

# *Highlights of the Austin Energy Emissions Management Program*



Michael McCluskey

Senior Vice President, Wholesale & Retail Markets

Austin Energy

American Association of Energy Economists - Central Texas Chapter  
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# *Austin Energy at a Glance*



- Owned by the City of Austin, Texas
- Serves ~360,000 customers
- Serves 4% of total load in ERCOT
- Owns over 2,600 MW of generation
- Diverse generation mix: gas (60%), coal (21%), nuclear (15%), renewables (4%)

# *Commitment to Clean Energy*



- Moving towards 20% renewables by 2020
- No new generation from fossil-fueled plants
- 100 MW of solar by 2020
- 15% energy from efficiency measures
- #1 in renewable energy sales via GreenChoice<sup>®</sup>
- First & largest green building program

# *3 Part Emissions Control Strategy*



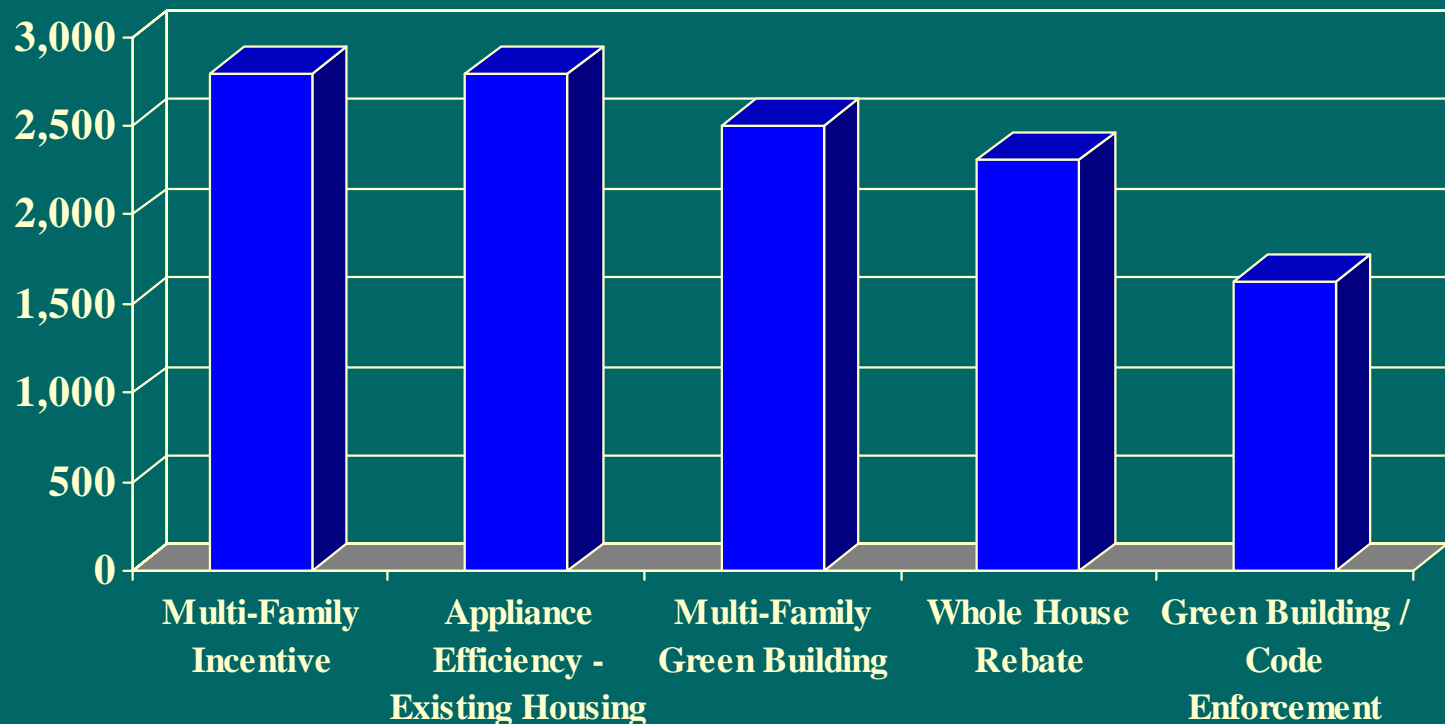
- Eliminate emissions at end-use
  - Energy efficiency programs / Conservation
- Reduce emissions at the source (plants)
  - Renewable supplies & emissions controls
- Raise revenue via excess allowance sales
  - Reinvest proceeds from credit sales to further reduce emissions

# *Residential Efficiency Programs*

- Appliance Efficiency Program – New Construction
- Appliance Efficiency Program – Existing Construction
- Whole House Rebate
- Home Energy Loan
- Free Weatherization
- Multi-Family Incentive
- Front Load – Clothes Washer (Rebates)
- Green Builder / Energy Star
- Green Builder / Code Enforcement
- Multi-Family Green Builder

# *Residential Emissions Reductions*

**Metric Tons (CO<sub>2</sub>) Reduced, 2001-2002**



# *Verifying Emissions Reductions*



- **Step 1:** Calculate energy savings
- **Step 2:** Convert to emissions reductions using EPA-provided emissions factors
- **Step 3:** Calculate technical confidence factors and determine “tradable” credits

# Reducing Source Emissions: Renewable Energy

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**296,000** tons of CO<sub>2</sub>



= planting **506,000** acres of forest  
in Austin's parks.

**57** tons of SO<sub>2</sub>



= removing **65,000** cars from  
Austin's busy roadways

**285** tons of NO<sub>x</sub>

**372** tons of CO



= providing electricity to **39,000**  
average homes in Austin for a  
year

# *Reducing Source Emissions: Control Technologies*



- Combustion modifications
  - Retrofits of low NO<sub>x</sub> burners
  - Water injection (reduces formation of NO<sub>x</sub>)
- Catalytic emission reduction systems
- Installation of SO<sub>2</sub> scrubbers
- Fayette coal plant flex permit
  - Requires installation of controls by certain date
  - Allows modification w/o new source review

# So2 Credit Sales

- Austin has historically banked allowances
  - Don't sell "*right to pollute*"
- Austin Energy's SO<sub>2</sub> allowances
  - More than 10,000 SO<sub>2</sub> allowances (current)
  - 15,000 future allowances per year based on plant modifications and upgrades
- Now ready to take advantage of SO<sub>2</sub> market

# *Phase I of the Acid Rain Program*



- Implemented in 1995 under Title IV of the Clean Air Act
- 445 generating units affected
- Goal of reducing annual SO<sub>2</sub> emissions by 10 million tons below 1980 level
- 1 SO<sub>2</sub> Allowance = 1 ton of SO<sub>2</sub> emissions

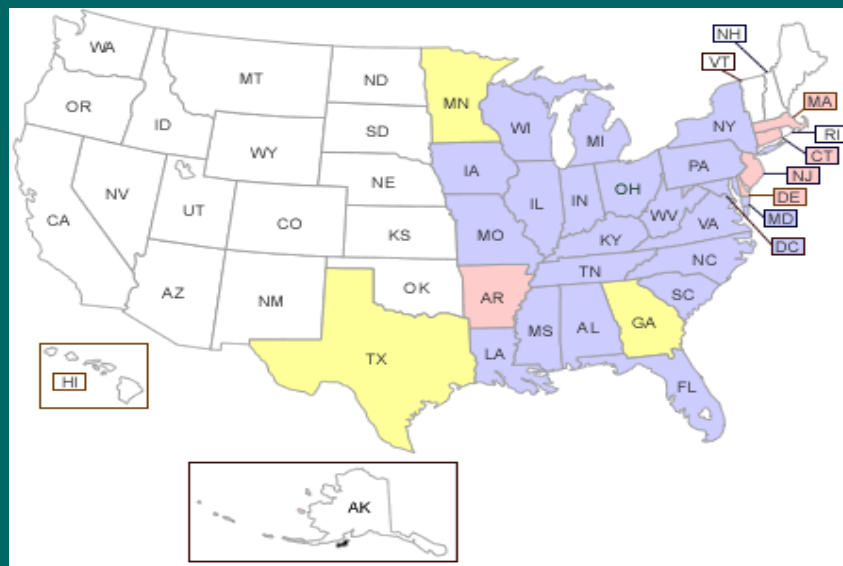
# *Phase II of the Acid Rain Program*



- Implemented in 2000
- Ceiling of 8.95 million credits/year for utilities
- Covers over 2,000 units
  - Existing units larger than 25 MW
  - All new units
- Existing plants allocated credits based on historic fuel use and specified emissions rate

# *Clean Air Interstate Rule*

- March 2005 - Covered 28 states including Texas
- Requires affected states to retire 2 credits for each ton emitted beginning in 2010 with the ratio moving to 2.87 to 1 in 2015



*Dec. 16, 2004*

*City Council Resolution*

“In keeping with the utility’s long-recognized leadership role as an environmental steward, Austin Energy shall have the authority to manage the trade of emission credits and the resulting revenue to provide

(A.) As a first priority, conservation, renewable and innovative distributed generation projects that reduce emissions from power generation.

(B.) Investments in technologies that further reduce emissions from fossil fueled power generating facilities.”

# *Austin Energy's Allowances*



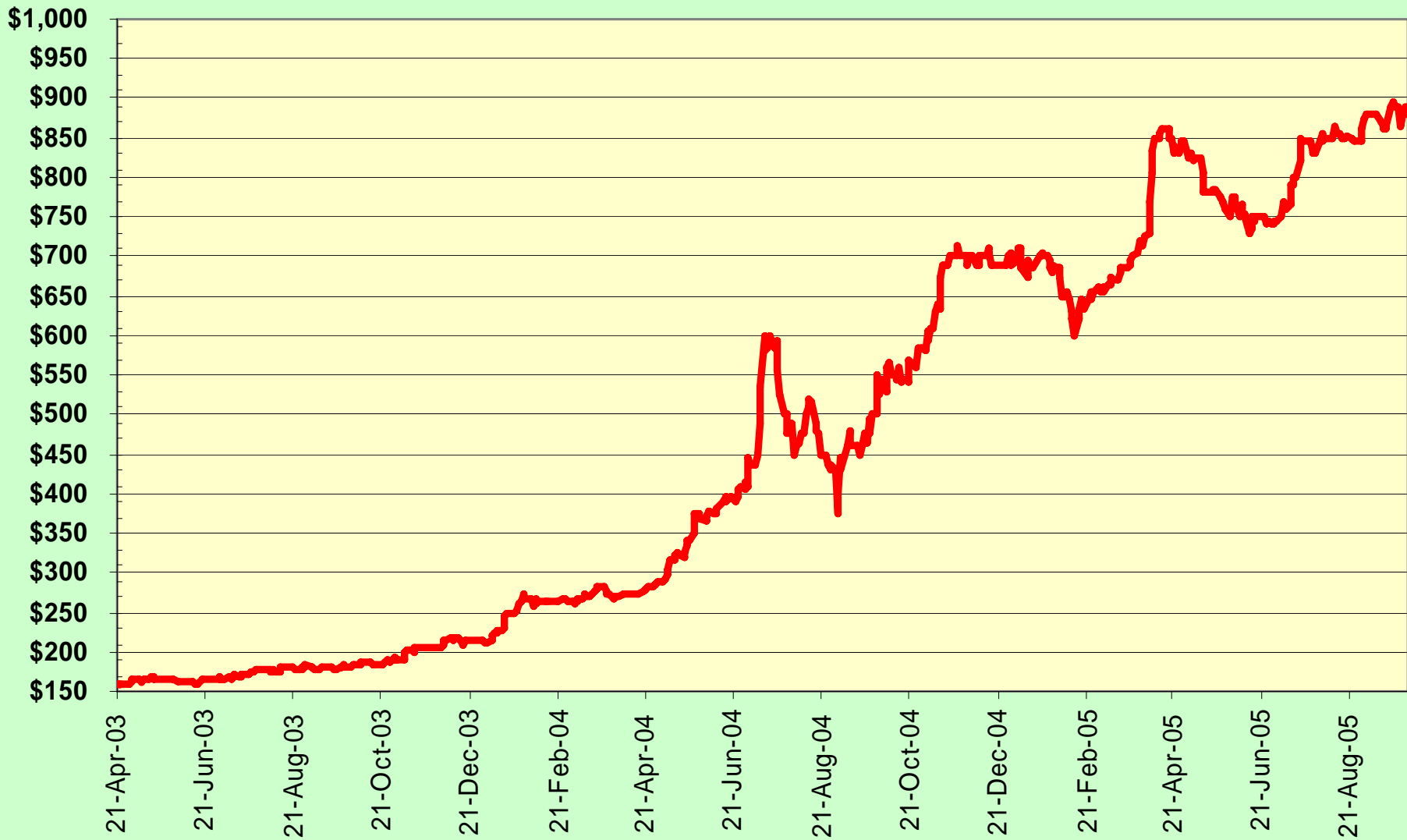
- Austin Energy currently has some 10,000 excess SO<sub>2</sub> allowances
- Will receive 3,000 excess SO<sub>2</sub> credits per year prior to scrubber installation at FPP
- 15,000 excess SO<sub>2</sub> allowances per year after scrubber installation at FPP

# *Strategies*



- Maximize cash now
  - Sell excess allowances at market value
- Generate future revenue stream and larger overall return
  - Swap current excess credits for future credits and cash
  - Sell call options against excess credits at a strike above current market value

### Spot SO2 Allowance (Bid)

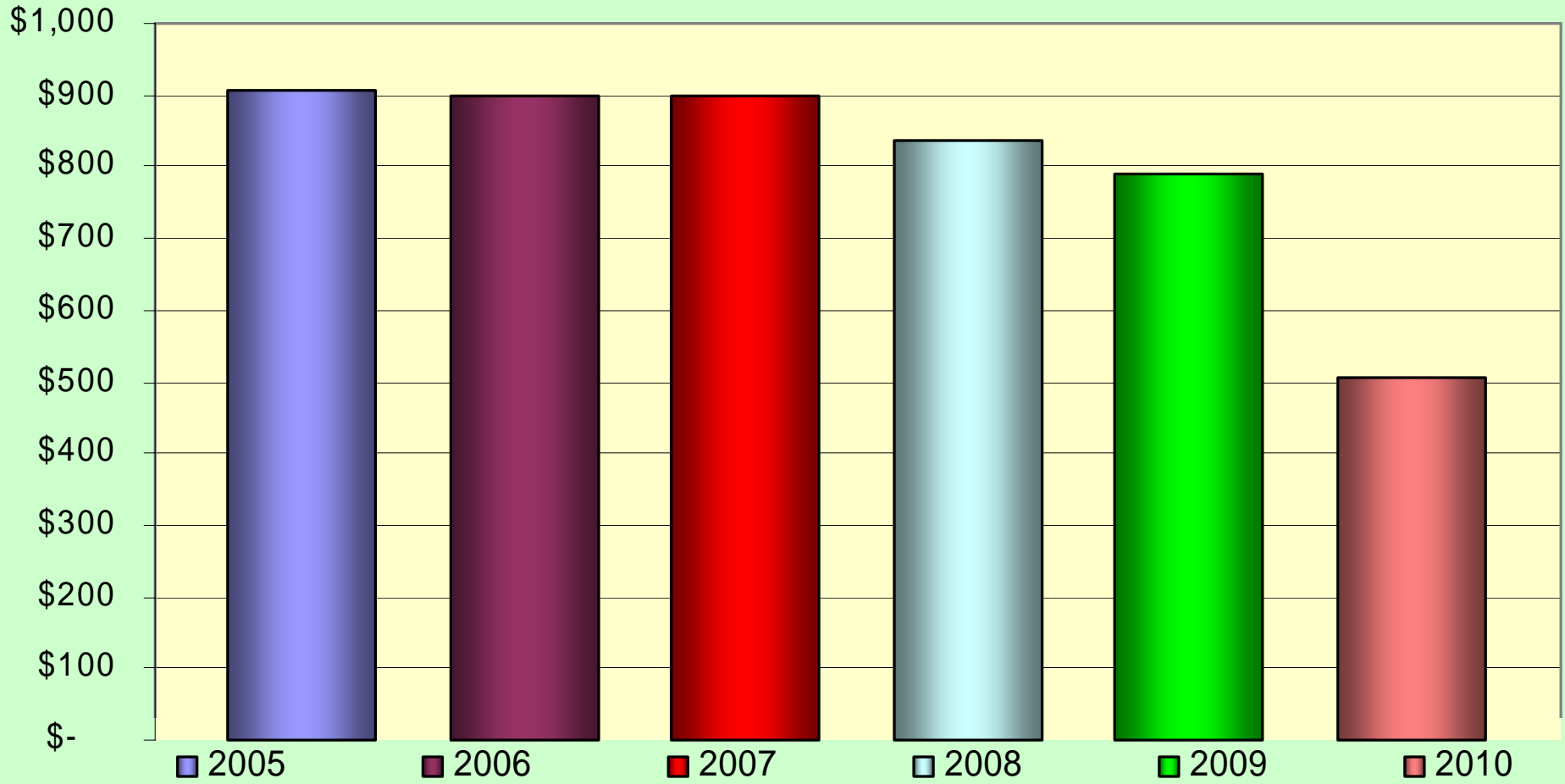


# *Sell Excess Allowances*



- 10,000 @ \$905 = \$9,050,000 Total Revenue
- Allows Seller to monetize asset at prevailing market price
- Takes Seller out of the market eliminating future market risk
- Seller will not benefit from rising market prices

## SO2 Allowance Prices by Vintage Year



# *Swap and Monetize Spot Allowances*

- Sell 10,000 spot credits @ \$905 = \$9,050,000
- Buy 10,000 2009 credits @ \$790 = \$7,900,000
- Net payment to Seller = \$1,150,000
- Seller receives \$1,150,000 and 10,000 year 2009 credits in exchange for 10,000 excess spot credits

# *Collect Premium for Selling Call Options*

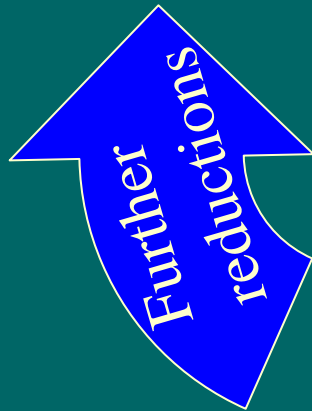
- Sell call option on 10,000 spot credits
  - \$1,000 strike price
  - 180 day option period
  - \$615,000 premium paid to Seller
- Option struck
  - Seller receives \$10,000,000 for credits
  - Total Revenue = \$10,615,000.
- Option expires, Sell another 6 month option
  - Annual premium revenue = \$1,230,000

## *Summary*

- 3 Part Emissions Control Strategy
  - Eliminate emissions at end-use
  - Reduce emissions at the source (plants)
  - Raise revenue via excess allowance sales

# Trading Program Strategy

**(1) Reduce emissions**



**(2) Sell excess allowances**



**(3) Reinvest proceeds**





*End*

*Thank You*

Presentation available at [austinenergy.com](http://austinenergy.com)