



**Iowa Association  
of Municipal Utilities**

# **Energy Efficiency & Climate Change**

IAMU Annual Meeting  
October 9 2009

Anne Kimber





# Topics

- Waxman-Markey House bill (HR 2454) “American Clean Energy and Security Act” passed Jun 26 2009.
- Boxer-Kerry Senate bill “Clean Energy Jobs and American Power Act” introduced Sep 30 2009
- Cost implications to Iowa munis of cap and trade AND role of energy efficiency





## Thanks to APPA:

- Diane Moody, Sue Kelly and Joy Ditto in providing spreadsheets, summaries of House and Senate bill analyses
- APPA calculators enable you to estimate the allowances you might receive under the House bill, along with cost estimates for additional allowances needed.

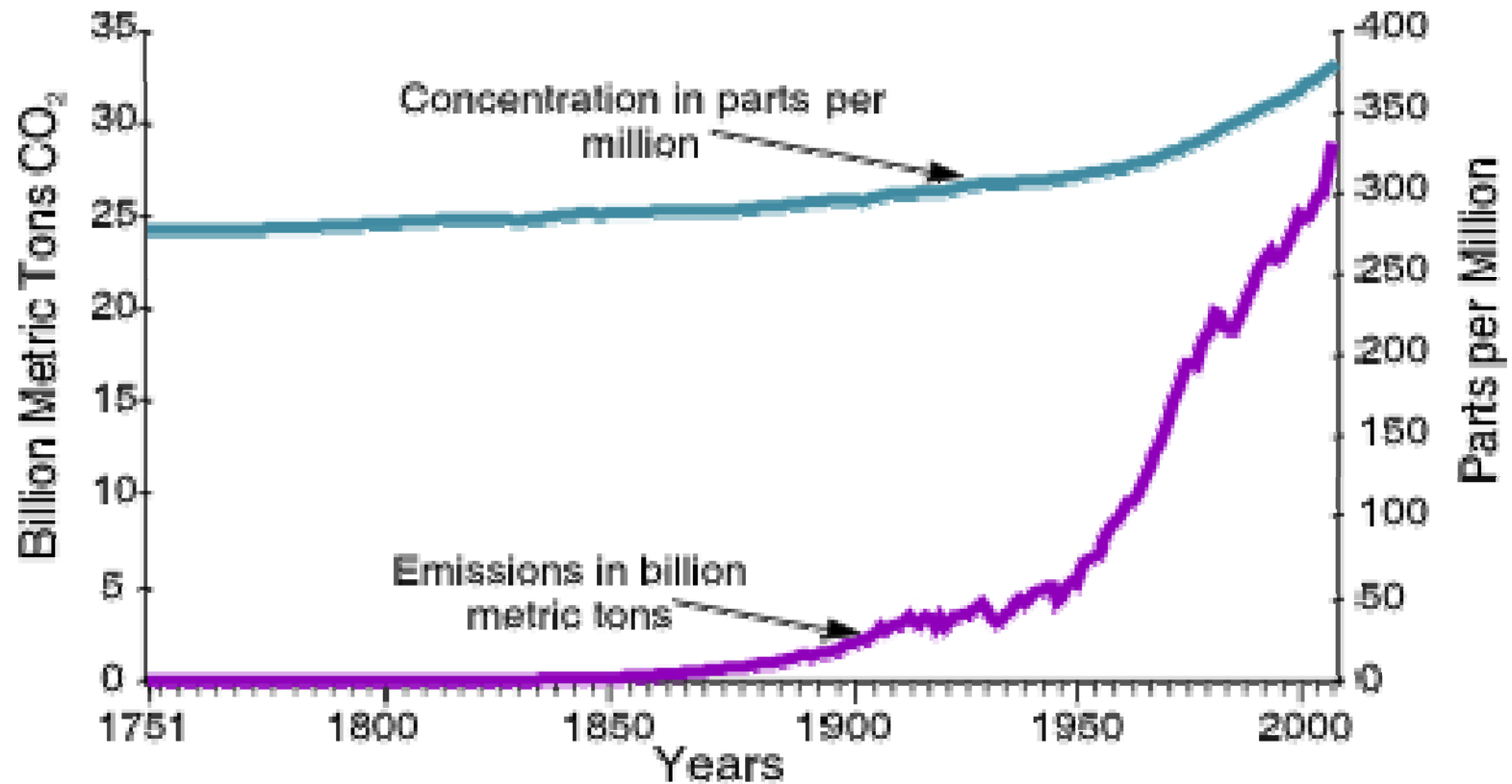




# Background

- “Overwhelming scientific evidence shows that CO<sub>2</sub> emissions from fossil fuels have caused the climate to change, and a dramatic reduction of these emissions is essential to reduce the risk of future devastating effects”
- Steven Chu, U.S. Secretary of Energy, Science 25 September 2009.





Source: Oak Ridge National Laboratory, Carbon Dioxide Information Analysis Center.





# Cap and Trade Highlights

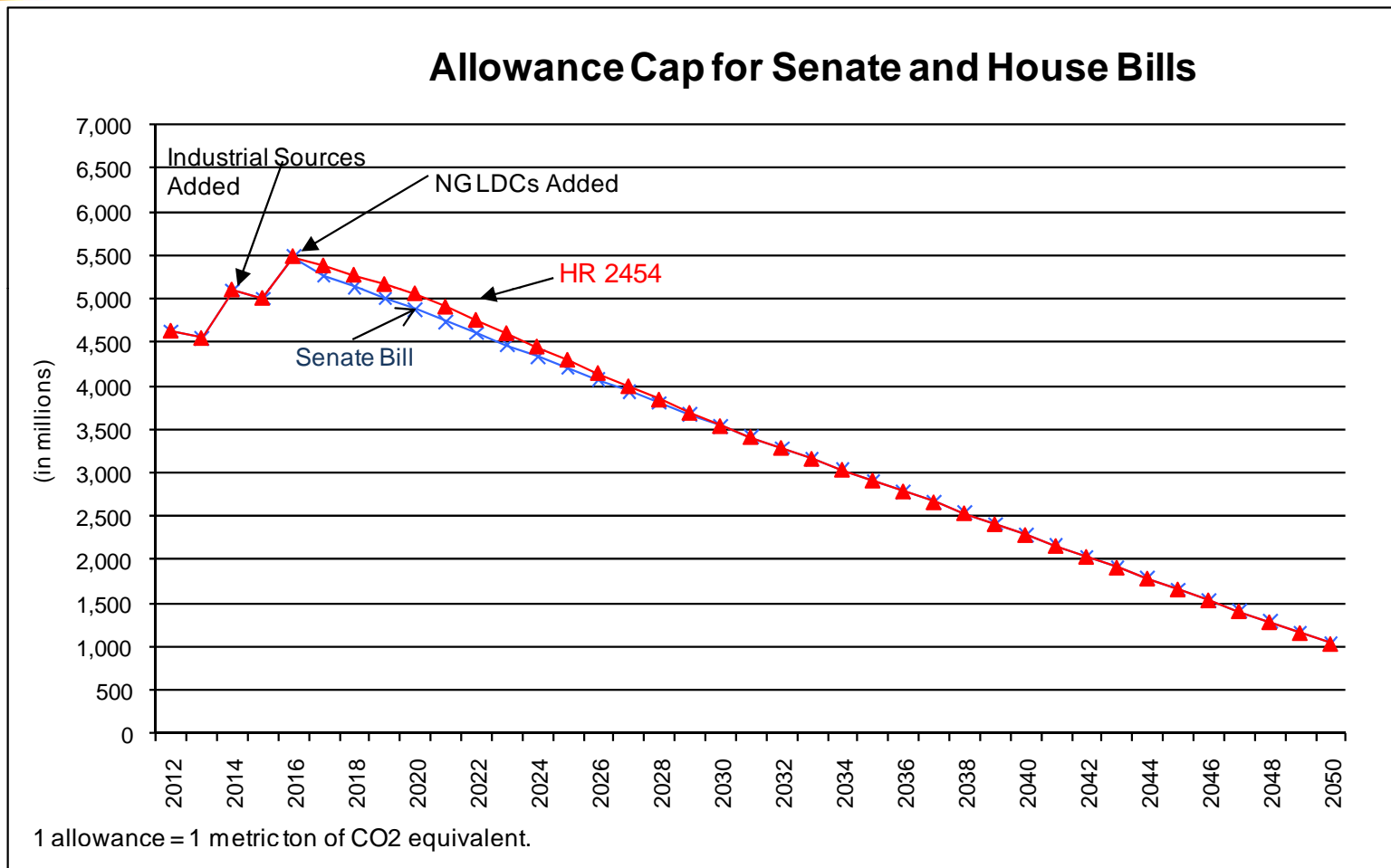
- Bills add new chapters to the Clean Air Act to:
- Establish a cap and trade system for Greenhouse gas (GHG) allowances
- Goal is to reduce GHG to 17% of the 2005 levels, by the year 2050.
- Establish markets for trading allowances
- Allocate allowances to industry sectors





# CO<sub>2</sub> Emissions Allowances

(APPA's Boxer-Kerry summary)





# Electric Utility Allocations

Both the House and Senate bills allocate allowances to:

- Merchant generators
- Contract generators (including G&Ts)
- Local Distribution Companies (LDCs)
  - 50% of this allocation based on retail sales
  - 50% based on emissions from sales





## “Small” LDC allocation

- Additional allocation of 0.5% to Small LDCs (fewer than 4 million MWh, all IA muni electric utilities qualify based on 2008 sales).
- The allocation must be used for “cost-effective programs to achieve electricity savings, deploy renewables and reduce costs for low income residential ratepayers.





# Role of EPA

- Administrator calculates allowances for each LDC, and updates the allocations every three years
- Prescribes how the allowances shall be used for the benefit of retail rate payers
- Will audit samples of LDCs to ensure that the allowances are being used for the benefit of retail rate payers





## EPA Role (2)

- EPA develops guidelines for the use of allowances –
  - allowances must be used only to benefit retail ratepayers
  - will benefit all customer classes.
  - EPA is required to consult with State regulatory authorities in developing the guidelines.





## EPA's guidelines:

- For Rate-Regulated utilities: “the state regulator must fulfill certain functions, for example, through regulation or a rate proceeding, to make sure that the provisions on use of allowances are implemented.
- For municipal utilities, the governing body of the utility must fulfill these functions.





## Fehrman, MEC Aug 6

- Oppose the “trade” portion of Cap and Trade because customers pay twice: 1) investment in infrastructure and 2) purchase of allowances.
- Volatile and speculative carbon market adds price risk to customers.
- Allocating half the allowances by retail sales provides allowances to utilities (hydro, nuclear) that don't need them.





# Fehrman (2)

Estimates the carbon market at \$2 trillion





# MEC alternative

- States can opt for alternative compliance mechanism instead of trade
- Requires vote of state legislature
- Only **state rate-regulated utilities** can participate in alternative compliance
- Same caps apply
- Ability to use accumulated offsets (renewable energy credits) for allowances





# Senate Bill

- For the Electric Sector, all fossil-fueled units, no matter how small, must submit CO<sub>2</sub> allowances
- 25% of the allowances, each year, must be auctioned; proceeds go to deficit reduction.
- Rest of the allowances go to: merchant generation, long-term contract generators, Local Distribution Companies (LDCs) and small LDCs.
- LDC distribution is same as in House bill





## Senate bill (2)

- Utilities can use offset credits to comply with up to 2 billion metric tons of GHG emissions each year (same as House bill), on a pro rata basis (utility's emissions/total emissions)\*2 billion.
- No more than  $\frac{3}{4}$  of the total percentage each year can be met by domestic offsets, no more than  $\frac{1}{4}$  from international offsets.





# Issues with Senate bill

- Distribution of allowances isn't set
- Not enough price control
- Still provides free allowances to merchant coal and long term contract generators
- Duplication (and confusion) with existing Clean Air Act provisions
- Timeline may cause short term more expensive solution (e.g. fuel switching to natural gas and increase in nat. gas prices)





# Merchant Coal

- In both the House and Senate bills, up to 10% of the allowances flow to merchant coal plants.
- APPA position is that merchant coal should not receive free allowances.
- Unlevel playing field between merchant coal and regulated utilities that must pass savings on to customers





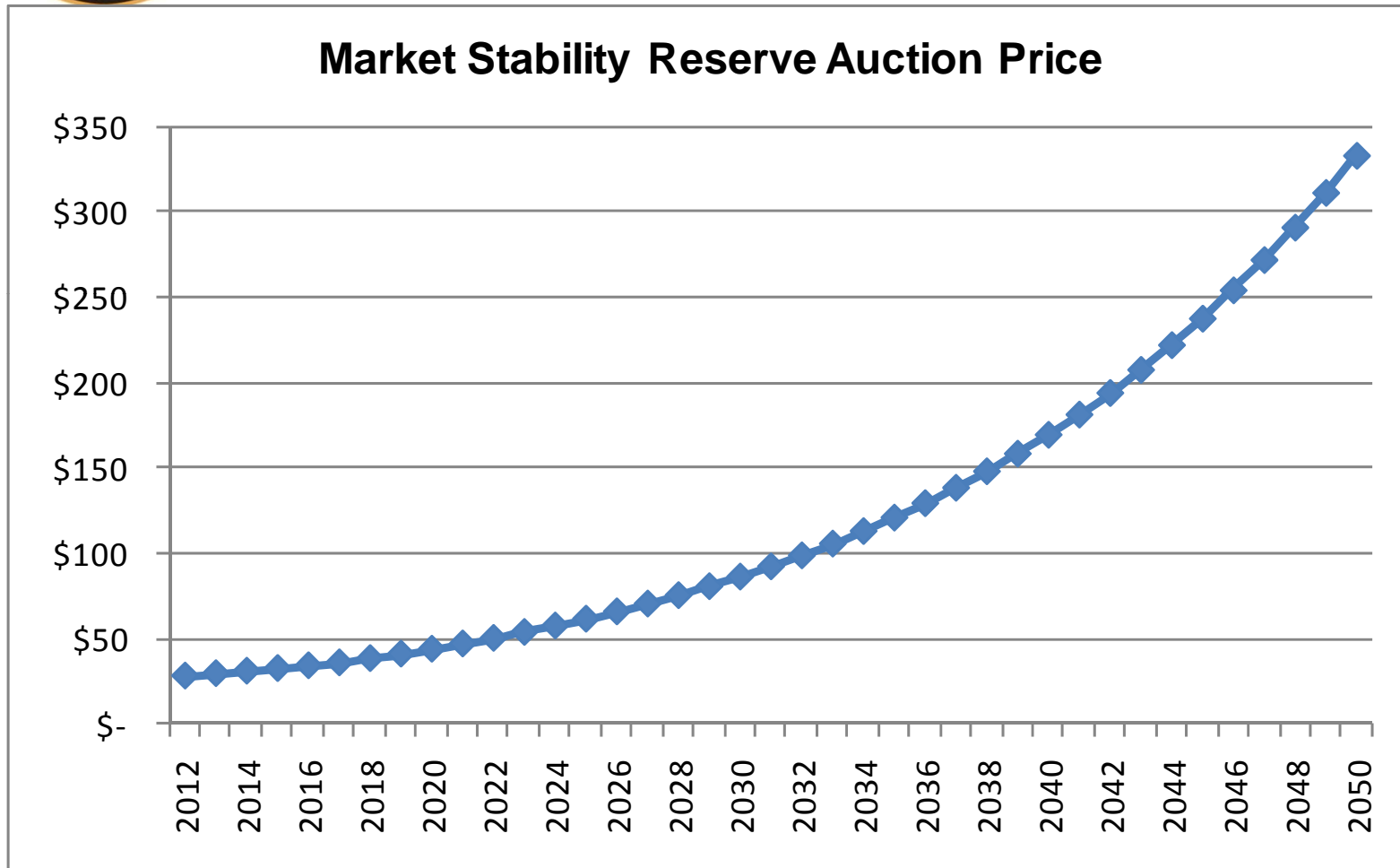
# Market Stability Reserve

- Senate bill establishes a pool of allowances to be sold at a minimum price (\$28/ton should the trading price reach this level), in order to stabilize auction prices for allowances. The pool comes from offsets and allowances





# Market Stability Reserve





# Public Gas utilities

- Summary from APGA:
- Cap on emissions starts in 2016
- Applies to entities who emit more than 25,000 tons CO<sub>2</sub> per year
- For gas LDCs this equates to 475,000 MCF/year. (assumes that one molecule methane equals 25 molecules CO<sub>2</sub>)
- Will affect largest IA muni gas systems





## Public Gas utilities (2)

- Senate bill: Public gas systems will receive free allowances, but undefined
- In the House bill
  - gas systems receive 9% of the allowances starting in 2016 until 2025, then decreasing to zero in 5 years
  - 1/3 of allowances must be spent on customer energy efficiency programs for customers.





## Public Gas Utilities (3)

- In the House bill: utilities have compliance obligation for industrial customers but they must also transfer allowances to industrial customers if those costs increase because of the house bill. The customers have no obligation to turn in the allowances to EPA.





# APPA Cost scenarios

- What might an average size Iowa muni have to pay for allowances?
- Assumes:
- Allowance starts at \$20/ton, increasing 4% annually
- Muni 2008 median total sales=13,519 MWh
- Iowa fuel mix





## 2008 MISO-wide fuel mix

- Coal: 77%
- Natural gas: 5%
- Nuclear: 15%
- Wind: 3%
  
- *Source: Diane Moody, APPA*





# Iowa Electric Power Industry by Generation Mix

- Coal: 76.3%
- Natural Gas: 6.2%
- Nuclear 9.1%
- Renewables 5.7%
- Hydro: 1.9%
- *Source EIA 2007 data on MWh generation*





# Emissions Ratios

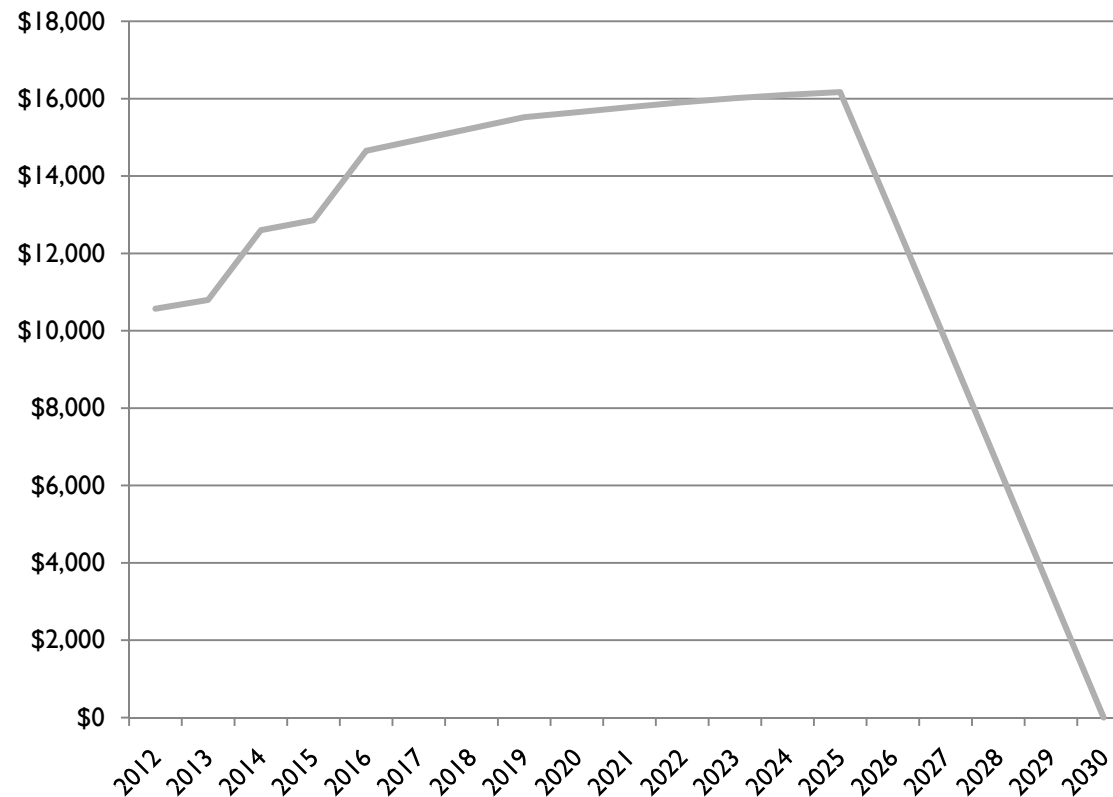
- Emissions per sales in metric tons CO<sub>2</sub> per MWh retail sales:
- National average = 0.646
- Iowa: = 0.853





# Small LDC value

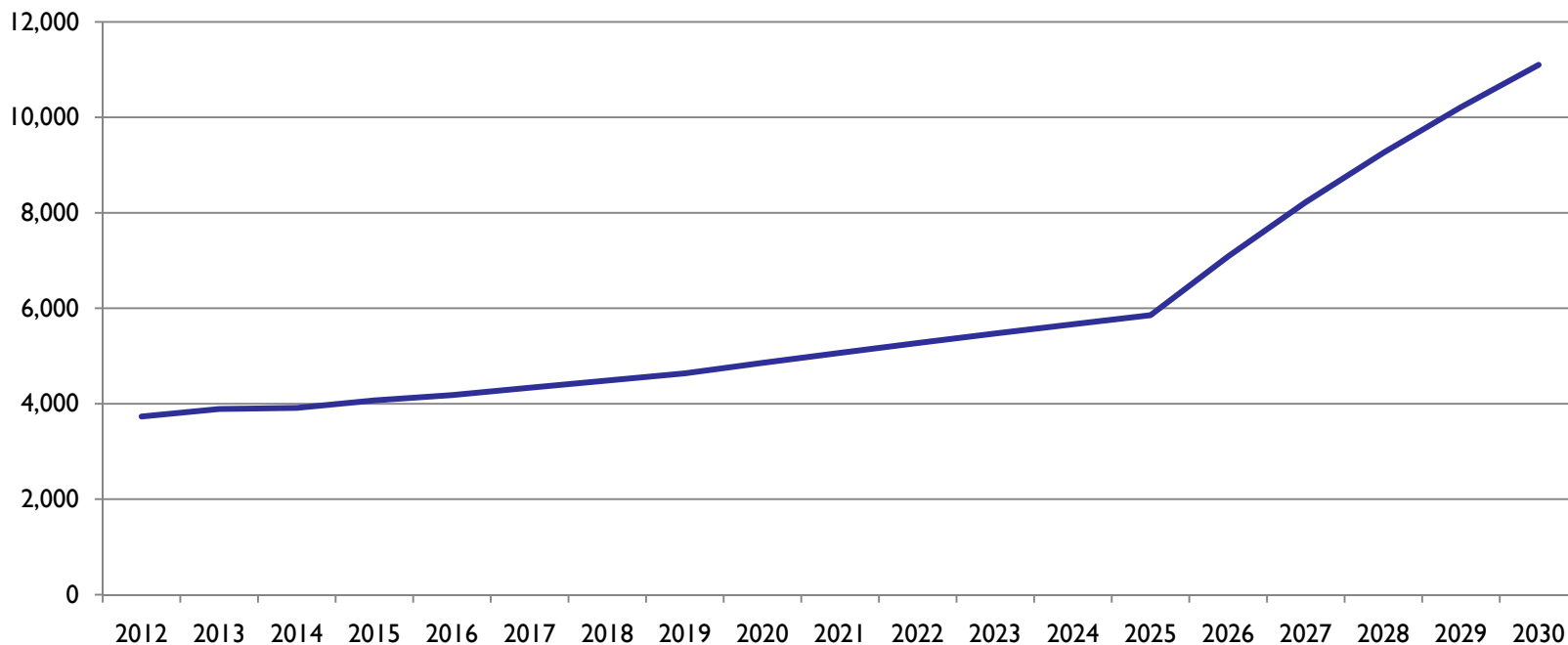
- In 2008, median IAMU member total sales = 13,519 MWh, equating to 2012 value of \$10,572.





# Iowa municipal example

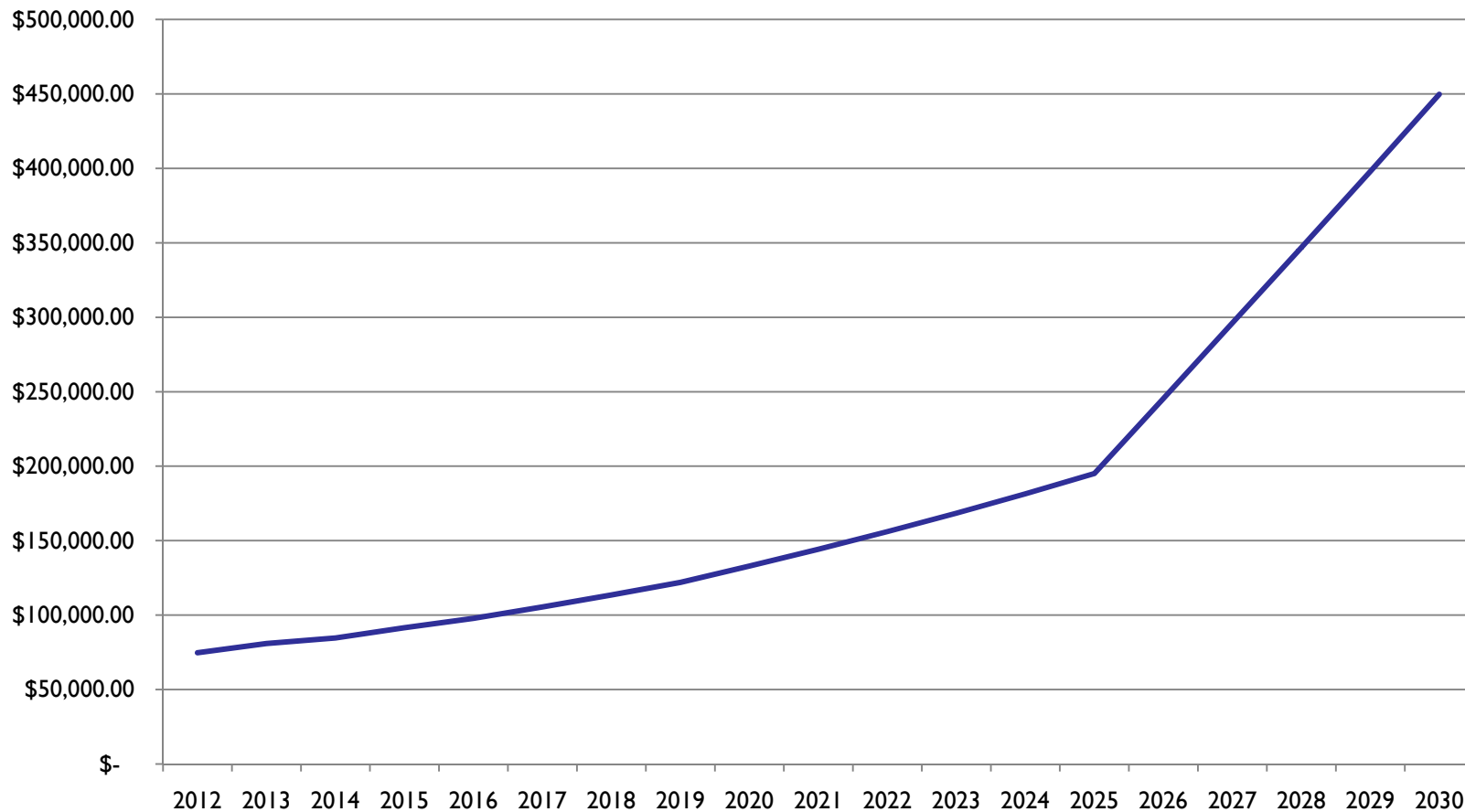
**Utility with 13,519 MWh sales (2008) and Iowa fuel mix needs  
11,100 allowances annually  
(each allowance=1 metric ton of CO<sub>2</sub>)**





# Iowa municipal example

Annual cost of allowances for 13,519 MWh sales (2008)





## Impact of 1% reduction in MWh sales

- If 2008 sales were reduced by 1% from 13,519 to 13,384 MWh,
- The “small” LDC allocation is reduced by \$2,350 over 18 years.
- The cost of allowances is reduced by \$34,848 over 18 years
- Net savings: \$32,498





# Costs of energy efficiency

- Energy Center of Wisconsin assessment
- Aggregated electric measures lifetime cost/savings (assuming utilities fund half the cost of the measure) = 1.2 cents/kWh, far below the cost per kWh of carbon allowances
- A savings of \$32,500 through a 1 % reduction in sales (135,000 kWh) = benefit of \$0.24/kWh (assuming an 18 year life of measure).





## Next steps

- Unlikely that Senate bill will become law this year
- IAMU in joint action with Iowa utilities to provide information to customers state-wide on the impacts of this legislation
- Energy efficiency efforts make sense and continue to be risk management for utilities.

