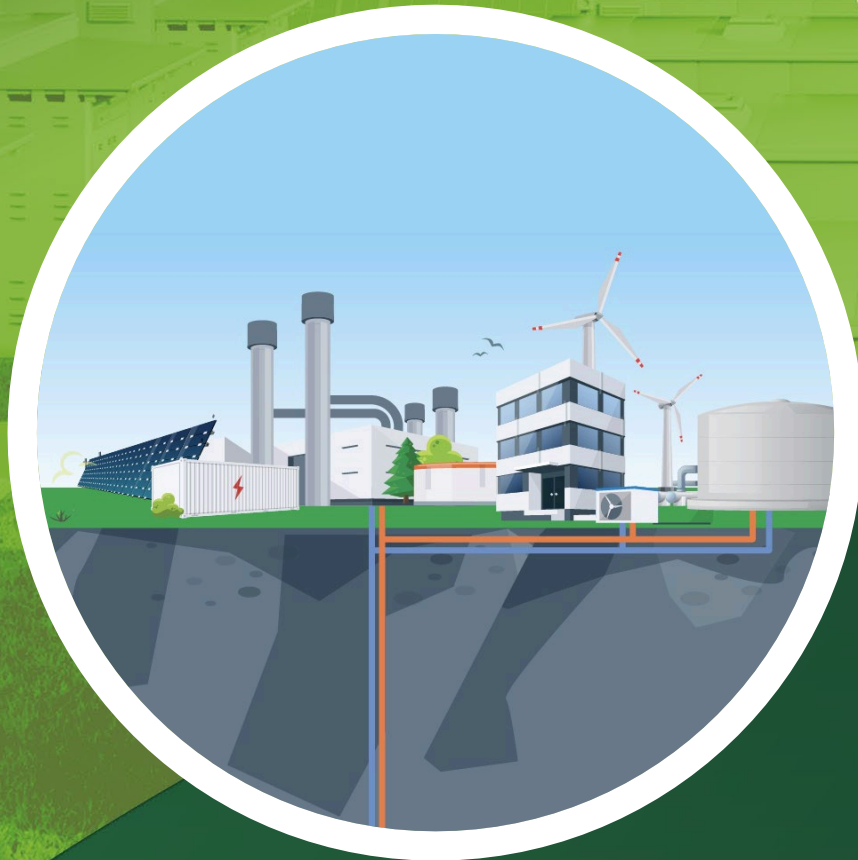




# Onsite Energy Technical Assistance Partnerships

U.S. DEPARTMENT OF ENERGY

Midwest



## How Emissions Forecasting Impacts EE Measures in Illinois

### MES 2025 Conference

Graeme Miller  
Assistant Director  
US DOE Midwest Onsite Energy TAP

# Agenda

- Role of Emissions in Illinois EE Calculations
- Important Emissions Concepts
- Future Illinois Grid Emissions Forecasts
- Emissions Forecasts and CHP

# Illinois Grid Emissions Forecasts

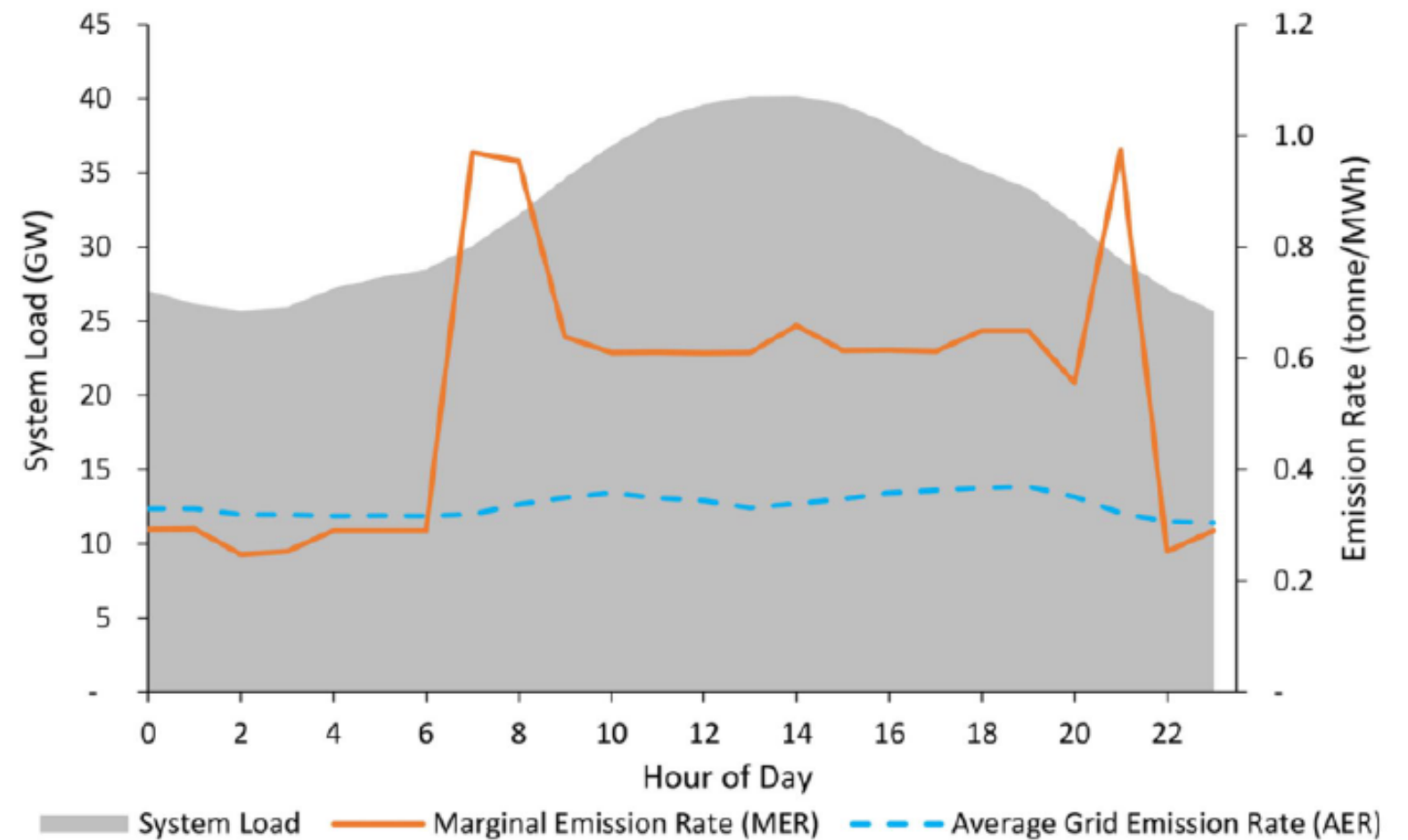
- Came out of a Cost/Benefit analysis for the energy efficiency program
- Monetizes the value of a saved kWh/therm using the following,
  - Avoided Energy Supply Costs
  - **Avoided Emissions Costs ← This is our focus!**
  - Avoided T&D Costs
  - Avoided Losses
  - Non-Energy Impacts
  - Economic Inputs

Source: Illinois Stakeholder Advisory Group

# Important Emissions Concepts

# Important Emissions Forecast Concepts

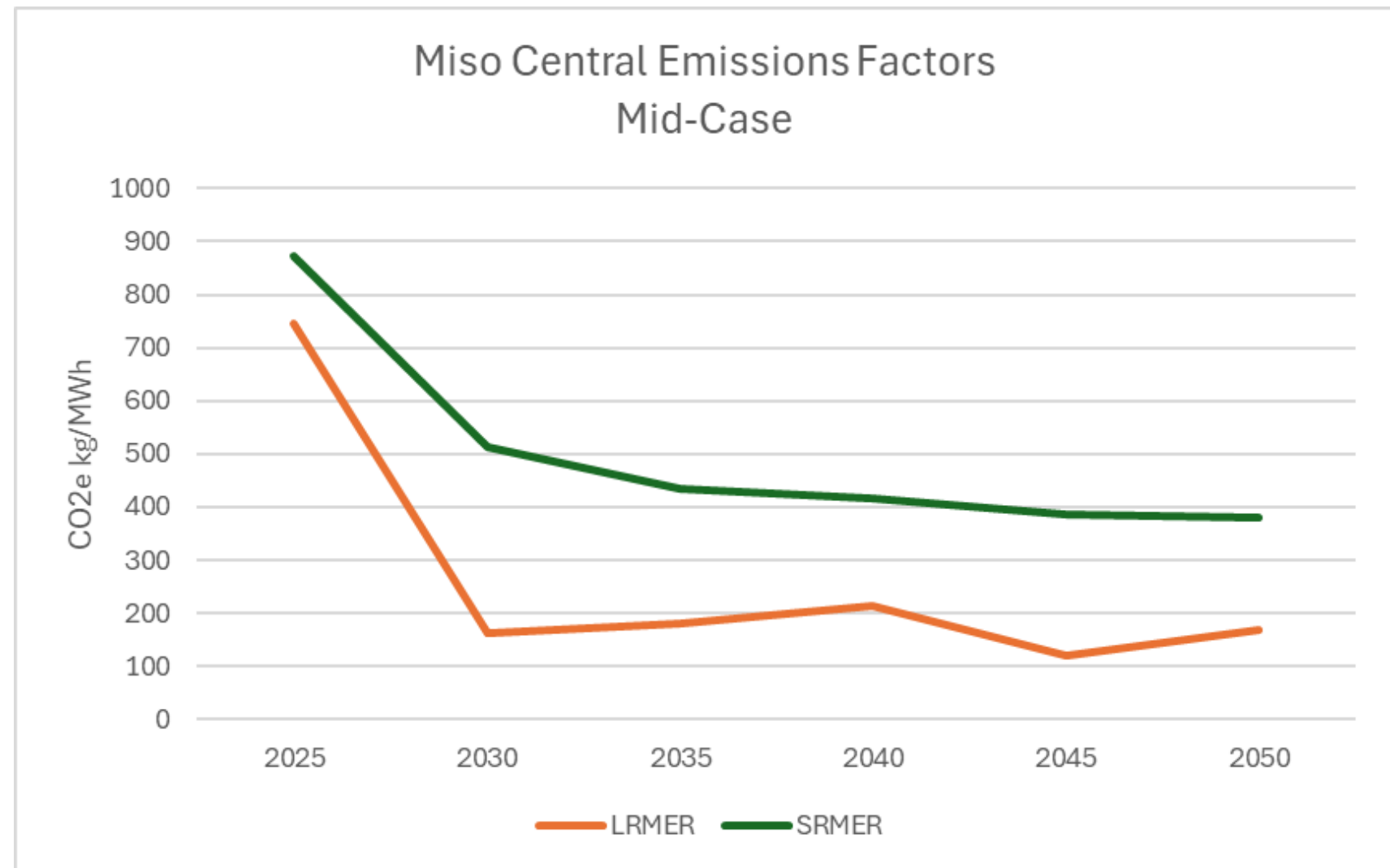
- Marginal vs Average



Specian, Mike. 2024. *Accounting for Change: Policies and Technical Approaches for Reducing Greenhouse Gas Emissions through Energy Efficiency Programs*. Washington, DC: ACEEE. [www.aceee.org/research-report/u2401](http://www.aceee.org/research-report/u2401).

# Important Emissions Forecast Concepts

- Short Run vs Long Run



Source: NREL Cambium 2023 Mid-Case



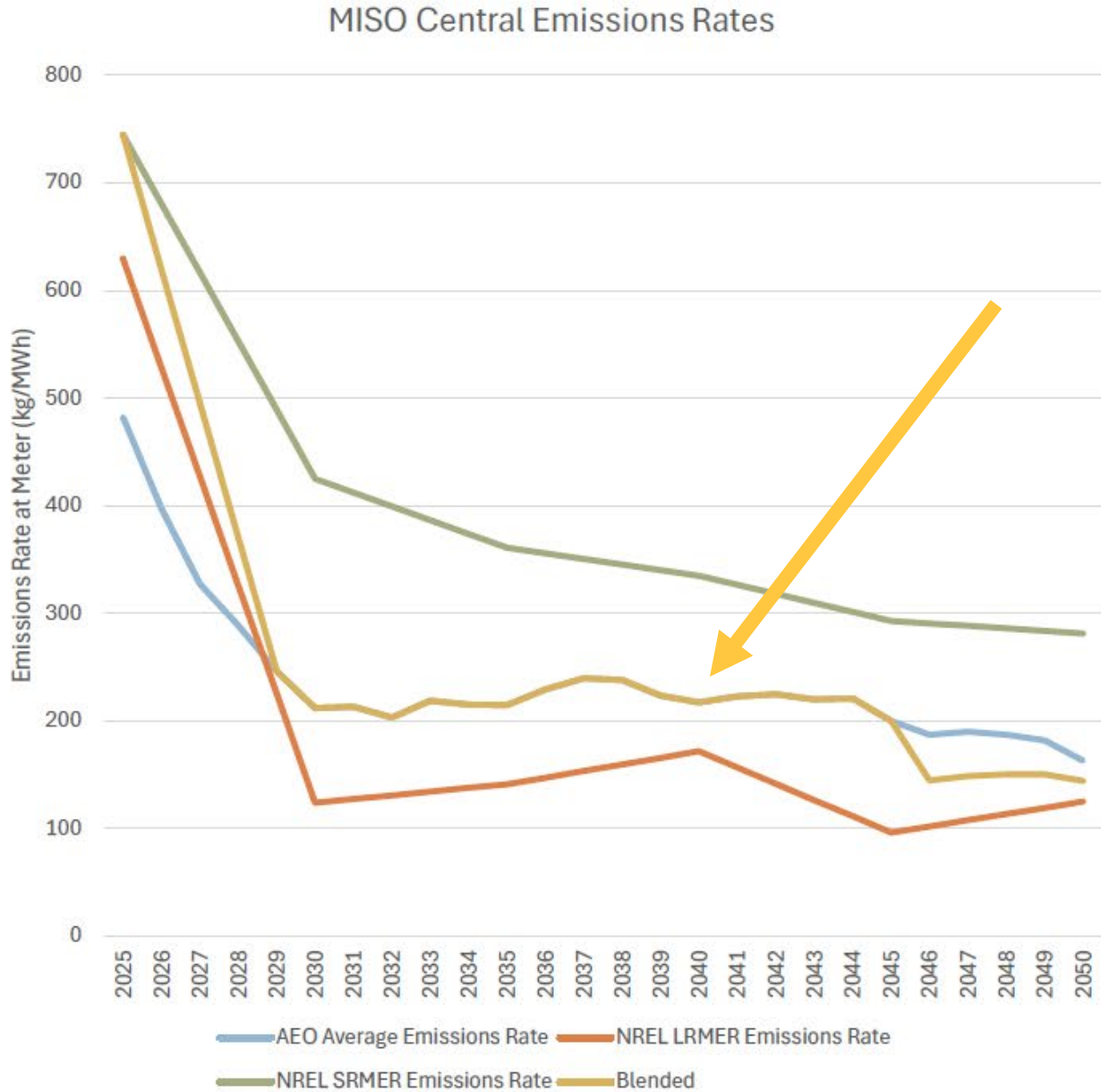
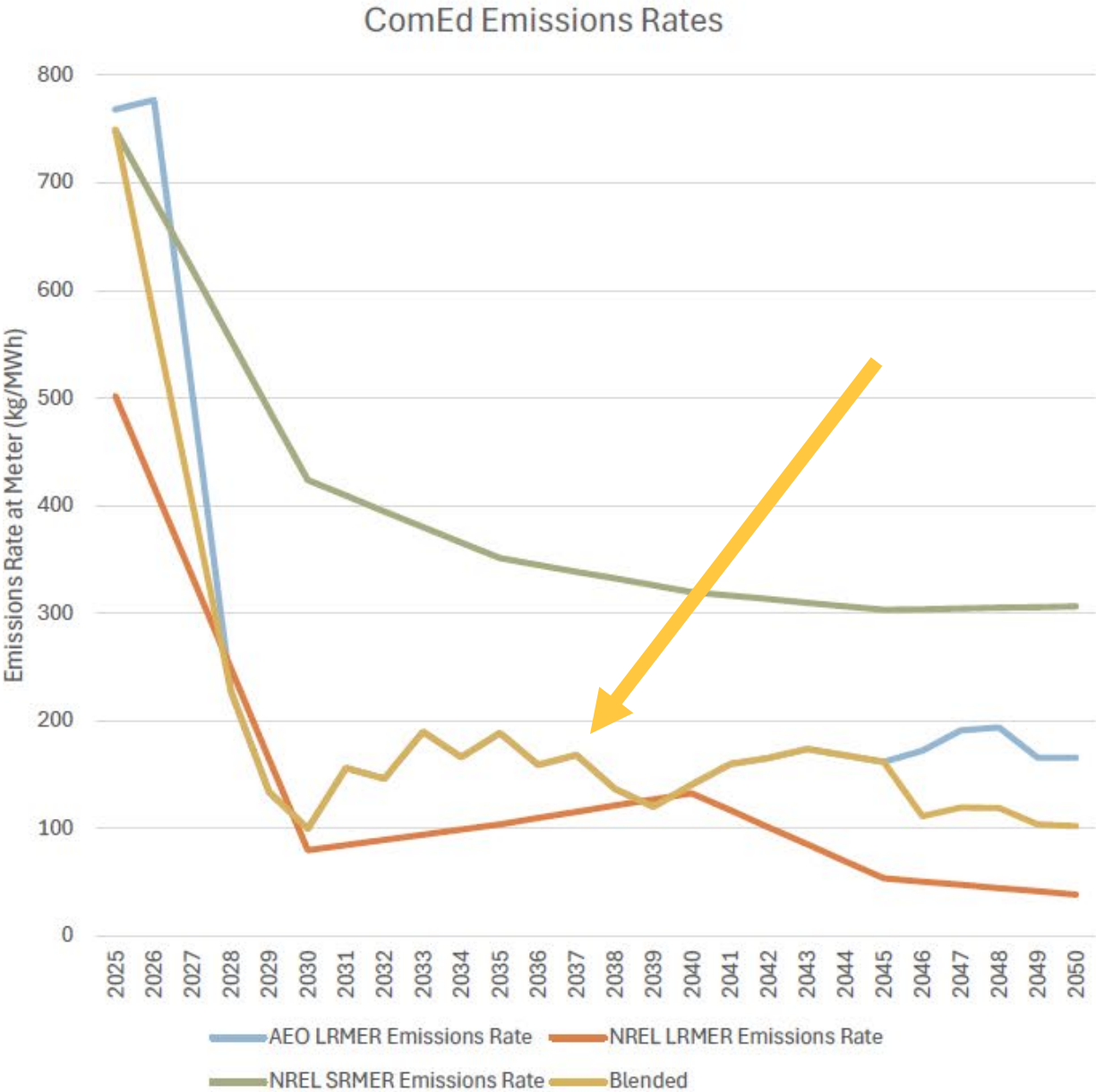
# Important Emissions Forecast Concepts

- Time Granularity
- Emissions Discount Rate

# Illinois Stakeholder Advisory Group Approved Emissions Forecasts

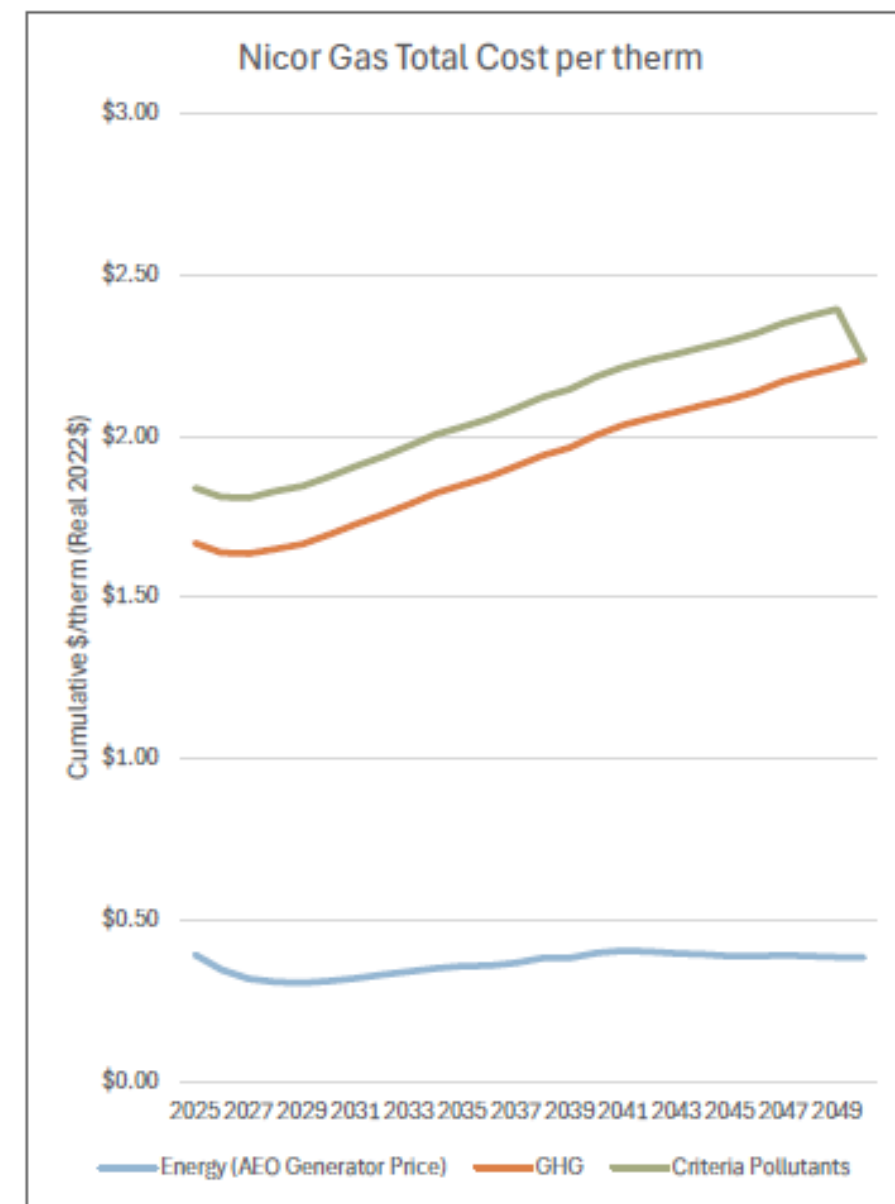
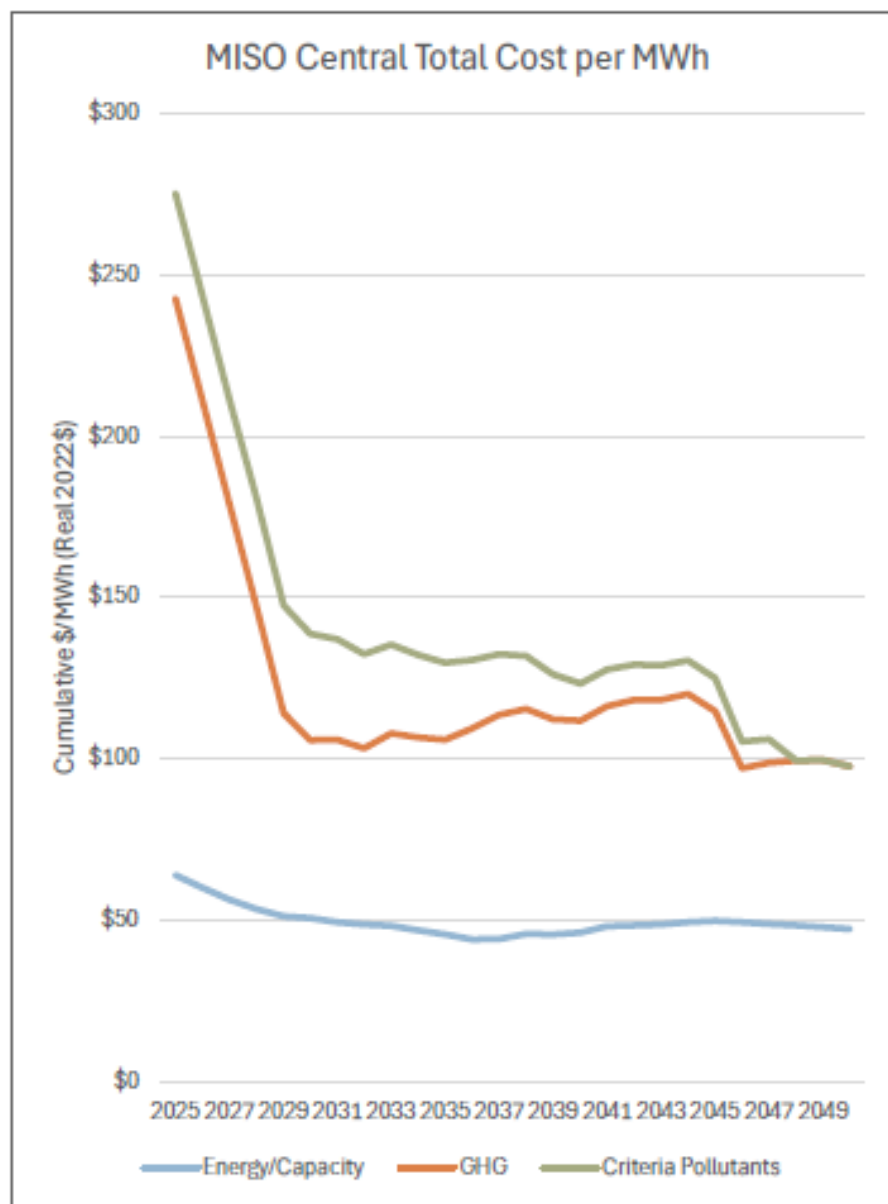
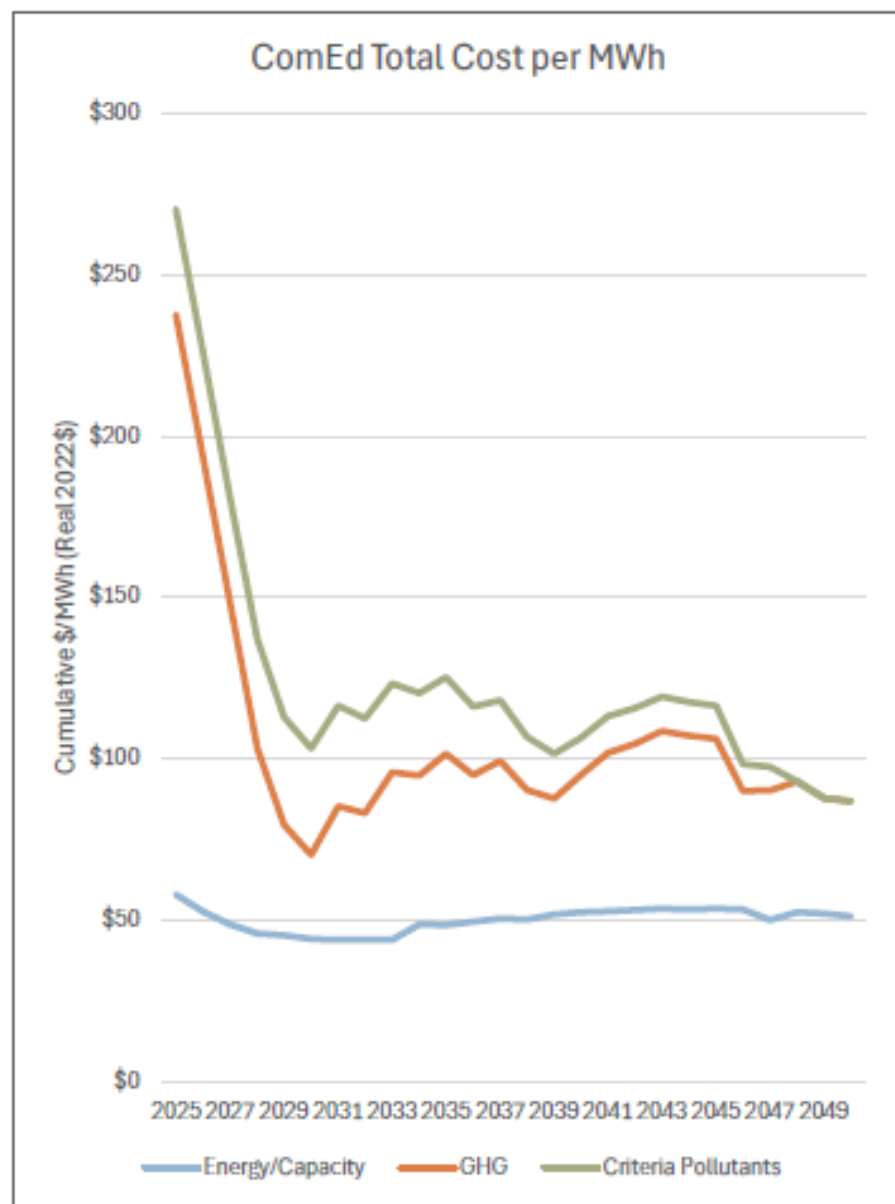


# Utility approved future forecasted emissions in Illinois



Source: Illinois Stakeholder Advisory Group:  
<https://www.ilsag.info/wp-content/uploads/SAG-Benefit-Cost-Assumptions-071624.pdf>.

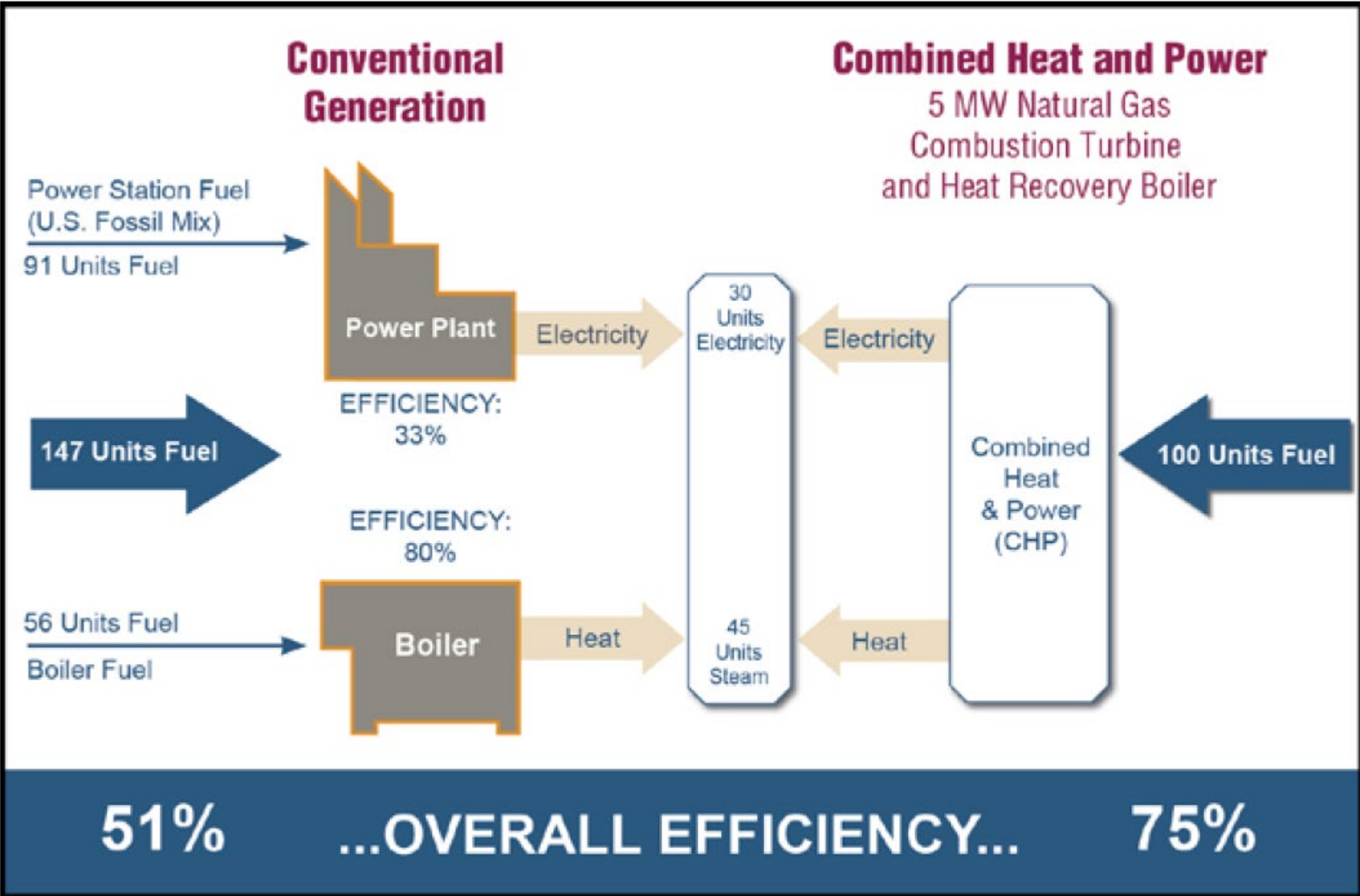
# Total Supply + Emissions Cost per MWh/therm



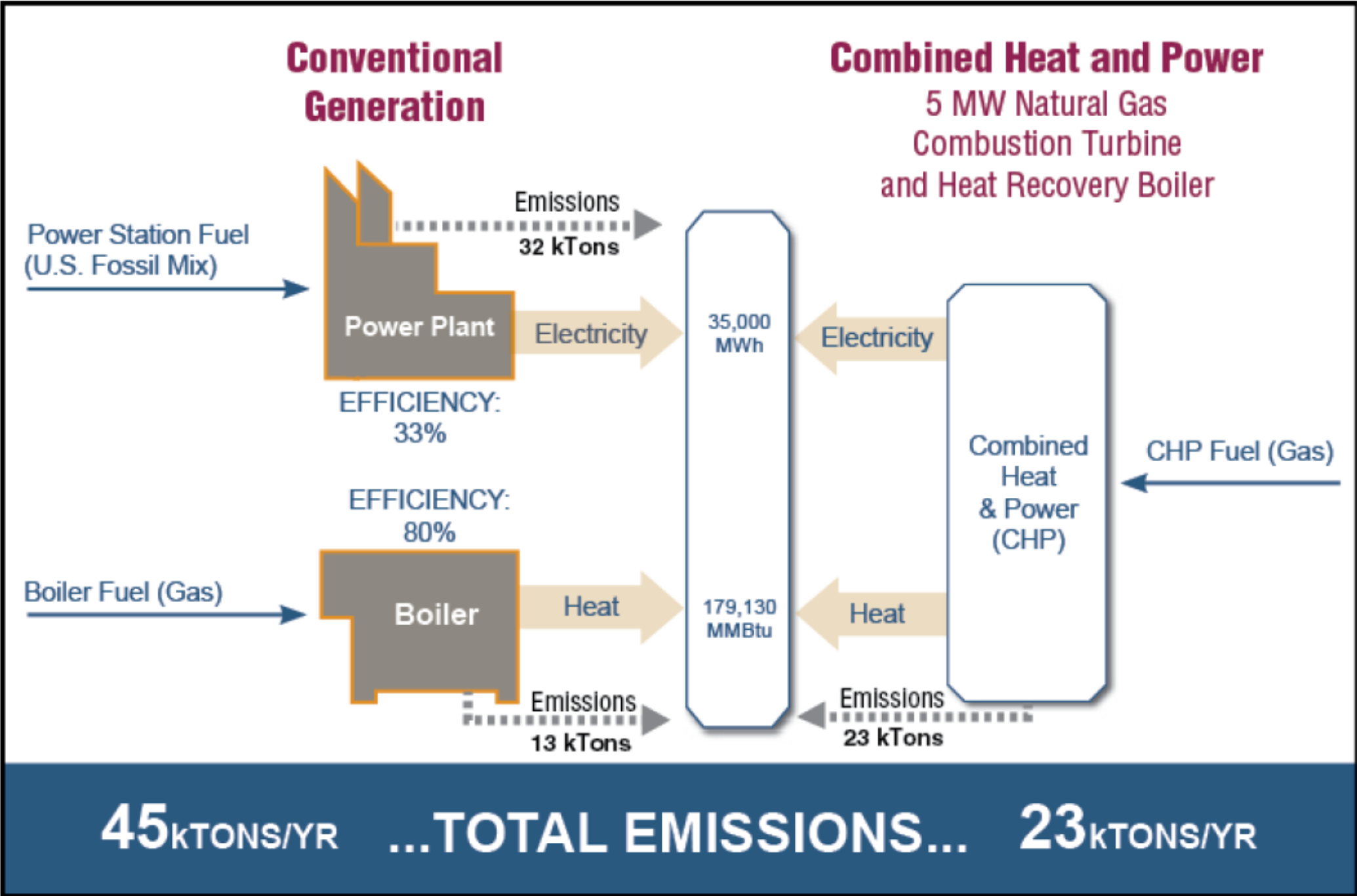
Source: Illinois Stakeholder Advisory Group:  
<https://www.ilsag.info/wp-content/uploads/SAG-Benefit-Cost-Assumptions-071624.pdf>.

# How CHP Can Save Emissions

# Overview of Combined Heat and Power



# Overview of Combined Heat and Power



# Conclusions and Next Steps



# Summary

- In 2024 the Illinois Energy Efficiency Stakeholder Advisory Group approved Benefits/Cost Assumptions used to monetize the value of a saved kWh/therm
- Marginal grid emissions projected under ~550 lbs/MWh CO<sub>2</sub> by
  - 2028 in ComEd
  - 2030 in Ameren Illinois
- Due to the large decrease in forecasted marginal grid emissions the value of an avoided kWh decreases significantly whereas the value of an avoided therm increases due to GHG emissions
- **NG fired CHP will likely no longer be considered emissions saving in Illinois by ~2028/2030\***



## Further Topics that Need Addressing

- Forecasting the future natural gas grid
- Identifying the correct baseline with which to measure EE
  - Grid or Onsite Distributed Generation or something else?
- Understanding Residual Emissions
- Appropriateness of Long-Range Marginal Emissions Rate to gauge cost-effectiveness
- Accuracy of annual emissions data



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