

Modifications to 2007 and 2008 EA-2A exam solutions to comply with changes in technical corrections to PPA

2007 Exam

Question 21: In years for which the transition percentage applies with regard to the applicability of a requirement to create a new funding shortfall amortization base, the transition percentage is used to determine not only the applicability, but also the actual new shortfall amortization base. In this question, the 2008 shortfall amortization base must be created and is equal to the excess of 92% of the funding target over the actuarial value of assets (reduced by the credit balance items):

$$\text{Transition funding shortfall} = (92\% \times \$1,000,000) - (\$900,000 - \$10,000) = \$30,000$$

This is the 2008 shortfall amortization base.

The solution must be modified as follows:

The minimum required contribution as of 1/1/2008 is:

$$\begin{aligned} \text{Minimum}_{1/1/2008} &= \text{Target normal cost} + \text{Amortization of shortfall amortization base} \\ &= \$100,000 + (\$30,000/5.9982) = \$105,002 \end{aligned}$$

The smallest amount that satisfies the minimum funding standard is equal to the minimum required contribution, reduced by the funding standard carryover balance (see exam general condition 35). This amount is:

$$\$105,002 - \$10,000 = \$95,002$$

In order to compare this to the contribution made on 12/31/2008, it must be increased with interest using the plan effective rate for 2008. The smallest amount that satisfies minimum funding standard as of 12/31/2008 is:

$$\$95,002 \times 1.0575 = \$100,465$$

The excess of the contribution for 2008 over the smallest amount that satisfies minimum funding standard as of 12/31/2008 is:

$$\$200,000 - \$100,465 = \$99,535$$

Question 30: In years for which the transition percentage applies with regard to the applicability of a requirement to create a new funding shortfall amortization base, the transition percentage is used to determine not only the applicability, but also the actual new shortfall amortization base. In this question, the 2008 shortfall amortization base must be created and is equal to the excess of 92% of the funding target over the actuarial value of assets (reduced by the credit balance items):

$$\text{Transition funding shortfall} = (92\% \times \$5,000,000) - (\$4,200,000 - \$125,000) = \$525,000$$

This is the 2008 shortfall amortization base.

The solution must be modified as follows:

The minimum required contribution as of 1/1/2008 is:

$$\begin{aligned} \text{Minimum}_{1/1/2008} &= \text{Target normal cost} + \text{Amortization of shortfall amortization base} \\ &= \$200,000 + (\$525,000/5.9982) \\ &= \$287,526 \end{aligned}$$

The minimum required contribution can be reduced by the funding standard carryover balance in order to determine the smallest contribution that satisfies the minimum funding standard. This is:

$$\$287,526 - \$125,000 = \$162,526$$

2008 Exam

Question 4: In years for which the transition percentage applies with regard to the applicability of a requirement to create a new funding shortfall amortization base, the transition percentage is used to determine not only the applicability, but also the actual new shortfall amortization base. In this question, the 2009 shortfall amortization base must be created and is equal to the excess of 94% of the funding target over the actuarial value of assets (reduced by the credit balance items):

$$\begin{aligned}\text{Transition funding shortfall} &= (94\% \times \$3,200,000) - (\$2,900,000 - \$45,000 - \$27,500) \\ &= \$180,500\end{aligned}$$

This is the 2009 funding shortfall amortization base.

Note also that under technical corrections, it is irrelevant whether there was a shortfall amortization base in 2008 with regard to any applicability of the transition rule in 2009.

Question 21: In years for which the transition percentage applies with regard to the applicability of a requirement to create a new funding shortfall amortization base, the transition percentage is used to determine not only the applicability, but also the actual new shortfall amortization base. In this question, the 2009 shortfall amortization base must be created and is equal to the excess of 94% of the funding target over the actuarial value of assets:

$$\text{Transition funding shortfall} = (94\% \times \$1,166,667) - \$950,000 = \$146,667$$

This is the 2009 shortfall amortization base.

The solution must be modified as follows:

The minimum required contribution as of 1/1/2009 is:

$$\begin{aligned}\text{Minimum}_{1/1/2009} &= \text{Target normal cost} + \text{Amortization of shortfall amortization base} \\ &= \$37,042 + (\$146,667/5.9982) = \$61,494\end{aligned}$$

The smallest amount that satisfies the minimum funding standard is equal to the minimum required contribution, reduced by the funding standard carryover and prefunding balances (see exam general condition 35). Since those amounts are zero, the smallest amount that satisfies the minimum funding standard is \$61,494.

Question 25: In years for which the transition percentage applies with regard to the applicability of a requirement to create a new funding shortfall amortization base, the transition percentage is used to determine not only the applicability, but also the actual new shortfall amortization base. In this question, the 2008 shortfall amortization base must be created and is equal to the excess of 92% of the funding target over the actuarial value of assets (reduced by the credit balance items):

$$\text{Transition funding shortfall} = (92\% \times \$1,270,000) - (\$960,000 - \$55,000) = \$263,400$$

This is the 2008 shortfall amortization base.

The solution must be modified as follows:

$$\text{Amortization of the 1/1/2008 transitional funding shortfall} = \$263,400 / 5.9982 = \$43,913$$

Outstanding balance of 1/1/2008 shortfall amortization base on 1/1/2009

$$= \$43,913 \times 5.2932 = \$232,440$$

The 2009 transitional funding shortfall is limited to the excess of 94% of the 2009 funding target over the actuarial value of assets (reduced by both credit balance items) provided that 94% of the funding target exceeds the actuarial value of assets (reduced by only the prefunding balance). Since this is the case,

$$\begin{aligned} \text{2009 transition funding shortfall} &= (94\% \times \$1,400,000) \\ &\quad - (\$1,100,000 - \$15,000 - \$10,000) = \$241,000 \end{aligned}$$

$$\text{New shortfall base as of 1/1/2009} = \$241,000 - \$232,440 = \$8,560$$

The minimum required contribution is equal to the sum of the target normal cost and the amortization of the shortfall amortization bases.

$$\begin{aligned} \text{Minimum required contribution as of 1/1/2009} &= \$58,500 + \$43,913 + (\$8,560 / 5.9982) \\ &= \$103,840 \end{aligned}$$

Since the employer elects not to offset the minimum required contribution by the funding standard carryover balance, the prefunding balance cannot be used to offset the minimum since IRC section 430(f)(3)(B) does not allow the prefunding balance to be used if the funding standard carryover balance is greater than zero. Therefore, the smallest amount that satisfies the minimum funding standard for 2009 as of 1/1/2009 is \$103,840.

$$\text{\$X} = \$103,840$$

Question 30: In years for which the transition percentage applies with regard to the applicability of a requirement to create a new funding shortfall amortization base, the transition percentage is used to determine not only the applicability, but also the actual new shortfall amortization base. In this question, the 2009 shortfall amortization base must be created and is equal to the excess of 94% of the funding target over the actuarial value of assets:

$$\text{Transition funding shortfall} = (94\% \times \$1,000,000) - \$700,000 = \$240,000$$

This is the 2009 shortfall amortization base.

The solution must be modified as follows:

$$\begin{aligned}\text{Minimum}_{1/1/2009} &= \text{Target normal cost} + \text{Amortization of shortfall amortization base} \\ &= \$60,000 + (\$240,000/5.9982) \\ &= \$100,012\end{aligned}$$

There is no funding standard carryover balance or prefunding balance to reduce the minimum required contribution. The contribution of \$X must include interest at the 2009 plan effective rate to the date it is paid (3/1/2010) according to IRC section 430(j)(2).

$$\$X = \$100,012 \times 1.0575^{14/12} = \$106,753$$

Note also that under technical corrections, it is irrelevant whether there was a shortfall amortization base in 2008 with regard to any applicability of the transition rule in 2009.

Question 36: Under technical corrections, the transition rule for creating a shortfall amortization base still applies even if a base was created in a prior year. So, the transition rule must be considered for 2009, even though a shortfall base was required for 2008. For 2009, the transition percentage is 94%. The plan is exempt from a new shortfall base if 94% of the funding target is less than the actuarial value of assets (reduced only by the prefunding balance, which is zero). Since 94% of the funding target is \$1,974,000 ($94\% \times \$2,100,000$), this is less than the actuarial value of assets, and the plan is exempt from a new shortfall base in 2009. Note that the shortfall amortization base from 2008 is still amortized in 2009.

The solution must be modified as follows:

$$\begin{aligned}\text{Minimum}_{1/1/2009} &= \text{Target normal cost} + \text{Amortization of shortfall amortization base} \\ &= \$183,000 + \$20,000 \\ &= \$203,000\end{aligned}$$

The funding standard carryover balance is used to reduce the minimum required contribution, in order to obtain the smallest amount that satisfies the minimum funding standard.

$$\$X = \$203,000 - \$69,000 = \$134,000$$

Question 37: In years for which the transition percentage applies with regard to the applicability of a requirement to create a new funding shortfall amortization base, the transition percentage is used to determine not only the applicability, but also the actual new shortfall amortization base. In this question, the 2008 shortfall amortization base must be created and is equal to the excess of 92% of the funding target over the actuarial value of assets:

$$\text{Transition funding shortfall} = (92\% \times \$1,700,000) - \$1,520,000 = \$44,000$$

This is the 2008 shortfall amortization base.

The solution must be modified as follows:

$$\text{Amortization of 2008 transitional funding shortfall} = \$44,000 / 5.9928 = \$7,342$$

The outstanding balance as of 1/1/2009 of the 2008 funding shortfall base is equal to the amortization installment multiplied by a 6-year amortization factor (using the 2009 segmented interest rates).

$$\begin{aligned}\text{Outstanding balance of 2008 shortfall amortization base}_{1/1/2009} \\ &= \$7,342 \times 5.2798 = \$38,764\end{aligned}$$

Since the net shortfall amortization charge for 2009 is \$40,000, and the amortization charge for the 2008 shortfall amortization base is still \$7,342 (it is not re-amortized each year, even if the segmented interest rates change), the amortization charge for the 2009 shortfall amortization base must be \$32,658 (\$40,000 - \$7,342). Since the 2009 shortfall amortization base is amortized over 7 years, the amount of the base must be \$195,713 ($\$32,658 \times 5.9928$).

The funding shortfall (using the transition percentage, if it applies) as of 1/1/2009 is equal to the sum of the outstanding balance of the prior year shortfall amortization bases plus the amount of the 2009 shortfall amortization base (IRC section 430(c)(3)).

Since 94% of the 2009 funding target exceeds the 2009 actuarial value of assets (94% of \$2,000,000 exceeds \$1,800,000), it certainly also exceeds the actuarial value of assets less the prefunding balance (which is unknown at this point). Therefore, the 2009 shortfall base is determined using only 94% of the funding target ($94\% \times \$2,000,000 = \$1,880,000$). This transition funding shortfall should also be equal to the outstanding balance of the shortfall amortization bases.

$$\begin{aligned}\text{Transition funding shortfall}_{1/1/2009} &= \$1,880,000 - (\$1,800,000 - \text{Prefunding balance}_{1/1/2009}) \\ &= \$195,713 + \$38,764 \\ &= \$234,477\end{aligned}$$

$$\text{Prefunding balance}_{1/1/2009} = \$154,477$$

The minimum required contribution is equal to the sum of the target normal cost and the amortization of the shortfall amortization bases.

$$\begin{aligned}\text{Minimum}_{1/1/2009} &= \text{Target normal cost} + \text{Amortization of shortfall bases} \\ &= \$100,000 + \$40,000 \\ &= \$140,000\end{aligned}$$

The prefunding balance is used to reduce the minimum required contribution (see general exam condition 35), in order to obtain the smallest amount that satisfies the minimum funding standard. (Note that the prefunding balance can only be used if the prior year funded percentage – the one for 2008 – is at least 80%. This funded percentage is the ratio of the 2008 actuarial value of assets to the funding target, and is $1,520,000/1,700,000 = 89.4\%$.) Since the contribution is contributed on 12/31/2009, the minimum required contribution offset by the prefunding balance must be increased with interest at the plan effective rate of 6%.

$$\$X = (\$140,000 - \$154,477) \times 1.06 = \$0$$

Question 41: In years for which the transition percentage applies with regard to the applicability of a requirement to create a new funding shortfall amortization base, the transition percentage is used to determine not only the applicability, but also the actual new shortfall amortization base. In this question, the 2008 shortfall amortization base must be created and is equal to the excess of 92% of the funding target over the actuarial value of assets (reduced by the credit balance items):

$$\text{Transition funding shortfall} = (92\% \times \$848,000) - (\$736,000 - \$45,600) = \$89,760$$

This is the 2008 shortfall amortization base.

The solution must be modified as follows:

$$\text{Amortization of 2008 shortfall amortization base} = \$89,760/5.9682 = \$15,040$$

The outstanding balance as of 1/1/2009 of the 2008 shortfall amortization base is equal to the amortization installment multiplied by a 6-year amortization factor (using the 2009 segmented interest rates).

$$\begin{aligned} \text{Outstanding balance of 2008 shortfall amortization base}_{1/1/2009} \\ = \$15,040 \times 5.2532 = \$79,008 \end{aligned}$$

The funding shortfall (using the transition percentage, if it applies) as of 1/1/2009 is equal to the sum of the outstanding balance of the prior year shortfall amortization bases plus the amount of the 2009 shortfall amortization base (IRC section 430(c)(3)).

Since 94% of the 2009 funding target exceeds the 2009 actuarial value of assets (94% of \$1,200,000 exceeds \$918,400), the 2009 shortfall base is determined using only 94% of the funding target ($94\% \times \$1,200,000 = \$1,128,000$).

$$\text{Transition funding shortfall}_{1/1/2009} = \$1,128,000 - \$918,400 = \$209,600$$

The funding shortfall amortization base for 2009 is equal to the 2009 transition funding shortfall less the outstanding balance of the prior year shortfall amortization base (IRC section 430(c)(3)).

$$\text{2009 shortfall amortization base} = \$209,600 - \$79,008 = \$130,592$$

The new shortfall amortization installment (amortized over 7 years), attributable to the 2009 shortfall amortization base is:

$$\$130,592/5.9682 = \$21,881$$

Question 43: In years for which the transition percentage applies with regard to the applicability of a requirement to create a new funding shortfall amortization base, the transition percentage is used to determine not only the applicability, but also the actual new shortfall amortization base. In this question, the 2009 shortfall amortization base must be created and is equal to the excess of 94% of the funding target over the actuarial value of assets (reduced by the credit balance items):

$$\text{Transition funding shortfall} = (94\% \times \$1,728,000) - (\$1,550,000 - \$61,200) = \$135,520$$

This is the 2009 shortfall amortization base.

The solution must be modified as follows:

$$\begin{aligned} \text{Minimum}_{1/1/2009} &= \text{Target normal cost} + \text{Amortization of shortfall base} \\ &= \$156,600 + (\$135,520/5.9682) \\ &= \$179,307 \end{aligned}$$

The funding standard carryover balance is used to reduce the minimum required contribution, in order to obtain the smallest amount that satisfies the minimum funding standard. (Note that the funding standard carryover balance can only be used if the prior year funded percentage – the one for 2008 – is at least 80%. This funded percentage is the ratio of the 2008 actuarial value of assets to the funding target, and is $1,519,600/1,500,000 = 101.3\%$.)

$$\text{\$X} = \$179,307 - \$61,200 = \$118,107$$