

AGGREGATE ENTRY AGE NORMAL

Per study note, not a legal cost method
Also per Revenue Ruling 2003-83

Typical EAN normal cost calculation

$$\text{Total EANC} = \sum_{\text{All Lives}} \left(\text{PVB}_{\text{EA}} / \ddot{a}_{\text{EA:RA-EA}} \right)$$

Under Aggregate EAN, calculate single EANC by moving the summation into the numerator and the denominator:

$$\text{AGG EANC} = \frac{\sum \text{PVB}_{\text{EA}}}{\left(\sum \ddot{a}_{\text{EA:RA-EA}} / \sum \text{Lives} \right)}$$

$$\text{AGG EANC\%} = \frac{\sum \text{PVB}_{\text{EA}}}{\sum \text{PVE}_{\text{EA}}}$$

PROJECTED UNIT CREDIT

Need better method than unit credit to fund plan benefits based on final average earnings

“better”: anticipate future salary inflation

PUC method defines a "funding accrued benefit" that is used in the same definitions of normal cost and accrued liability as under Unit Credit

$$\text{A.L.} = (\text{FAB}_x) \ddot{a}_{RA}^{(12)} (v^{RA-X})_{RA-X} p_x$$

$$\text{N.C.} = (\Delta \text{FAB}_x) \ddot{a}_{RA}^{(12)} (v^{RA-X})_{RA-X} p_x$$

§1.412(c)(3)-1(e)
PROJECTED UNIT CREDIT

Regulation defines "funding accrued benefit":

- 1. Project pay to retirement age**
- 2. Calculate projected benefit**
- 3. Pro-rate projected benefit based on service today versus at retirement. Must reflect rates of benefit accrual in the ratio**

Get same result if you apply benefit formula to past service with projected earnings - but only if benefits are based on Final Average Pay!

NOTE - silly "typo" in regulation example!

§1.412(c)(3)-1(e)

PROJECTED UNIT CREDIT - EXAMPLE

$$\text{FAB} = (\text{Projected benefit}) * \frac{\text{"PS"}}{\text{"TS"}}$$

Projected Benefit:

$$\text{FAE}_{\text{ARA}} * (\text{X}\% \text{ for } 1^{\text{st}} \text{ N years, Y}\% \text{ thereafter})$$

Show that the shortcut produces the same results as "the long way"