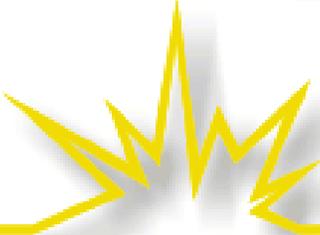


# Performance Based Regulation

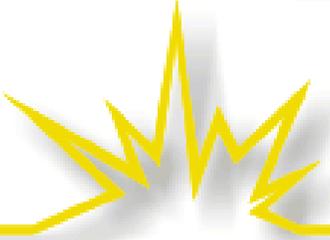


## *The Regulatory Assistance Project*

*50 State Street, Suite 3  
Montpelier, Vermont USA 05602  
Tel: 802.223.8199  
Fax: 802.223.8172*

*Website:  
<http://www.raonline.org>*

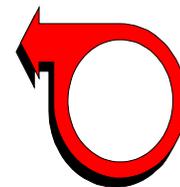
*177 Water Street  
Gardiner, ME 04345-2149  
Phone (207) 582-1135  
Fax (207) 582-1176*

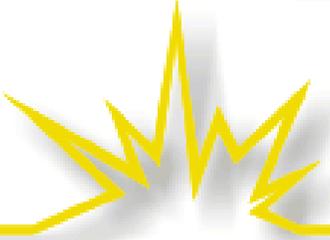


# Incentive Regulation

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- All regulation is incentive regulation
- Trick is to understand what incentives your chosen form of regulation is providing

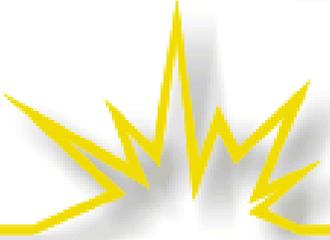




# COS vs. PBR

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- Whether COS, ROR, PBR, the power is in
  - Marginal impact of performance on profits
  - Time between rate cases, i.e. regulatory lag
- PBR is not necessarily more powerful than COS



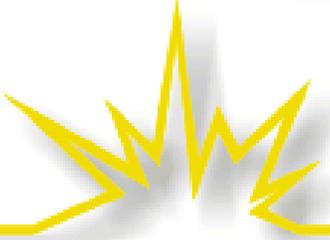
# Fuel Clauses

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➤ Fuel clauses:

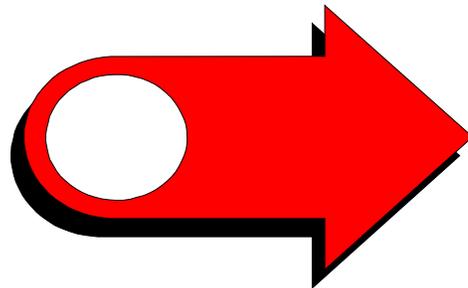
- ⊕ Removes incentive for generating efficiency
- ⊕ Removes incentive for reduction of line losses
- ⊕ Skews tradeoff between capital and operating cost
- ⊕ Reduces incentive for diverse fuel mix

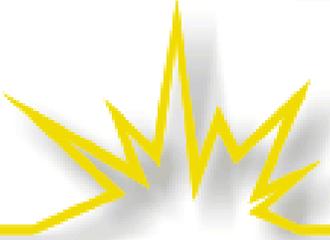


# What is PBR?

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- Not a completely new concept
  - Fuel efficiency incentives
  - Decoupling
  - Rate case stay-outs and rate freezes
  - Rate plans associated with generation phase-ins

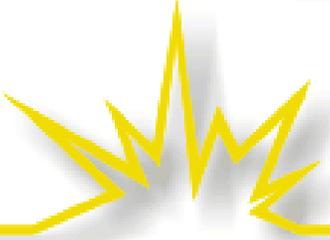




# Why PBR?

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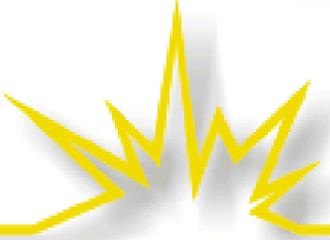
- Dis-satisfaction with COS/ROR
- Stifles utility innovation
  - Risk but no reward
  - Efficiency measurement
  - Responsive to regulators but not customers
- Risk allocation



# Why PBR?

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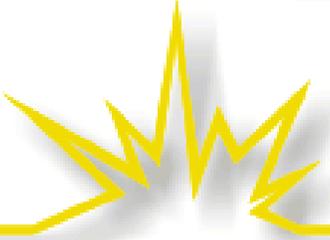
- Dissatisfaction with traditional regulatory tools
  - Management audits
  - Prudence reviews
  - Used and useful
- Transition or alternative to competition



# Aim of PBR

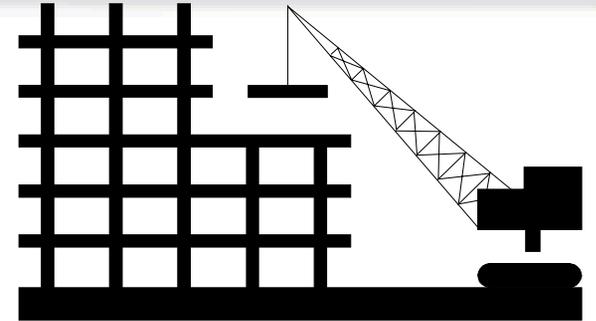
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- Stronger incentives for cost containment
- Improved incentives for
  - Innovation
  - Market flexibility
- Sharing of benefits



# Building a PBR

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## 1. Define goals

What do we want to

encourage and discourage?

How do we want to allocate risks?

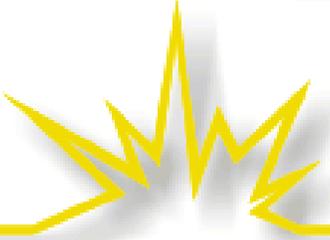
What types of protective measures  
do we want?

## 2. Develop structure of PBR

Structure implements goals

## 3. Get the numbers right

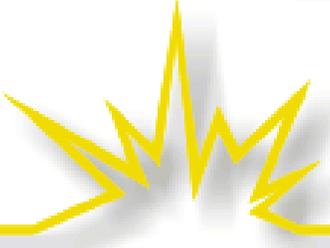
Makes it fair and sustainable



# Other PBR Considerations

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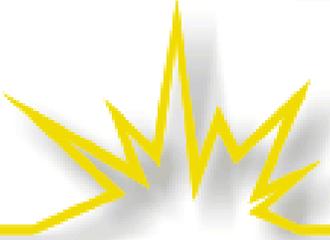
- Time period
- Initial prices
- Individual services or baskets
- Collar for ROE
- Side conditions



# Why Generation PBR?

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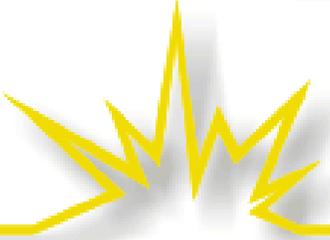
- Regulation will be needed during any transition
- Mitigation of existing cost structure
- Vesting contracts are likely
- Stranded cost risk reduction



# Transmission

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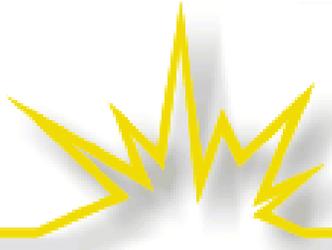
- Transmission PBR should include
  - Incentives to price efficiently
  - Incentives to reduce costs
  - Incentives to trade congestion against capital additions



# Distribution

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- Where the utility touches the customer
- Imposition of unavoidable charges



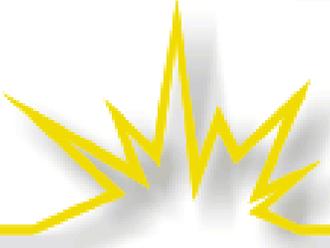
# Options and Key Elements

## ➤ Structural Options

- Price Cap
- Revenue Cap
- Hybrid
- Scope
- Duration

## ➤ Common Elements

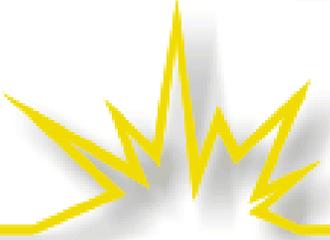
- Sharing and Deadbands
- Indexing or Yardstick
- X factors
- Z factors



# Price or Revenue?

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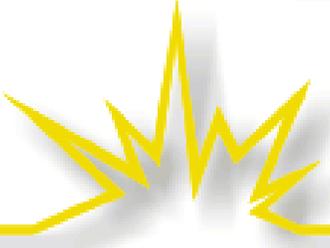
- Cost cutting incentives are the same
- Revenue caps make most sense if costs do not vary with volume
- Price caps make most sense if costs vary with volume
- Primary difference is incentive for DSM



# Price or Revenue?

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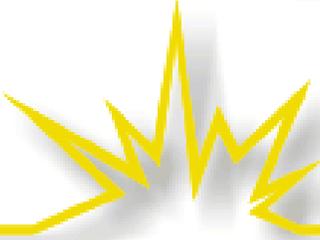
- Makes a difference if it's G, T, or D
- What drives cost
- What incentives are produced
- Prioritize incentives - achieving perfection is impossible
- Avoid creating incentives for undesirable actions that are difficult to detect



# Benchmark Regulation

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- Must be external to yield good incentives
- Tradeoff between simplicity and correct cost drivers
  - Wrong index can create windfalls
- Index - CPI, GNP, PPI
- Yardstick - Peer group



# Level of rates vs. rate of change

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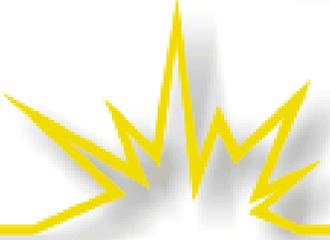
## ➤ Level

- Based on historical decisions, compare to average, national or regional levels and expect cost cutting/"mitigation" to bring toward average

## ➤ Rate of Change

- Reward company for improvements in unit cost index relative to peer group

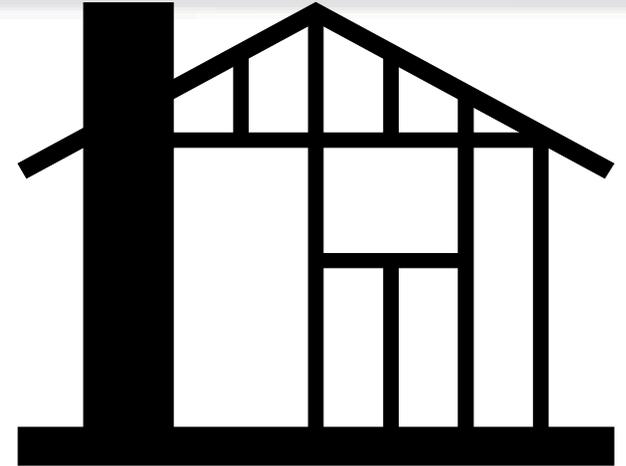
## ➤ Incentive = % unit cost index of peer - change units cost of utility

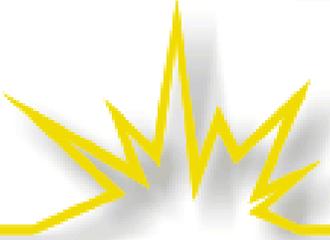


# Structural Issues

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- Scope
  - Broad-based
    - Bills vs. Rates
  - Targeted
    - Fuel and plant operation risk
- Duration





# Price Cap Index

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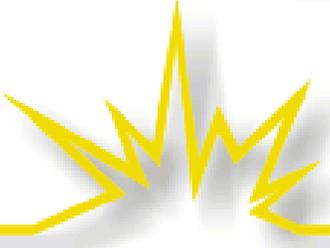
- Basic formula for price cap index  
$$\% \text{ change in PCI} = P_t - X_t + Z_t$$

$P_t$  = external inflation measure

$X_t$  = expected trend in total factor  
productivity

$Z_t$  = exogenous events

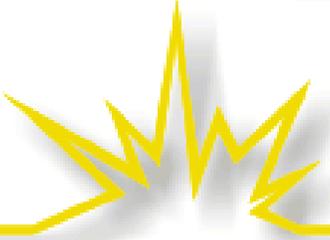
- The longer the lag the more the need for an index
- Must be external to yield good incentives
- Tradeoff between simplicity and correct cost drivers
  - Wrong index can create windfalls
- Index - CPI, GNP, PPI
- Yardstick - Peer group



# X - Factors

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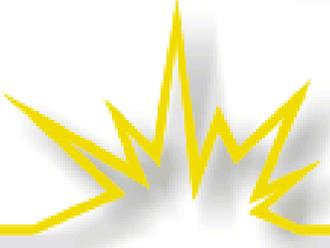
- Tied to index
  - Informed by historical data
- Can be positive or negative
  - Many initial X-factors in the UK were negative



# Z - Factors

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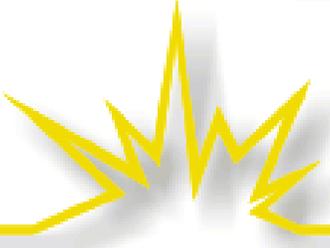
- Items outside management control
- Limited to big \$ items
- Most important factor is what risk do you want utility to bear e.g. risk of weather, future environmental cost, etc.



# Sharing and Deadbands

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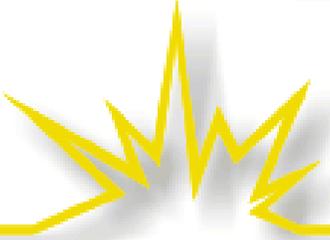
- One or two way
- Symmetrical or not
- Tradeoff - dulling of incentives for safety net



# Service Quality

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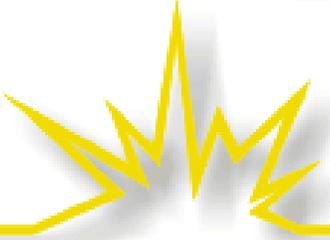
- Cap could provide incentive to reduce service quality
- May wish to add incentive/penalty provisions
  - Outage hours
  - Customer service
  - Safety
  - UK approach



# Customer Protection

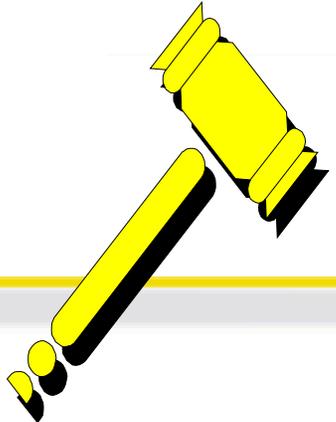
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- Separate baskets
- Caps for particular segments



# Conclusions

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- Generation PBR - where PBR may do the most good
- The power of PBR may be stronger or weaker than COS
- Uncertainty undermines any PBR
- Decide and articulate goals
- Indexes must be external