

RE Price Stability Benefits in Utility Green Power Programs

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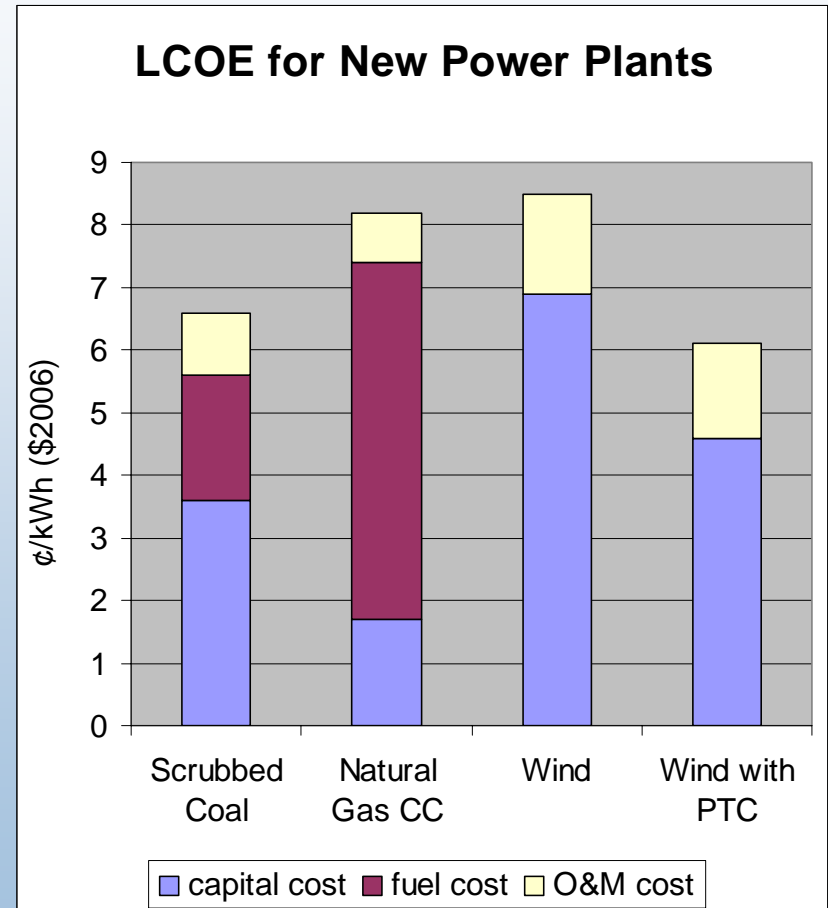
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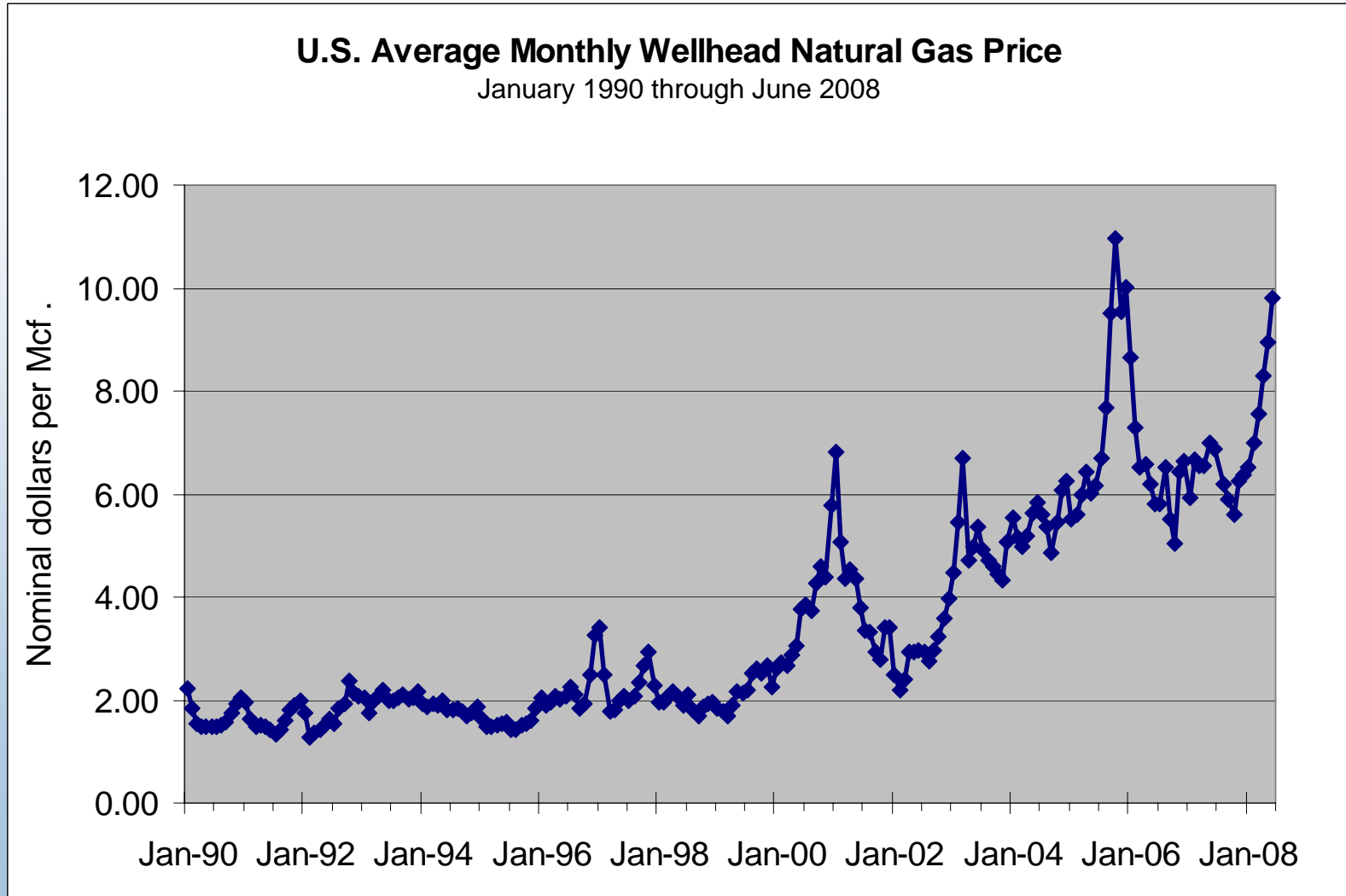
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Why Offer Green Power Customers Fuel Price Stability Benefits?

- Most renewables only have up-front, fixed costs over time (i.e. no fuel costs)
- Cost-based green power premiums should account for the difference between fuel-dependent energy and fixed-price energy
- Customers value the “hedge” provided by price stability
 - It could influence their decision to buy green power
 - Particularly important for non-residential customers



Natural Gas Price Volatility



Pricing Green Power

1. Cost of green power source
 - Electricity and RECs
 - Either owned by utility or purchased with PPA
2. Program implementation costs
 - Administration and marketing
3. Ancillary services cost
4. Cost of displaced utility generation resources
 - Embedded costs from all other generation (fuel, PPAs)
 - Utility avoided cost

$$\text{Green Power Premium} = (1) + (2) + (3) - (4)$$

Methods of Offering Price Stability

1. Static Premium Modification

- One-time premium change

2. Dynamic Premium Modification

- Regular premium adjustments:

i. Fuel cost adjustment exemption

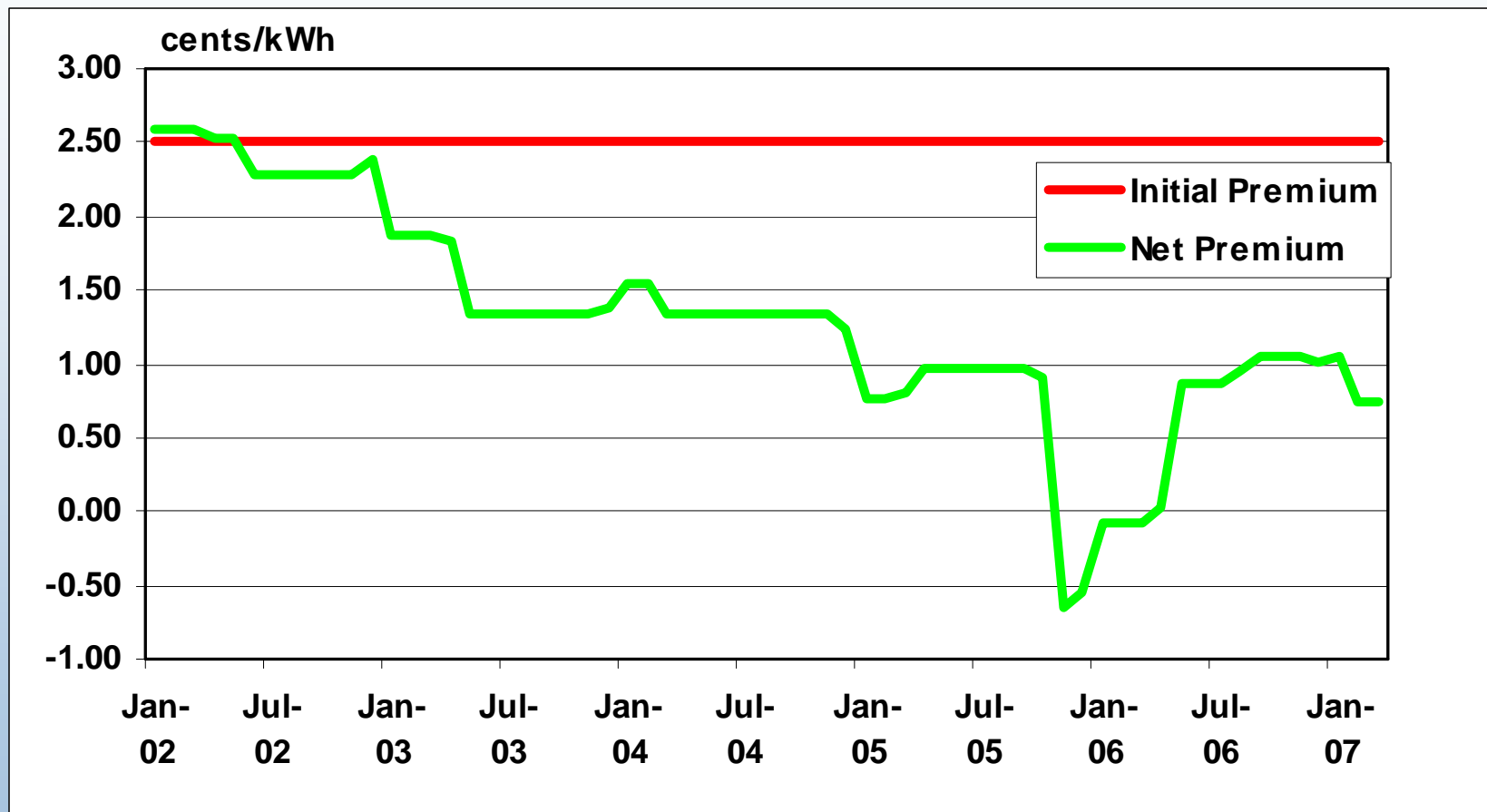
- Short-term collection mechanism used between rate cases that eventually gets included in the base rate
- Xcel Energy example

ii. Fixed Green Rate

- Replace energy charge with green generation rate
- Austin Energy example

Utilities can employ both static and dynamic mechanisms

Effective Price Premium of Xcel Energy's Colorado Windsource Program

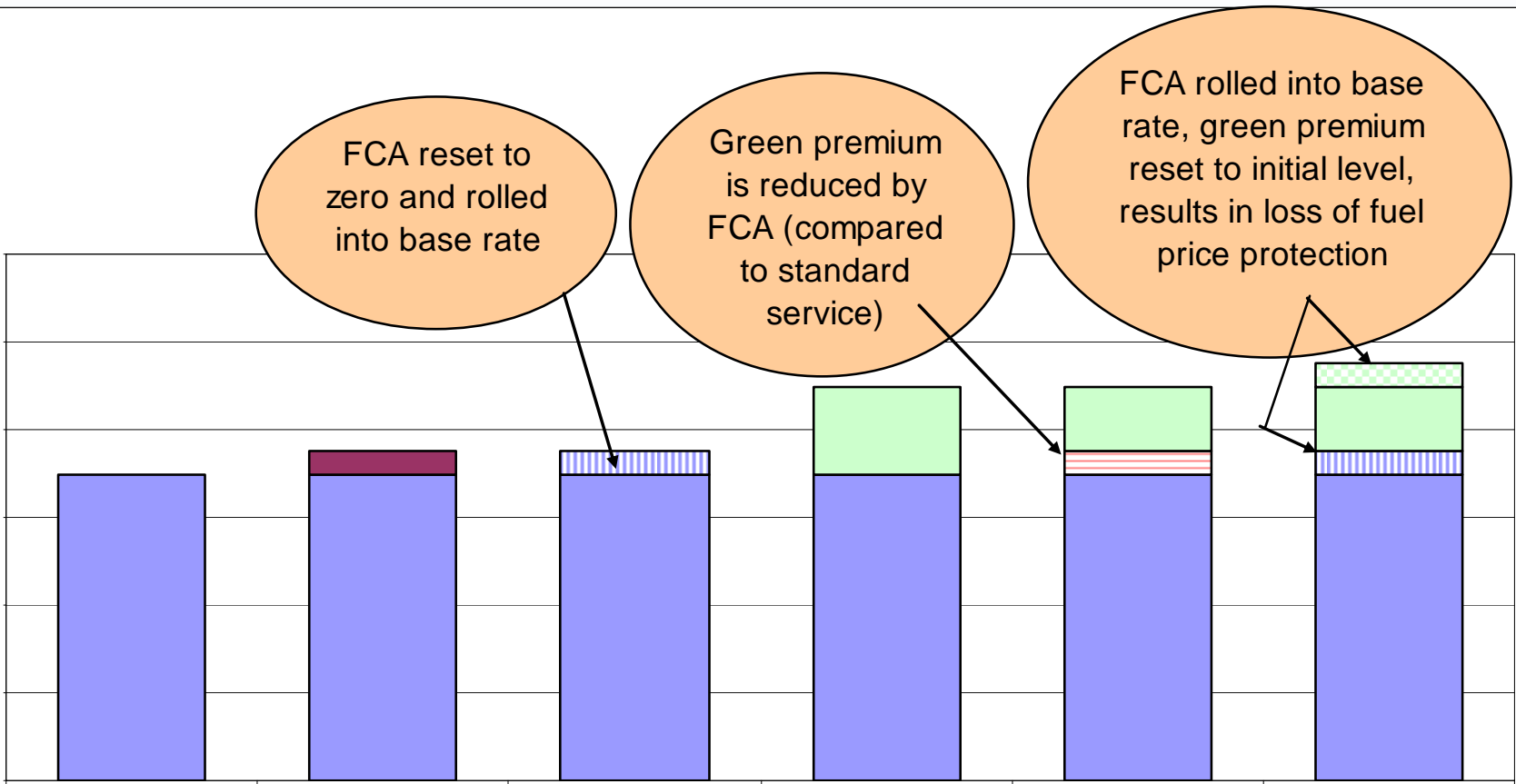


Note: Xcel included a fuel cost adjustment exemption through Jan 2007

Source: Xcel

Impact of Fuel Cost Adjustments on Base Rates

Theoretical electricity rate (c/kWh)



FCA reset to zero and rolled into base rate

Green premium is reduced by FCA (compared to standard service)

FCA rolled into base rate, green premium reset to initial level, results in loss of fuel price protection

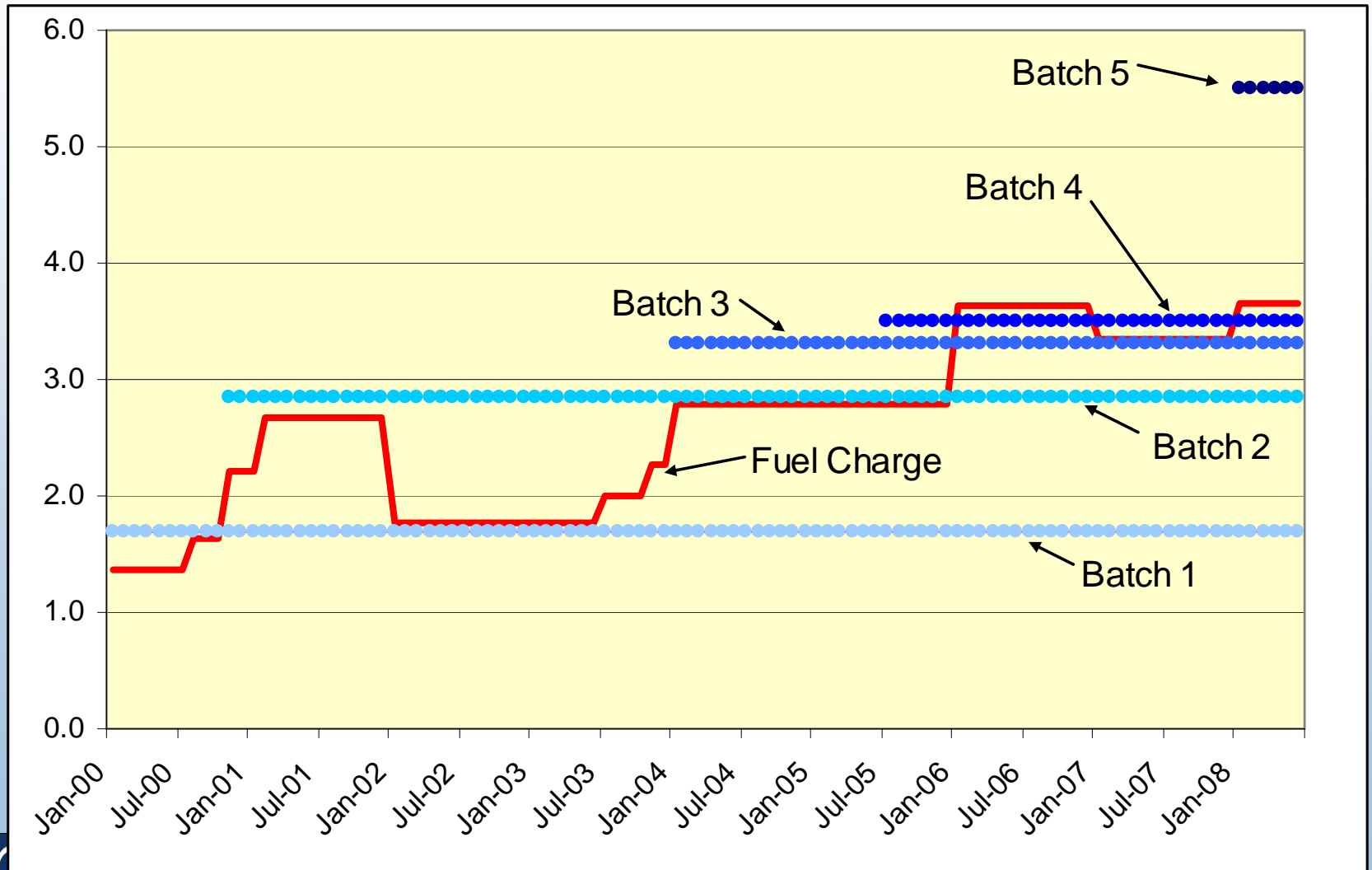
Typical customer - base rate Typical customer - with fuel cost adjustment (FCA) Typical customer - new rate (after rate case incorporates FCA into base rate) Green power (GP) customer GP customer exempt from FCA GP exempt from FCA - revised rate (after rate case)

■ Base rate ▨ Base rate increase ■ Fuel cost adjustment
▨ FCA exemption ■ Green premium ▨ Green premium overpayment

Austin Energy's *GreenChoice* Program: Fixed Green Rate

- Customers pay green charge rather than fuel charge
 - *GreenChoice* customers are exempt from paying the fuel charge
 - Green charge is fixed and is determined by renewable PPAs, ancillary services and program implementation
 - *GreenChoice* customers pay all other base rate cost
 - Requires unbundled rate structure with separate energy rate or fuel charges (not common in regulated utility markets)
- Austin offers a 10- to 20-year fixed price for green power
 - Price depends on associated supply contracts for each “batch”
 - Large customers are required to sign up for 15 years
 - Originally was 10 years.
- Non-residential customer demand is high
 - Leading program in terms of overall sales since 2001
 - ~13% of all green pricing sales nationally in 2007

Effective Premium for Austin's GreenChoice Program



Select Utilities Offering Green Power Premium Adjustments

Adjustment type	Utilities
Static	Madison Gas & Electric, Tri-State Electric Cooperative, Wisconsin Public Power, Alabama Power, Puget Sound Energy, Loveland Water and Power, Mason County PUD #3, Minnkota Power Cooperative, Otter Tail Power, TECO, WE Energies, Wisconsin Public Service, Basin Electric Power Cooperative, Lower Valley Energy, Avista Utilities, Fort Collins Utilities, Portland General Electric, and Pacificorp
Dynamic – exempt from FCA	Alliant Energy (WI), Edmond Electric, Madison Gas & Electric, WE Energies and Xcel Energy (MN).
Dynamic – fixed green rates	Austin Energy, and Clallum County PUD; <u>previously</u> : Eugene Water and Electric Board.

Summary and Observations

- Price stability is an important value for customers
 - Could increase demand for green power
 - Most effective if a dynamic green power price adjustment used
- Fuel cost adjustment benefits may be temporary
 - If base rate for all customers absorbs the fuel cost adjustment and
 - Green power premium is not adjusted during rate case
- Utilities with a separate energy or fuel charge can substitute a fixed-rate product or “green rate”
- Most utilities can offer fixed-price benefits to customers:
➔ **Revisit the green power price premium frequently**

Green Power Fuel Price Stability

Benefits: Program Design Challenges

- What if customers drop the green power product when conventional fuel costs decline?
- Risk allocation if customers do not sign up to participate for the length of the supply contracts
 - Austin requires C&I customers to sign up for 15 years
- Concerns if green power rate falls below the base rate
 - Problematic to offer lower rate to only some customers?
- Utility billing can pose challenges
 - Technical challenges with updating system software
 - Substitution of green rate for energy of fuel charges, if bundled rate
- Possible, but challenging, to structure with REC contracts
- Adjustments should be considered for environmental, carbon and RPS policy costs

Full report:

<http://apps3.eere.energy.gov/greenpower/resources/pdfs/43532.pdf>

Thank you for your attention!

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