DR 101:
Introduction to Dynamic Rates

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September 9th, 2002

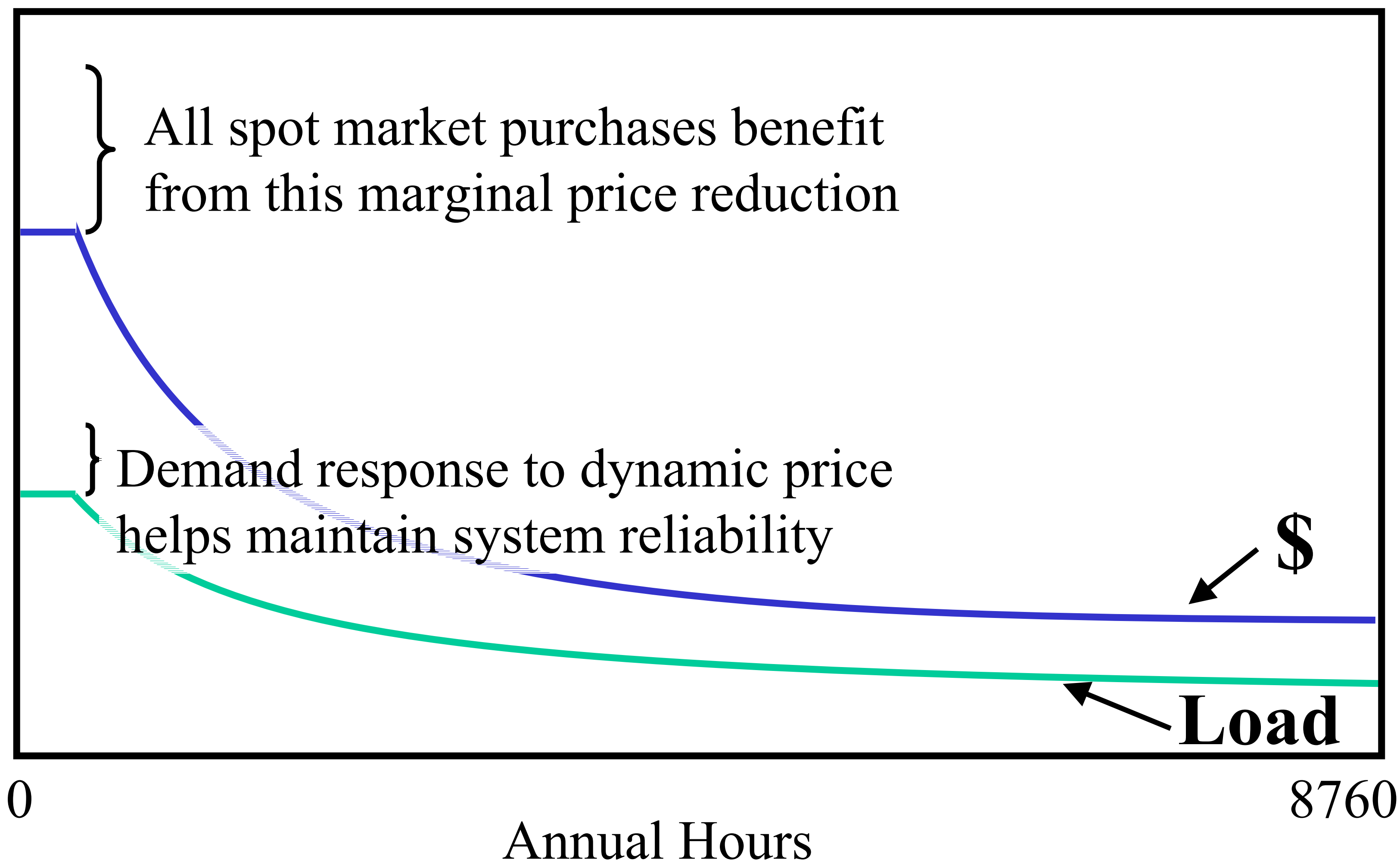
Common Misunderstandings

- FALSE: Dynamic Pricing = RTP
  - RTP is one type of dynamic pricing, but there are many others
- FALSE: RTP = Hourly spot market prices
  - There are many possible variations of RTP
- FALSE: Let's force RTP on small customers!
  - All customers should be able to choose from a portfolio of rates that includes dynamic rates

What is Dynamic Pricing?

- Retail electricity rate characterized by one or more “dispatchable” prices intended to modify demand
- Requires
  - a method of receiving the dispatched signal/price
  - an interval meter for accurate billing

Why is Dynamic Pricing used?



Compared to Direct Load Control

- Customers have more control
  - Can contribute with any electrical end-use
  - Choose their own level of response
- Distribution of incentives is more equitable
  - Compared to fixed incentive programs, encourages larger customer participation
  - Savings are measured, not estimated

Compared to “Pay for Performance”

- Dynamic rates allow demand response rewards without calculation of historical energy use baseline (which is problematic)
- PFP historical energy use “baseline” is not the same as a two-part tariff “baseline”
  - Two-part tariff baselines are take-or-pay contracts
  - Under PFP baselines customer has no liability
- Less efficient customers are rewarded more

Other Benefits

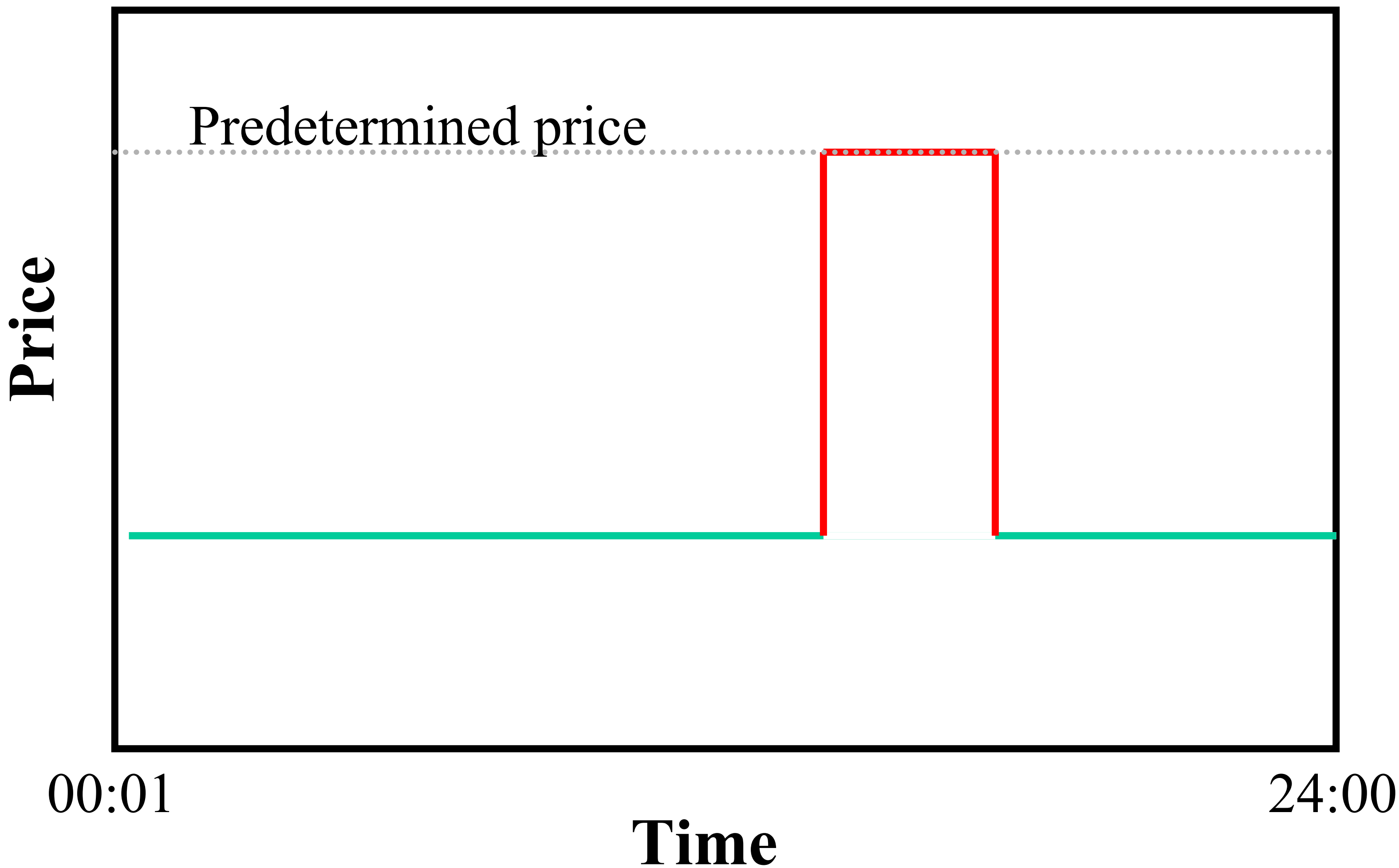
- Incentives, penalties and rate are integrated
  - Psychological link between action and reward
  - Simplicity: "Pay for cost" vs. "Pay the price, but we'll pay you if you promise to occasionally not use what you usually use, but then if you do use when you said you wouldn't use you pay us"
- Load management programs can be integrated
  - Efficiency, conservation and demand response offered as methods of reducing customer bills

DR 101a:
Dynamic Rate Design

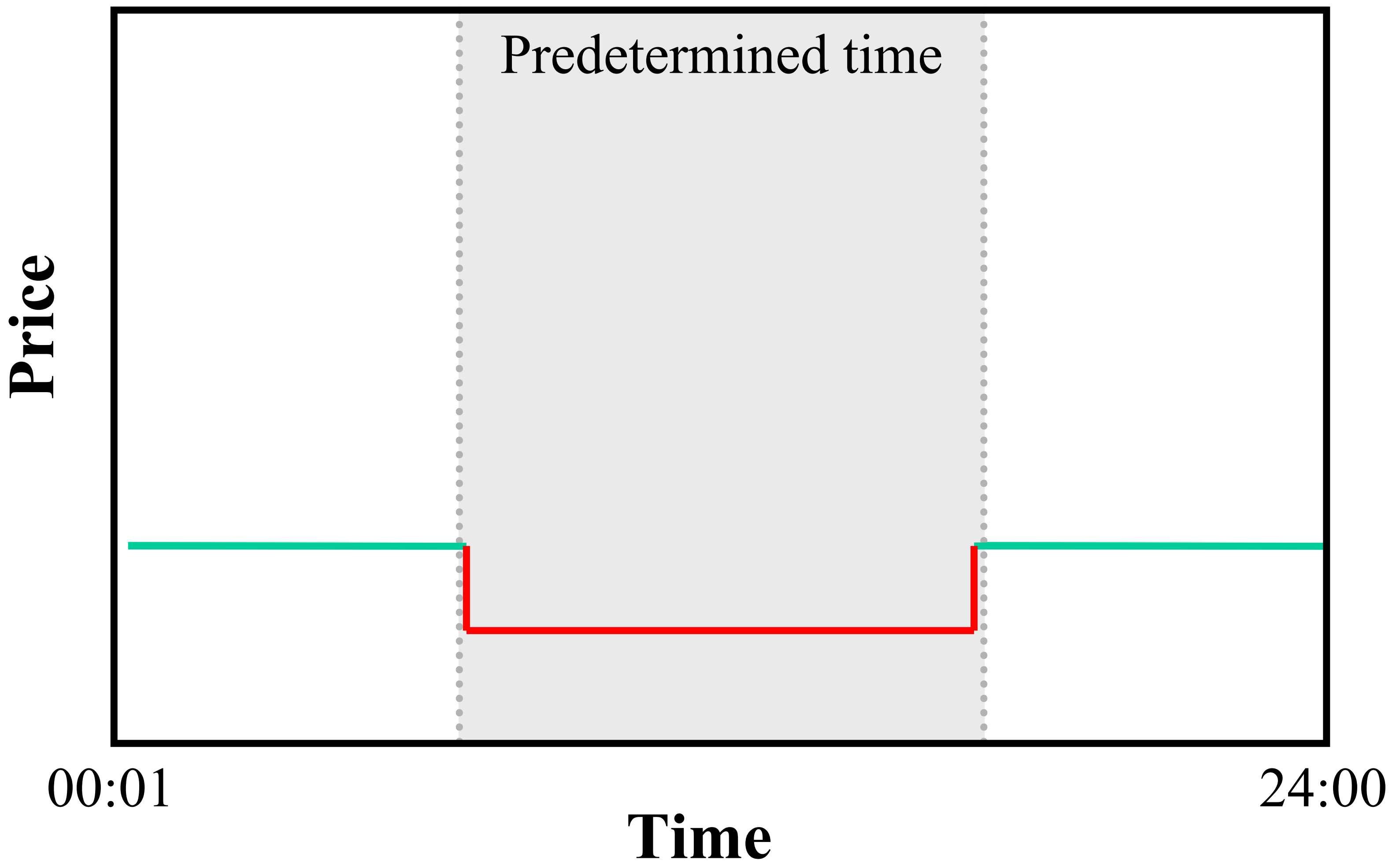
Static vs. Dynamic Pricing

- Static pricing (e.g. flat, TOU)
  - Specific times and prices are given in the tariff
  - May include a demand charge or block rates
- Dynamic pricing (e.g. CPP, RTP)
  - For some or all annual hours, the price and/or the time of dispatch are not specified in the tariff
  - Dispatch time and/or dispatched price based on instantaneous system conditions

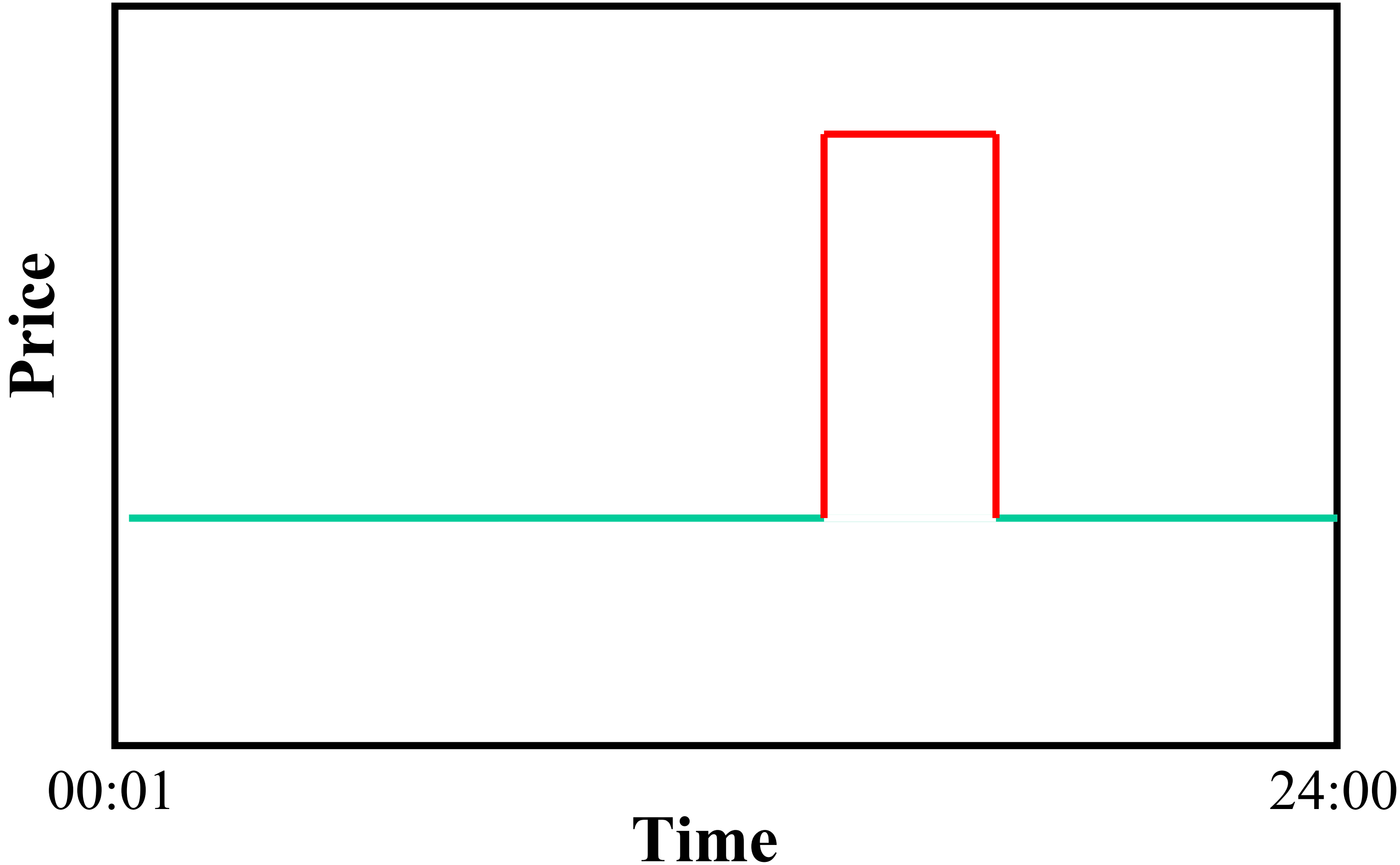
Price specified, Time not
(Critical Peak Pricing or CPP)



Time specified, Price not
(Real-Time Pricing or RTP)



Time and Price not specified
(Critical Real-Time Pricing?)



Dispatchable Prices

- What Price to Dispatch?
  - Rate-case predetermination (CPP)
  - Instantaneous price determination (RTP)

- When to Dispatch?
  - Specified criteria (CPP)
  - Specified times (RTP)

DR 101b:
Economics of Dynamic Pricing

Economic Analysis of Residential Rates

(For Xcel Energy by Charles River Associates)