OVERVIEW OF PERFORMANCE-BASED REGULATION

BEFORE THE NEVADA PUBLIC UTILITIES COMMISSION

Mike O'Boyle
Director of Electricity Policy

September 26, 2019

ENERGY INNOVATION
POLICY & TECHNOLOGY LLC

1. WHY

2. HOW

3. EXAMPLES

THE POWER SECTOR HAS EVOLVED

Old Goals:

- Meet growing demand
- *Build* new infrastructure
- *Build* to deliver universal service
- Affordability, Reliability, Safety

Old Options:

- Centralized power plants
- Transmission lines
- Distribution system

THE POWER SECTOR HAS EVOLVED

Old Goals:

- Meet growing demand
- *Build* new infrastructure
- *Build* to deliver universal service
- Affordability, Reliability, Safety

Old Options:

- Centralized power plants
- Transmission lines
- Distribution system

New Goals:

- Build → *Maintain*
- Reliability → *Resilience*
- *Clean* power
- *Customer* satisfaction & choice
- Affordability, Safety

New Options:

- All the old stuff, plus:
- Innovative distributed energy resources (EE, DR, PV, EVs, etc.)
- Advanced IT & rate designs

THIS CREATES TWO NEW ISSUES

1. Increasing options for power system optimization leads to greater information asymmetry between utility and regulator

2. New goals for the power system mean regulators must reexamine existing incentives to build more capital and maintain existing investments

REGULATION CAN EVOLVE TOO

Old Methods:

- Line-by-line investment review
- Capital investment and sales growth drive shareholder value
- Infrequent rate cases
- Operational expenses largely a pass-through not subject to review

New Methods:

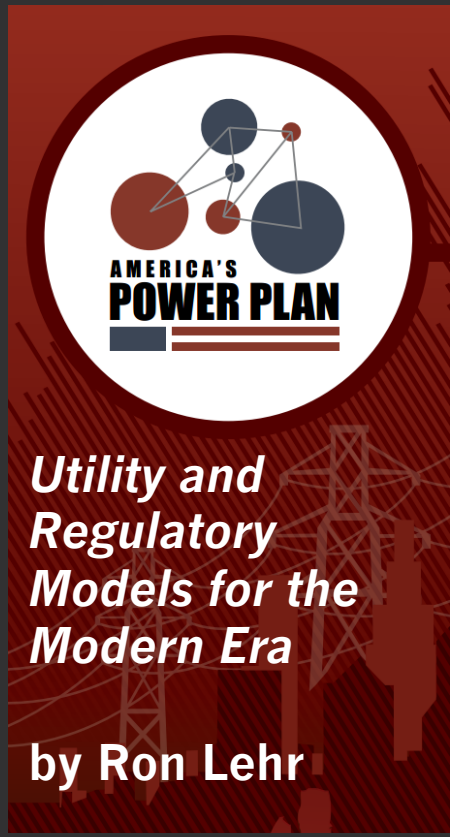
- Focus on outcomes to help sort through complexity
- Create incentives to optimize the system including customer-side resources, third-party providers
- Multi-year rate plans with capital efficiency incentives
- Meet customer demands for clean energy, lower bills, enhanced reliability & resilience

PERFORMANCE-BASED REGULATION

Changes the central question…

From: "Did we pay the right amount for what we got?"

To: "**Are we paying (the right amount) for what we want?**"



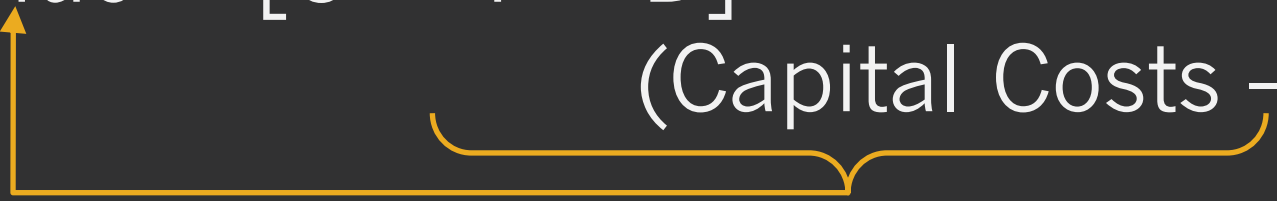
1. WHY

2. HOW

3. EXAMPLES

COST OF SERVICE REGULATION, SIMPLIFIED

Revenue = [O + T + D] + (Capital Costs – D) * ROR



Revenue and value increases…

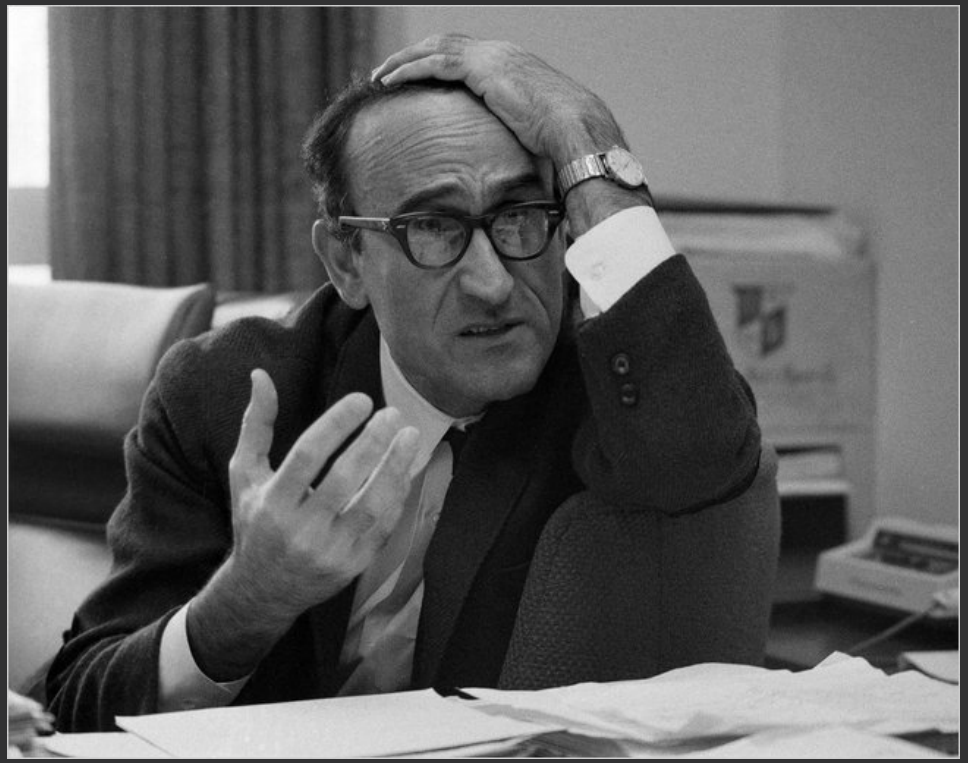
…As utility investment increases

ELEMENTS OF COST OF SERVICE EQUATION

Greatest opportunity for affecting overall shareholder value creation

Revenue = [pass-throughs] +
(Capital Expenditures) * ROR

HERE COMES SOME FINANCE….



Alfred Kahn

THE SHAREHOLDER VALUE ENGINE (1)

$$Stock\ Price = BV + \frac{(r-k)BV}{k-g}$$

Neither the absolute level of a company's revenue, nor its rate of return, directly drive shareholder value.

It's all about the difference between the ROR and the underlying cost of capital.

This difference creates the value opportunity that drives stock price.

This is the residual income model, a form of the standard discounted cash-flow model.
From Stephen Penman, *Accounting for Value*, Columbia Business School Press (2010).

THE SHAREHOLDER VALUE ENGINE (2)

$$Stock\ Price = BV + \frac{(r-k)BV}{k-g}$$

The provision of incentives and the wherewithal for dynamic improvement in efficiency and innovations in service may require allowing returns to exceed [the cost of equity]...The rate of return must fulfill an institutional function: it somehow must provide the incentives to private management that competition and profit-maximization are supposed to provide in the nonregulated private economy."

Alfred Kahn, 1970

SHAREHOLDER VALUE SHOULD BE TIED TO PERFORMANCE

Merely permitting all regulated companies as a matter of course to earn rates of return in excess of the cost of capital does not supply the answer;

There has to be some means of seeing to it that those supernormal returns are earned,

Some means, for example, of identifying the companies that have been unusually enterprising or efficient and offering higher profits to them while denying them to others.

Alfred Kahn, again!

INCENTIVE-BASED REGULATION, VERSION 1

Closer to the cost of capital

Revenue = [Pass-throughs] +
(Capital Costs) * ROR
± Performance

Revenue increases…

…As utility ~~investment increases~~ performance improves

INCENTIVE-BASED REGULATION, VERSION 2

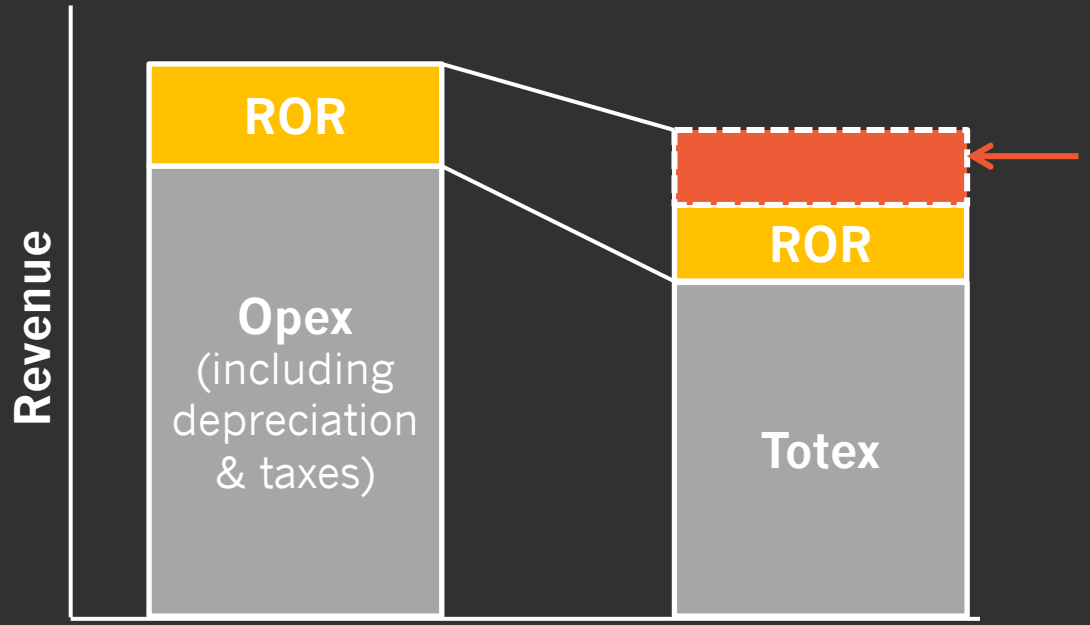
Revenue = [Revenue Cap] + K ± Performance

Revenue increases…

…As utility ~~investment increases~~ performance improves

But there are risks . . . More counterfactuals means more forecast error

MOVING FROM COST OF SERVICE TO PERFORMANCE-BASED REGULATION



*Overall costs may actually decrease; but potential returns to shareholders should grow commensurate with the additional risk shifted to utilities

Traditional Model
(r>k); value derived from all investment activities

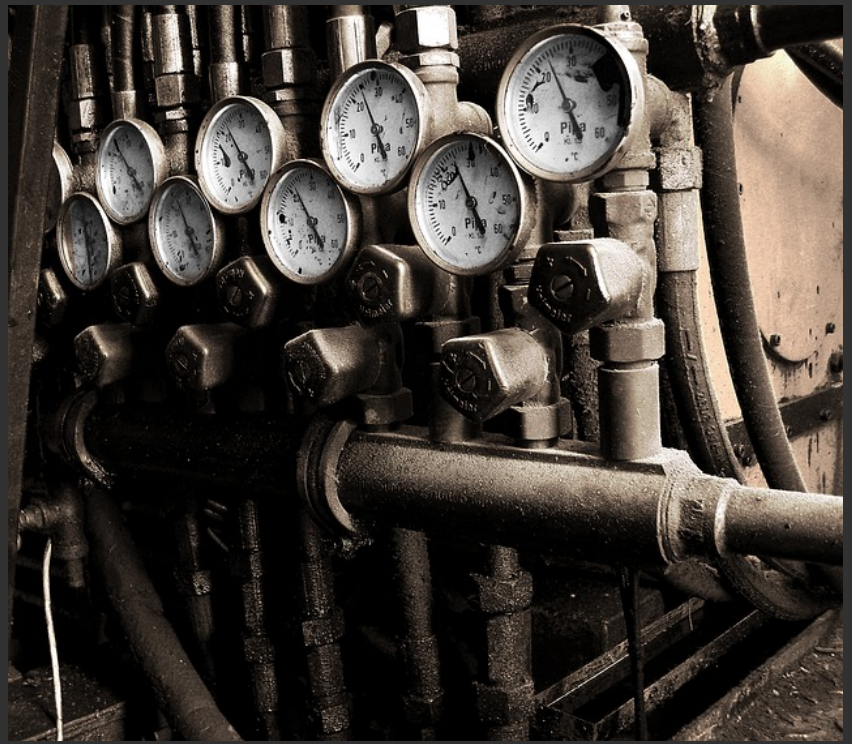
Performance Value Model
value derived from both investments and performance

ILLUSTRATIVE

1. WHY

2. HOW

3. EXAMPLES



EXAMPLES OF COMMON PBR MECHANISMS ALREADY COMMONLY IN USE

Performance Area	Performance Incentive
Affordable	• Multi-year rate plans • Revenue decoupling
Clean	• RPS alternative compliance payments • Efficiency performance incentives
Reliable	• Reliability standards and penalties

KEY AREAS OF PERFORMANCE & WHERE PERFORMANCE-BASED REGULATION FITS

Performance Area	Performance Incentive
Affordable	• Multi-year rate plans / Decoupling • Revenue caps or revenue per customer • Shared savings mechanisms • Participation in time-of-use rates • Load factor improvements
Clean	• RPS, and efficiency incentives • Customer access to clean energy • CO_2 per kWh or customer
Reliable	• Reliability standards and penalties • Resilience – reliability for critical infrastructure or rapid system recovery

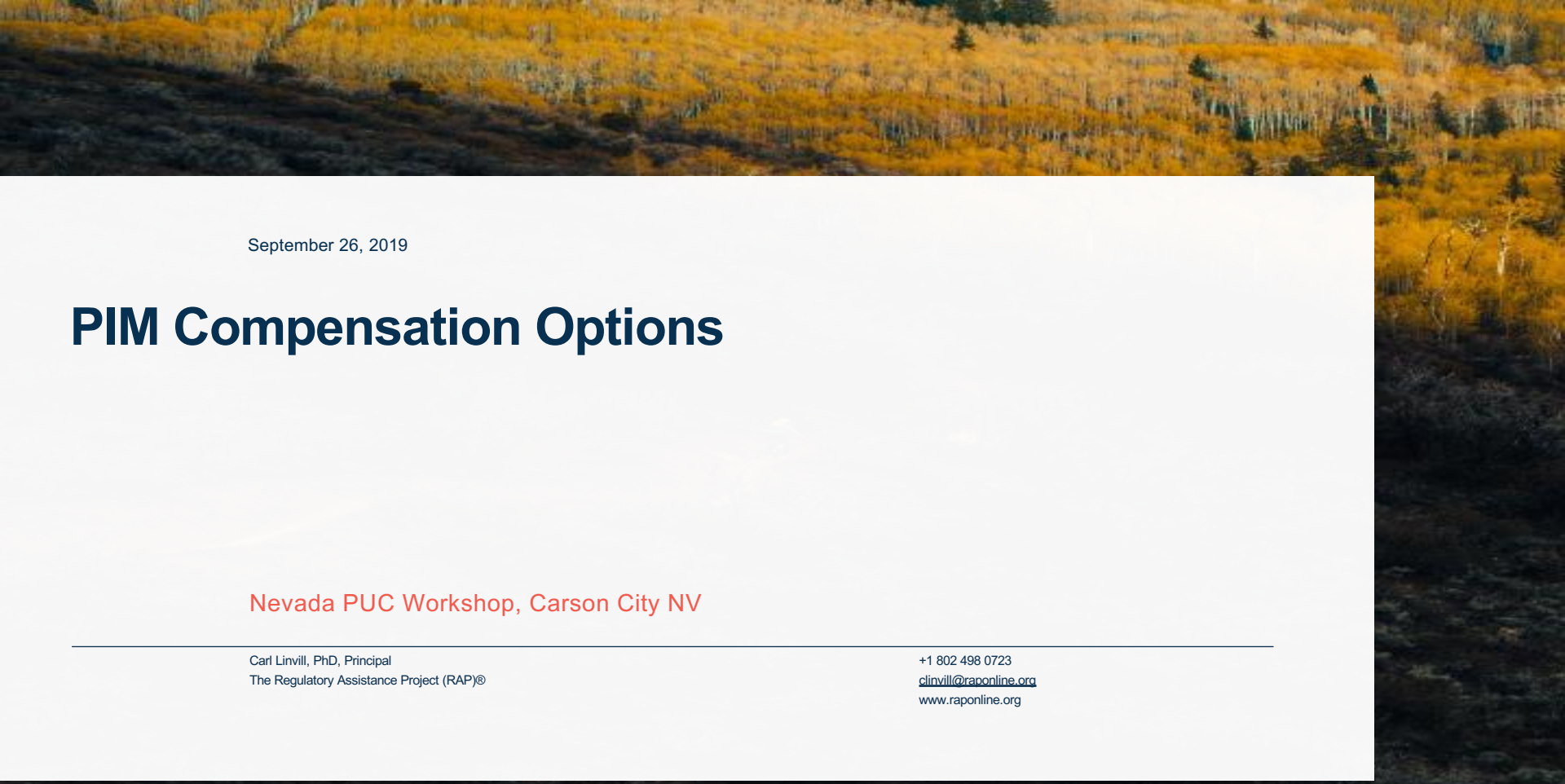
@USPOWERPLAN
@ENERGYINNOVLLC

WWW.AMERICASPOWERPLAN.COM
WWW.ENERGYINNOVATION.ORG

THANK YOU

AMERICA'S POWER PLAN

ENERGY INNOVATION
POLICY & TECHNOLOGY LLC



September 26, 2019

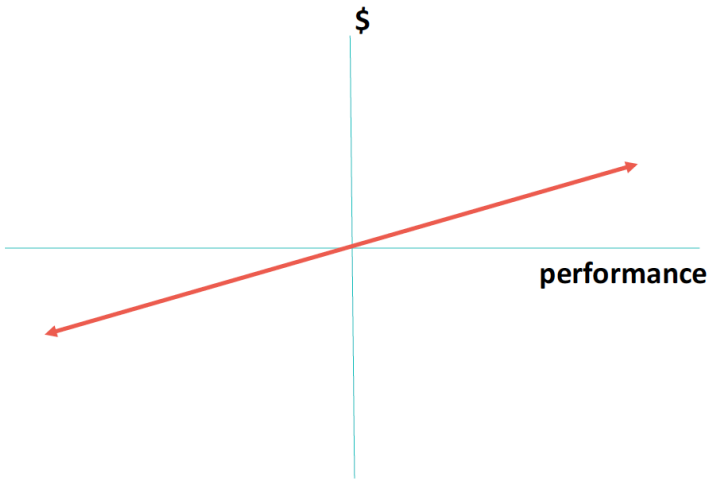
PIM Compensation Options

Nevada PUC Workshop, Carson City NV

Carl Linvill, PhD, Principal
The Regulatory Assistance Project (RAP)®

+1 802 498 0723
clinvill@raponline.org
www.raponline.org

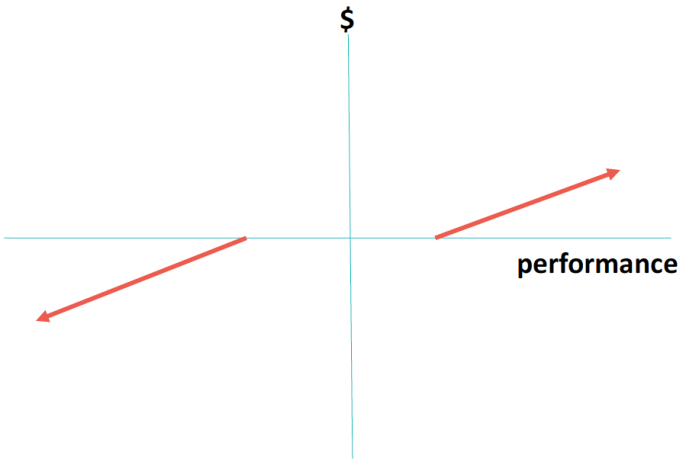
No Deadband, Symmetric Compensation



- Based on a compliant result at the origin
- Utility wins or loses revenue based on performance
- Dollar for unit, no limits

Note pressure on measurement and verification of savings

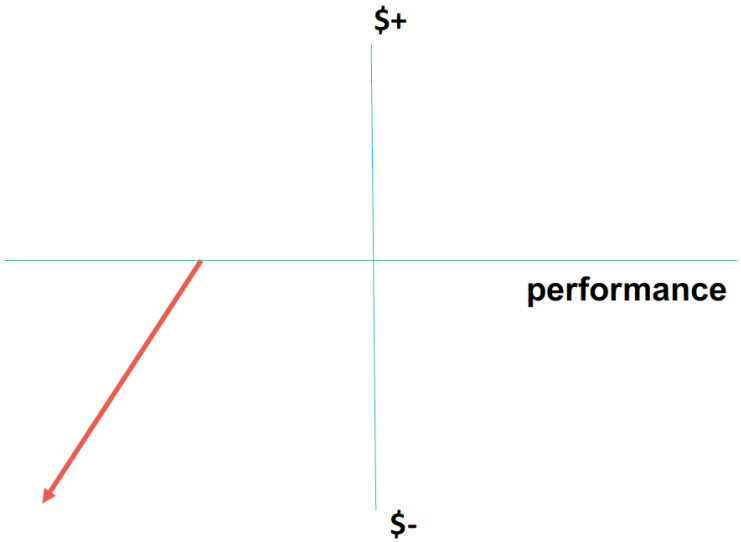
Symmetric Deadband & Compensation



- Based on a compliant result around a deadband at the origin
- Utility wins or loses revenue based on performance
- Dollar for unit
- No limits

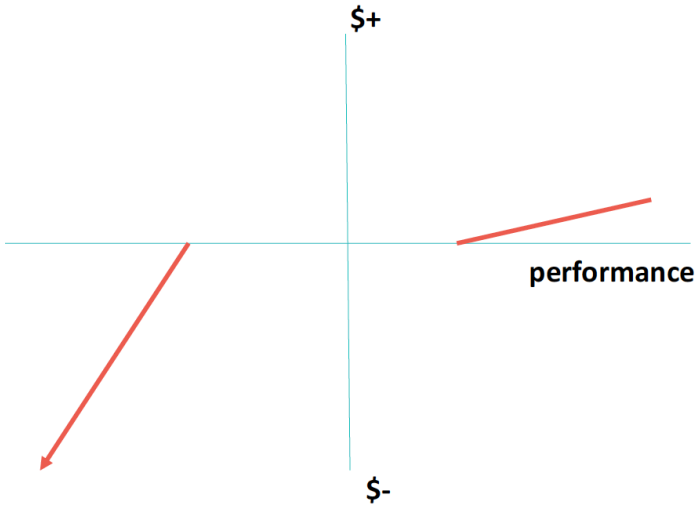
Note pressure on measurement and verification of savings

One-sided Penalty



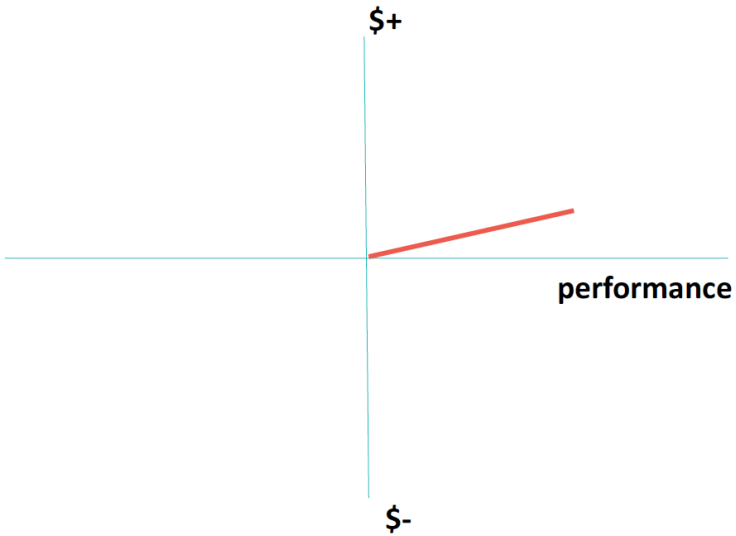
- No upside
- Deadband from adequate performance
- Severe penalty for poor

Asymmetric Compensation



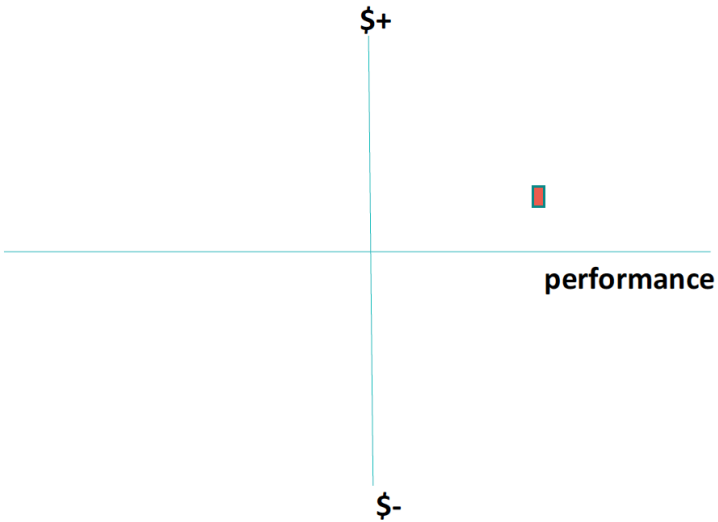
- Upside
- Capped, for superior performance
- Deadband from adequate performance
- Severe penalty for poor performance

One-sided Reward



- Upside
- Capped for superior performance above present level
- No penalty

Hit the Target, Get the Toy



- Upside bonus
- Capped for significant specific superior performance
- No penalty

Favorite Examples

About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org