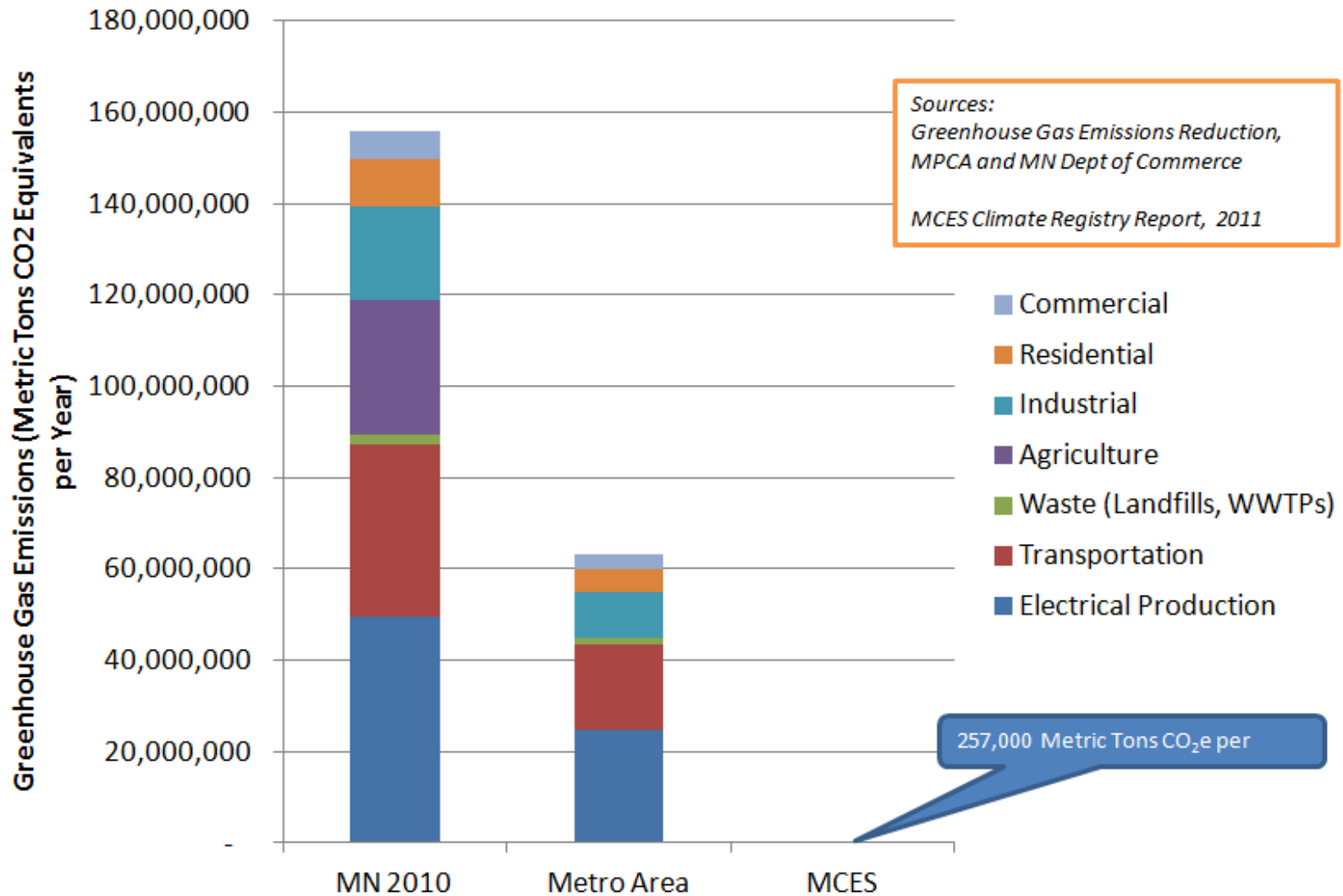
# Environmental Evaluation

- Permitted Emissions (Health Related Concerns)
- Greenhouse Gas Emissions (Global Concerns)

# MACT Results Show Sustainable Air Emissions



# MCES Metro Solids Operations Contributes to Reducing Green House Gas Emissions



# Social Evaluation

- Impact on Traffic
- Odors
- Disruption and Inconvenience

# Recovery Evaluation

- Energy from Sludge
  - 2 megawatts generated on annual average
    - from incineration
- Phosphorus Recycle
  - Ash is 25% phosphate


	N	P	K	
•	0	30	4	Ash
•	10	10	10	Fertilizer
  - Metro is 10 dtpd Phosphate

N = nitrogen  
P = phosphorus  
K = potassium

# Evaluation of Alternatives

- Continue on Sustainable Incineration Path
  - Generates energy and recycles phosphorus
  - Reduces greenhouse gases
  - Lowest impact on cost to customers
  - Lowest impact on neighbors and community
  - Most future flexibility

# Path Forward

- Developing a facility plan that outlines the advantages of “Sustainable Incineration” and prepare for public process early 2015
- Conduct public hearing and public meetings to address the project
- Submit facility plan to MPCA for review and approval
- Initiate design 2017
- Start construction 2019
- Finish construction 2022

# Questions