UCRP
Actuarial 101 and Setting the Investment Return Assumption

UCRS Advisory Board
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The Segal Company

Outline of Discussion

- Actuarial 101
  - Purposes of an actuarial valuation
  - Valuation input
    - Actuarial assumptions
    - Funding policy
    - Pension funding basics
- Setting the Investment Return Assumption
  - Asset allocation and the earnings assumption

Valuation Input

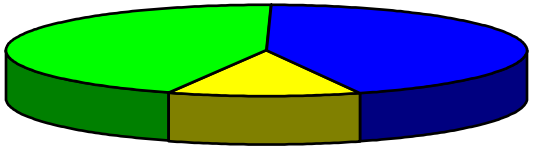
Member Data

Financial Data

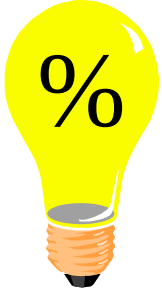
Actuarial Valuation

Plan Provisions

Funding Policies



Actuarial Assumptions



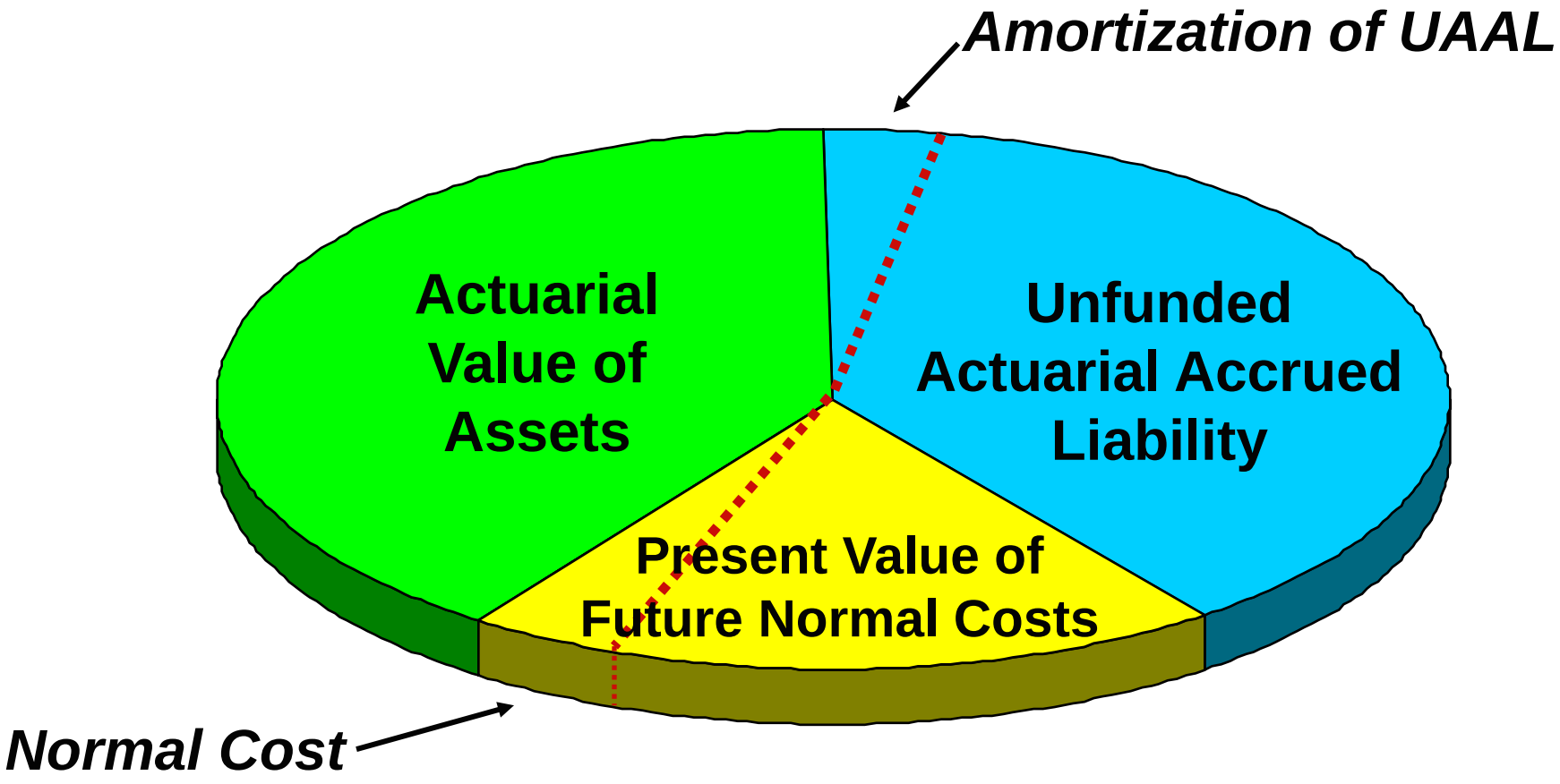
Actuarial Assumptions

- Demographic Assumptions
  - Rates (probabilities) of mortality, disability, retirement, termination
  - "Promotional and Merit" pay increases
- Economic Assumptions
  - Price inflation
  - "Across-the-board" pay increases
  - Investment earnings
- Last experience study was completed in 2011
- Recommended by actuary but adopted by Board of Regents

Funding Policy Components

- Actuarial Cost (Funding) Method –
  allocates cost of projected benefits to time periods (years of service), past and future
- Asset Smoothing Method –
  determines a market-related asset value for setting current year contribution requirements
- Amortization Policy –
  sets pattern and duration of payments to fund any difference between liabilities and assets
- Board of Regents policy on advice of the actuary

Valuation Results



Role of Assumptions and Methods

C + I = B + E

Contributions + Investment Income

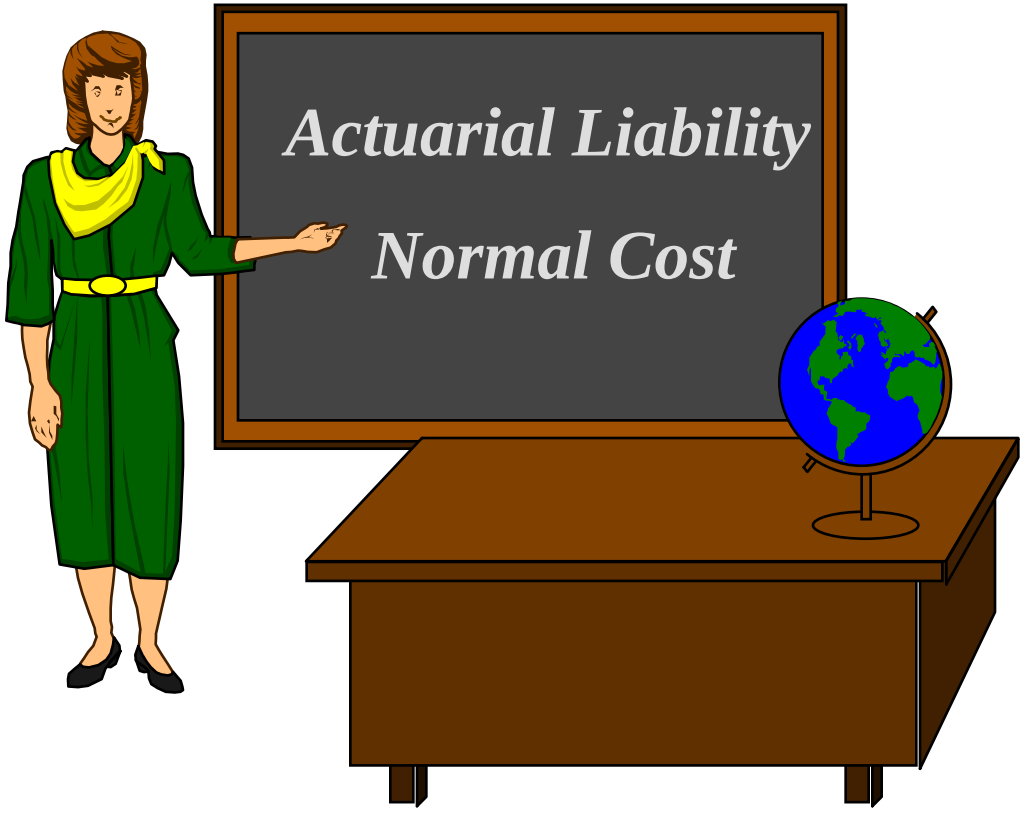
equals

Benefit Payments + Expenses

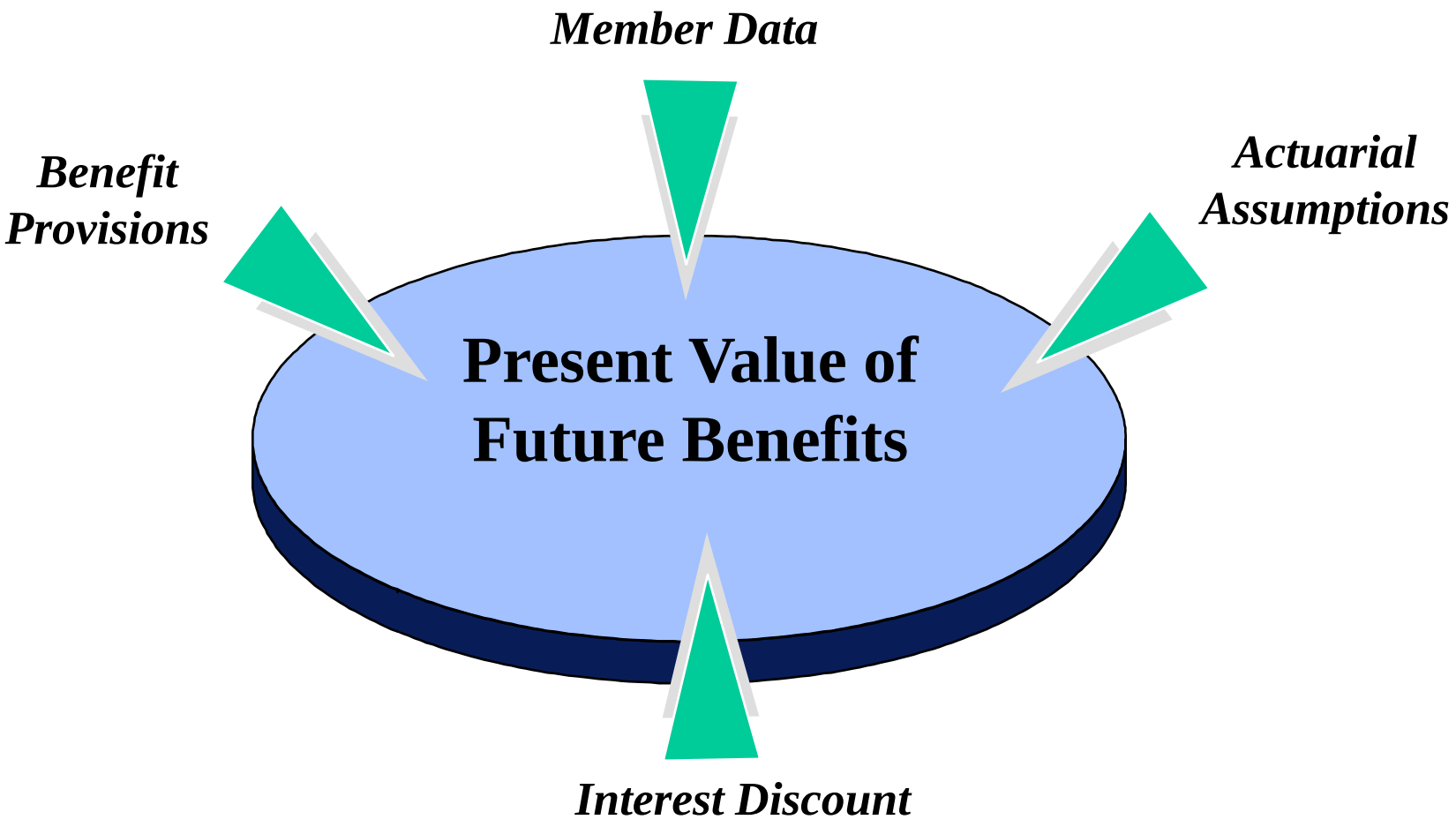
- Actuarial valuation determines the current or "measured" cost, not the ultimate cost
- Assumptions and funding methods affect only the timing and pattern of costs

QUESTIONS

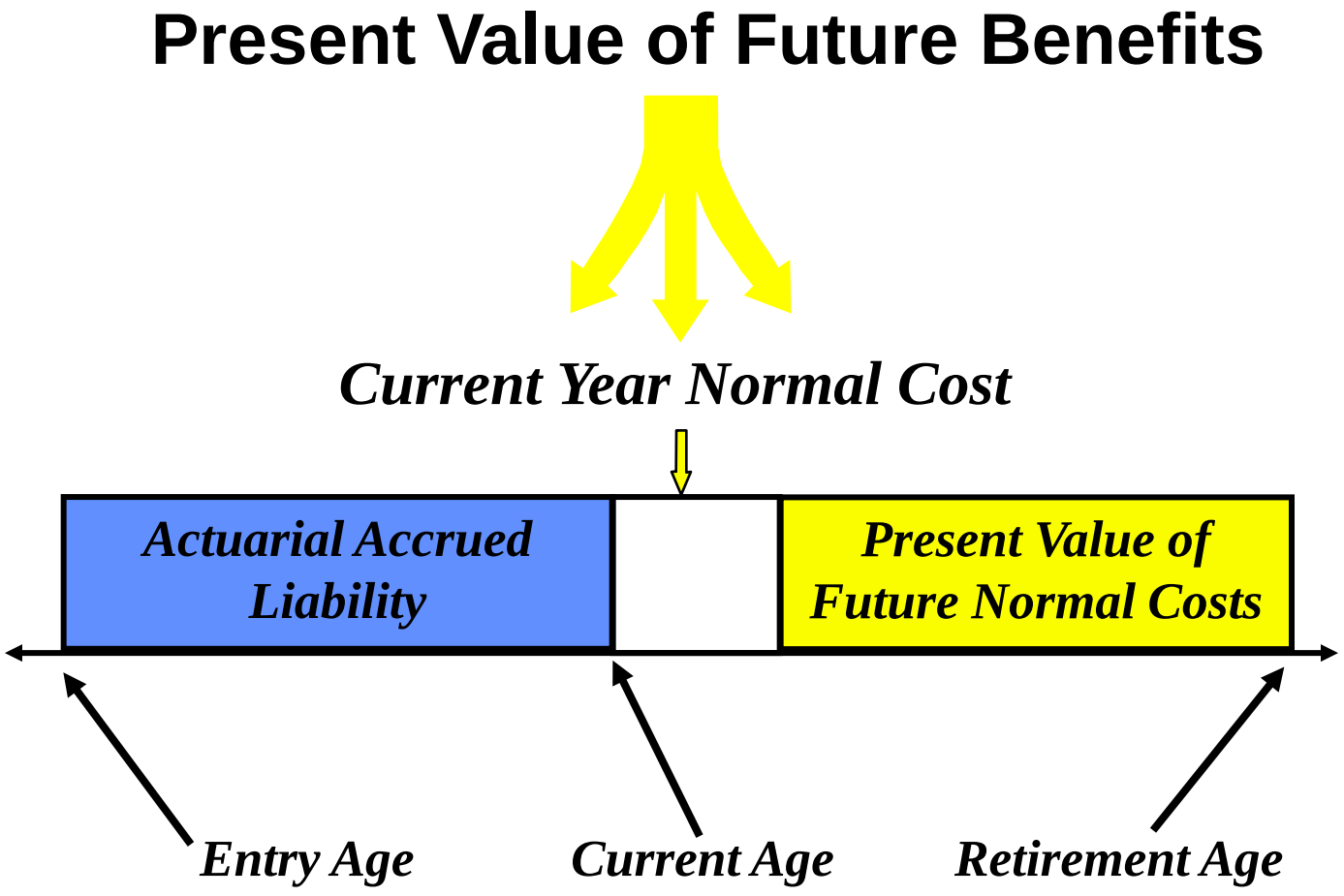
Actuarial 101



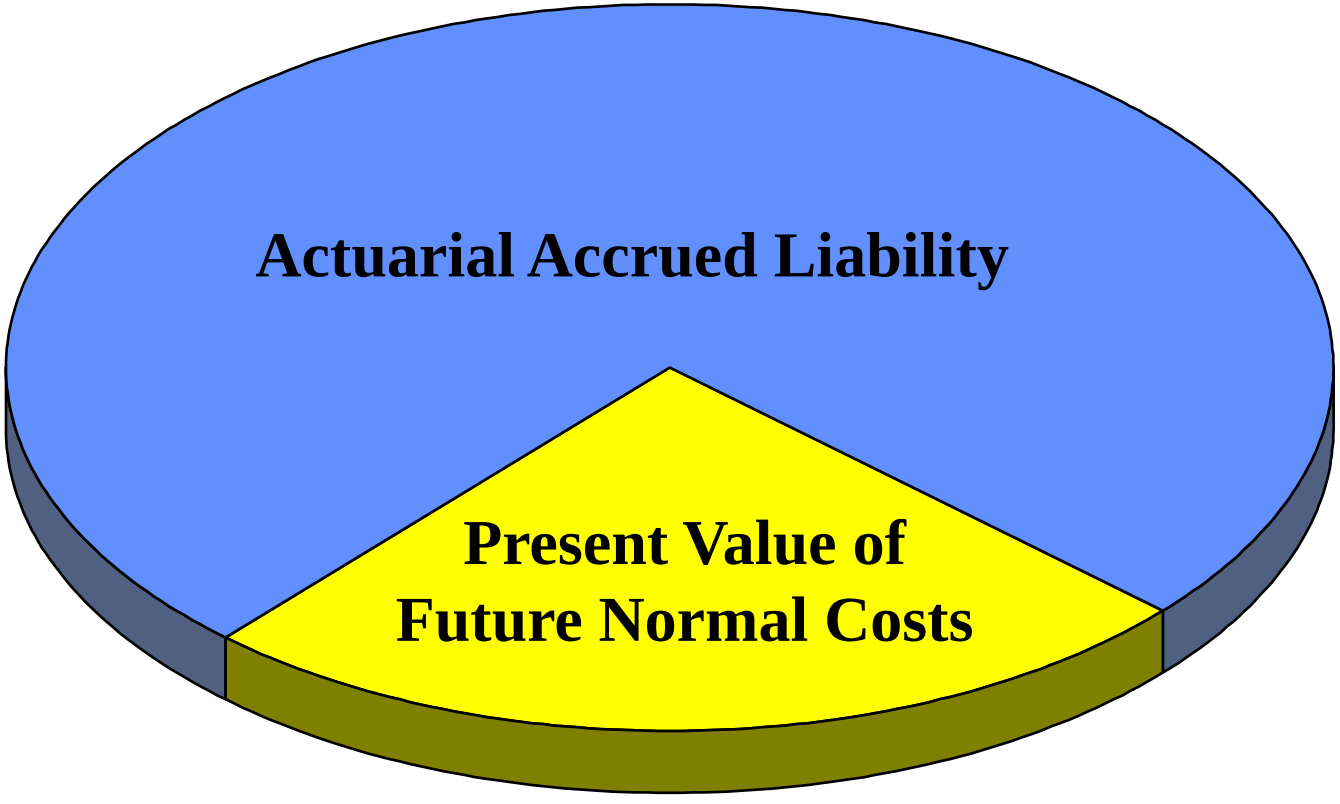
PV of Future Benefits



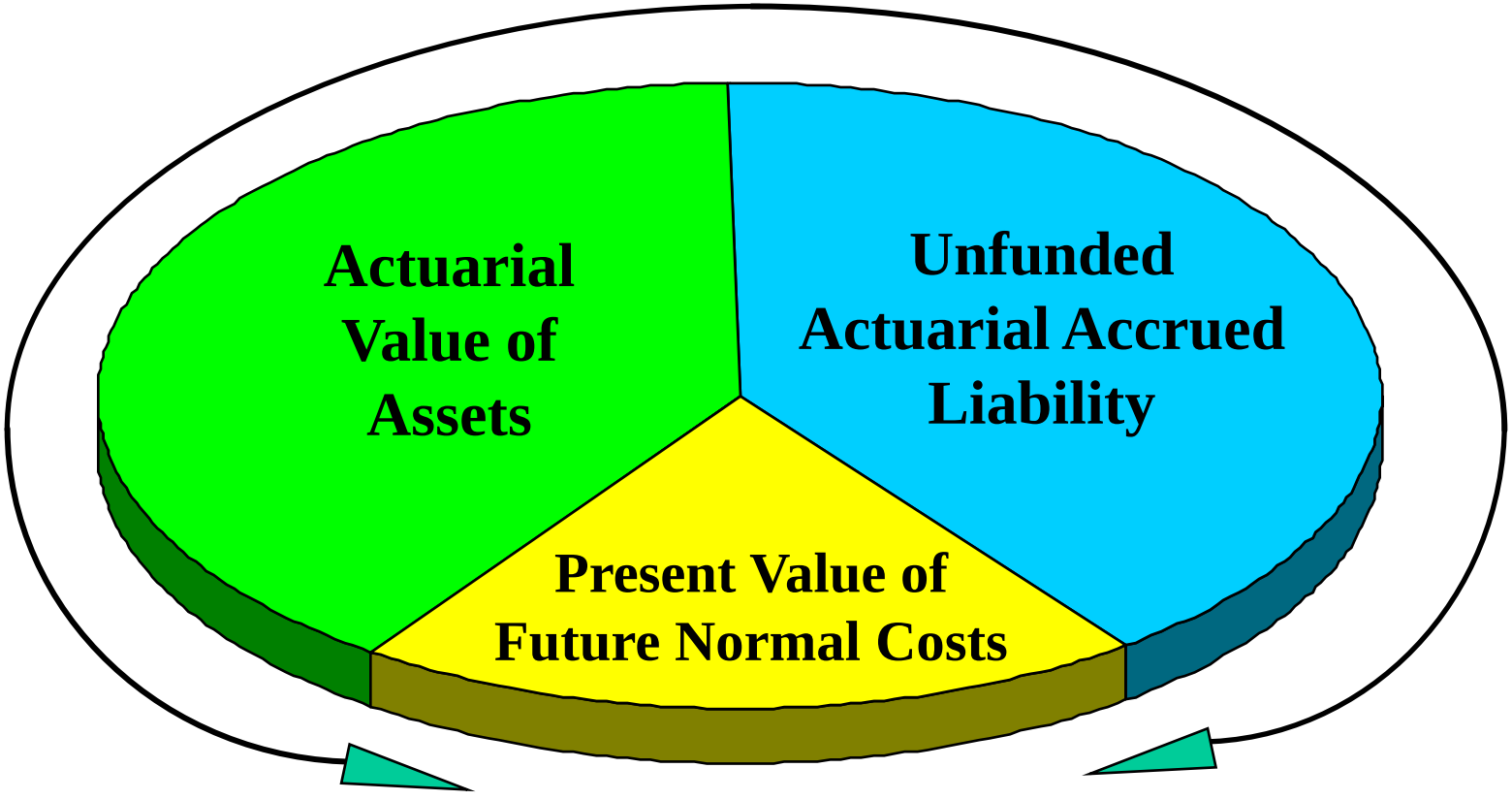
Actuarial Cost Method



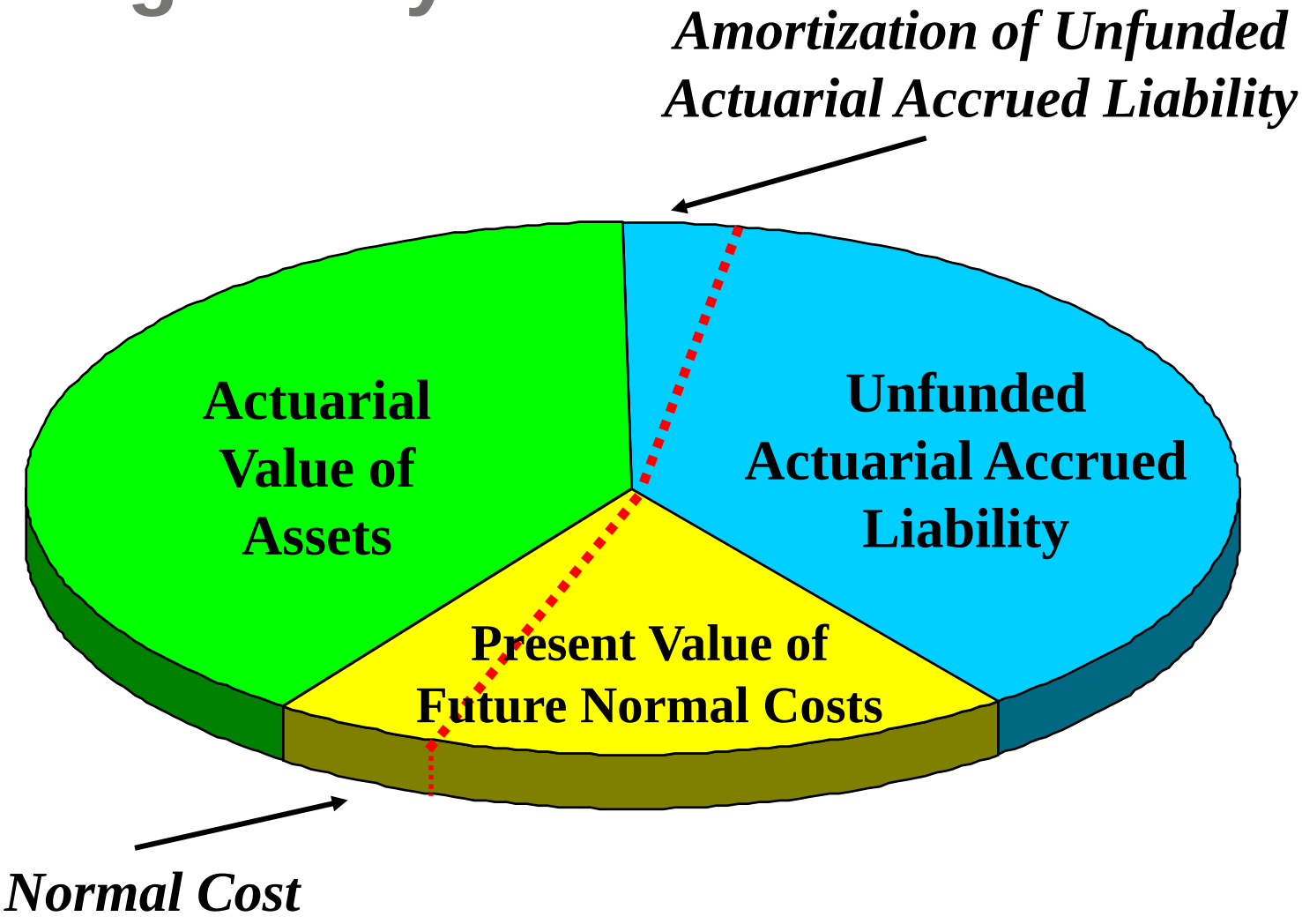
Actuarial Accrued Liability



Unfunded Actuarial Accrued Liability



Funding Policy Contributions



Asset Smoothing Methods

- Current UAAL and total funding policy rate are based on smoothed asset value, not market value
- Objectives
  - Reflect market value of assets
  - Smooth out fluctuations in market values
  - Produce smoother pattern of Total Funding Policy Contributions
- Smoothing methods and periods
  - Also “market value corridor”

Amortization Policy

- Component of Total Funding Policy Contribution
  - Normal cost
  - Amortization of unfunded liability
- Amortization policy includes:
  - Structure: Single UAAL or in layers
  - Payment pattern: level dollar or level percent of pay
  - Periods: how long to fund the UAAL
    - Also: fixed or rolling amortization

Managing Contribution Volatility

- Asset allocation – volatility at the source
- Asset smoothing
  - Specific to investment return volatility
- UAAL amortization – assets and liabilities
  - More than just asset volatility control
- Direct contribution rate smoothing
  - Contribution collar – limits increases
  - Contribution rate phase-in – delays full impact

QUESTIONS

Investment Earnings Assumption

- Also called the assumed interest rate
- Used for contribution requirements
- Affects timing of Plan cost
  - Lower assumed rate means higher current cost
  - Ultimately, actual earnings determine cost
    - **C + I = B + E**
  - "Can't pay benefits with assumed earnings!"

When to change assumption?

- Easy: change in asset allocation
- Hard: change in best-estimate future real return for an asset class
- Source of data:
  - Investment consultants (industry)
- Actuaries are neither economists nor investment consultants

Asset Allocation and Earnings Assumption

- Investment return assumption is based on the asset allocation
  - Asset allocation results from a balance of risk and return, reflecting a plan's tolerance for risk
- Asset allocation is NOT based on the earnings assumption!
  - Earnings assumption is NOT a target, benchmark, hurdle or goal that the allocation seeks to achieve
  - Do not set asset allocation to "chase" your current earnings assumption

QUESTIONS