

# Certification Rule Economic Analysis Appendix B: Total Cost of Final Revisions

[RIN 2070-AJ20]

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The purpose of the Economic Analysis (EA) Appendix B is to show how the total incremental costs of the final revisions (presented in Tables 3.5-2, 3.5-3, and 3.5-4 of Chapter 3 of the EA) for each affected sector (private applicators, commercial applicators, and governmental entities) are obtained from the individual incremental costs of the final revisions estimated in Chapter 3 of the EA and Appendix A.

### Methodology:

- I. For each affected sector (private applicators, commercial applicators, and governmental entities), the present value of the total cost of the *final revisions* are obtained by summing the present values of costs of individual revisions, by jurisdiction. For Alabama private applicators for example, this sum is \$3,995 thousand as shown in Table B.1.1 below, which is the value shown in Table 3.5-2 of the EA.
- II. For each affected sector (private applicators, commercial applicators, and governmental entities), the present value of the total cost of the *current requirements* are obtained by summing the present values of costs of individual current requirement, by jurisdiction. For Alabama private applicators for example, this sum is \$3,845 thousand in Table B.1.2 below, which is the value shown in Table 3.5-2 of the EA.
- III. The difference between Steps I and II is the total incremental cost of the final revisions for each affected sector, by jurisdiction. Thus, for Alabama private applicators for example, the total incremental cost of the final revisions is \$150 thousand, shown in Table 3.5-2 of the EA.
- IV. Finally, the total incremental cost in Step III is annualized over a 10-year horizon, at a 3% discount rate, to obtain an annualized incremental cost of \$17 thousand for Alabama private applicators, for example.

The above procedure is applied to each affected sector below. Since Step III is a simple subtraction it is not mentioned further. Annualized incremental costs are presented in Chapter 3 of the EA and Appendix A for each of the affected sectors (for example, for private applicators, see Table 3.5-2 of Chapter 3 of the EA), they are not repeated in this Appendix. Thus, in this Appendix, only Steps I and II are provided. For details on the cost methodology and the estimation of costs of the current requirements or final revisions, the reader is referred to Chapter 3 of the EA and Appendix A.

## B.1. Private Applicators

- I. The final revisions for private applicators include the following areas: enhancement of private applicator core certification; establishment of application method-specific categories; improved supervision of noncertified applicators; minimum age requirements; and recertification requirements. In Table B.1.1, the present values (PV) of costs of the final requirements for each of the rule areas are presented and summed to obtain the present value of the total cost of the final revisions, by jurisdiction.

Table B.1.1. Present Value of Private Applicator Final Requirements by Jurisdiction

	PV(RC <sup>P</sup> ) Pvt Init Cert	PV(RC <sup>P</sup> ) New Cat	PV(RC <sup>P</sup> ) Supervision	PV(RC <sup>P</sup> ) <sub>Age</sub>	PV(RC <sup>P</sup> ) Recertification	Sum
	\$1,000					
Alabama	4,425	13	145	0	4,646	9,229
Alaska	42	0	4	5	183	235
Arizona	522	5	8	197	873	1,605
Arkansas	8,788	30	793	171	13,427	23,209
California	8,682	91	956	416	32,882	43,026
Colorado	2,620	23	198	207	4,073	7,122
Connecticut	143	0	12	0	769	925
Delaware	556	3	52	0	493	1,104
Florida	2,364	176	116	152	4,003	6,811
Georgia	9,661	11	714	202	12,188	22,776
Hawaii	231	6	6	11	975	1,230
Idaho	938	8	175	97	5,469	6,687
Illinois	7,600	8	1,076	388	24,229	33,301
Indiana	5,257	12	667	379	9,018	15,332
Iowa	5,041	12	0	392	26,647	32,093
Kansas	7,691	19	763	401	12,766	21,640
Kentucky	13,506	14	240	422	8,863	23,045
Louisiana	2,638	23	268	134	4,985	8,048
Maine	575	2	23	49	1,376	2,025
Maryland	807	39	179	98	2,240	3,364
Massachusetts	559	1	26	36	2,276	2,898
Michigan	3,424	19	315	195	22,246	26,198
Minnesota	5,054	7	0	275	13,125	18,462
Mississippi	9,216	14	492	159	6,749	16,631
Missouri	9,229	12	643	354	13,676	23,915
Montana	1,501	0	366	173	4,345	6,385
Nebraska	5,495	15	1,797	318	14,835	22,460
Nevada	346	15	16	21	602	1,000
New Hampshire	252	0	8	24	847	1,131
New Jersey	1,404	15	53	0	1,581	3,053
New Mexico	1,559	42	65	230	1,838	3,734
New York	1,767	19	319	234	8,512	10,851

North Carolina	3,361	39	947	311	13,303	17,960
North Dakota	6,453	168	707	78	10,574	17,980
Ohio	2,024	6	675	668	15,047	18,420
Oklahoma	12,625	22	290	589	11,122	24,648
Oregon	1,181	21	148	123	7,471	8,944
Pennsylvania	4,843	28	830	571	12,741	19,013
Rhode Island	43	0	3	12	128	186
South Carolina	5,126	37	148	81	4,448	9,840
South Dakota	13,684	10	0	167	10,564	24,427
Tennessee	2,260	10	148	399	7,127	9,944
Texas	20,898	30	1,116	1,278	73,282	96,606
Utah	4,653	10	29	107	2,262	7,061
Vermont	315	0	17	24	509	864
Virginia	7,154	38	157	236	8,189	15,775
Washington	4,679	35	521	203	12,764	18,202
West Virginia	498	8	18	116	1,269	1,910
Wisconsin	7,196	8	565	445	11,864	20,079
Wyoming	2,323	2	247	103	4,084	6,759
Puerto Rico	5,383	0	889	189	9,379	15,840
Other	752	0	9	200	155	1,115
<b>U.S. Total</b>	<b>227,345</b>	<b>1,126</b>	<b>17,962</b>	<b>11,645</b>	<b>477,021</b>	<b>735,100</b>

Source: EPA estimates. PV calculated over 10 years using a 3% discount rate.

- II. The following areas of the current or baseline requirements for private applicators are revised: private applicator core certification; establishment of application method-specific categories; supervision of noncertified applicators; minimum age requirements; and recertification requirements. In Table B.1.2, the present values (PV) of costs of the current requirements for each of the rule areas are presented and summed to obtain the present value of the total cost of the current requirements, by jurisdiction.

Table B.1.2 Present Value of Private Applicator Baseline Requirements

	PV(RC <sup>B</sup> ) Pvt Init Cert	PV(RC <sup>B</sup> ) New Cat	PV(RC <sup>B</sup> ) Supervision	PV(RC <sup>B</sup> ) Age	PV(RC <sup>B</sup> ) Recertification	Sum
	\$1,000					
Alabama	4,425	0	0	0	4,634	9,059
Alaska	42	0	0	4	183	229
Arizona	522	5	0	161	873	1,562
Arkansas	3,794	0	0	161	8,578	12,533
California	8,682	0	0	332	32,794	41,808
Colorado	2,620	0	175	168	4,051	7,014
Connecticut	143	0	11	0	768	923
Delaware	556	0	0	0	435	991
Florida	2,364	0	102	143	3,831	6,440
Georgia	2,606	0	0	171	7,797	10,574
Hawaii	231	0	0	11	969	1,211

Idaho	938	0	155	91	5,462	6,645
Illinois	7,600	0	947	313	24,222	33,082
Indiana	5,257	0	586	326	9,007	15,175
Iowa	5,041	8	0	259	26,645	31,954
Kansas	7,691	0	675	309	12,748	21,423
Kentucky	3,643	0	211	357	7,061	11,273
Louisiana	2,638	0	235	112	3,489	6,474
Maine	575	0	0	41	1,374	1,989
Maryland	807	0	159	83	1,757	2,806
Massachusetts	559	0	23	34	2,275	2,891
Michigan	3,424	0	277	184	22,228	26,113
Minnesota	5,054	6	0	182	13,124	18,366
Mississippi	9,216	0	448	135	4,312	14,112
Missouri	3,156	0	571	329	8,749	12,805
Montana	962	0	327	135	4,345	5,770
Nebraska	5,495	0	1,596	244	13,162	20,496
Nevada	346	15	15	18	602	996
New Hampshire	252	0	7	23	847	1,128
New Jersey	1,404	0	47	0	1,566	3,017
New Mexico	1,559	0	58	176	1,558	3,351
New York	1,767	0	284	202	8,494	10,746
North Carolina	3,361	0	851	253	13,265	17,730
North Dakota	6,453	166	0	74	10,573	17,266
Ohio	2,024	5	596	543	15,047	18,216
Oklahoma	12,625	0	0	466	11,100	24,191
Oregon	1,181	0	130	116	7,451	8,879
Pennsylvania	4,843	28	738	487	12,406	18,503
Rhode Island	43	0	0	10	124	177
South Carolina	5,126	0	0	75	3,827	9,028
South Dakota	6,704	0	0	111	6,758	13,572
Tennessee	610	0	0	330	5,679	6,619
Texas	20,898	0	1,014	1,027	73,253	96,193
Utah	4,653	10	0	92	2,262	7,017
Vermont	315	0	0	21	509	845
Virginia	7,154	0	140	203	8,152	15,650
Washington	4,679	0	0	168	12,730	17,577
West Virginia	498	0	17	99	1,261	1,874
Wisconsin	7,196	0	0	380	11,856	19,433
Wyoming	1,279	0	0	79	4,083	5,440
Puerto Rico	5,383	0	0	133	8,986	14,503
Other	752	0	0	158	88	998
<b>U.S. Total</b>	<b>189,146</b>	<b>244</b>	<b>10,394</b>	<b>9,531</b>	<b>447,351</b>	<b>656,667</b>

Source: EPA estimates. PV calculated over 10 years using a 3% discount rate.

## B.2. Commercial Applicators

- I. The final revisions for commercial applicators include the following areas: establishment of application method-specific categories; improved supervision of noncertified applicators; minimum age requirements; and recertification requirements. In Table B.2.1, the present values (PV) of costs of the final requirements for each of the rule areas are presented and summed to obtain the present value of the total cost of the final revisions, by jurisdiction.

Table B.2.1. Present Value of Commercial Applicator Final Requirements

	PV(RC <sup>P</sup> ) New Cat	PV(RC <sup>P</sup> ) Supervision	PV(RC <sup>P</sup> ) Age	PV(RC <sup>P</sup> ) Recertification	Sum
	\$1,000				
Alabama	113	1,693	2,868	13,103	17,777
Alaska	3	115	188	976	1,282
Arizona	109	2,477	4,138	27,158	33,881
Arkansas	210	1,261	2,116	4,909	8,496
California	1,146	13,713	23,086	157,993	195,938
Colorado	192	3,536	5,083	6,045	14,857
Connecticut	4	2,322	3,103	4,156	9,584
Delaware	63	961	1,646	8,674	11,343
Florida	1,061	15,719	20,923	54,005	91,709
Georgia	237	3,244	5,407	13,253	22,141
Hawaii	35	711	1,222	2,798	4,766
Idaho	299	2,595	3,432	24,832	31,158
Illinois	209	4,865	8,225	28,603	41,901
Indiana	254	6,078	8,660	44,224	59,216
Iowa	662	154	859	48,553	50,228
Kansas	553	3,663	4,796	13,085	22,096
Kentucky	117	6,598	10,218	20,180	37,113
Louisiana	329	2,176	2,868	7,347	12,720
Maine	29	503	846	2,423	3,802
Maryland	220	3,781	0	8,790	12,791
Massachusetts	17	1,598	0	3,780	5,395
Michigan	181	8,668	11,379	55,412	75,640
Minnesota	327	118	1,058	21,090	22,593
Mississippi	175	684	893	3,546	5,299
Missouri	321	4,742	6,253	9,735	21,051
Montana	18	894	1,335	3,812	6,059
Nebraska	444	5,452	7,743	11,944	25,584
Nevada	6	1,822	2,604	2,519	6,952
New Hampshire	19	19	0	2,197	2,234
New Jersey	74	4,532	0	13,357	17,963
New Mexico	28	647	1,196	7,936	9,807
New York	55	12,101	15,939	32,643	60,739
North Carolina	187	12,391	16,315	24,056	52,949

North Dakota	325	2,469	4,185	7,360	14,339
Ohio	123	4,237	6,233	18,515	29,108
Oklahoma	512	5,076	9,527	37,838	52,952
Oregon	222	3,101	4,091	11,412	18,825
Pennsylvania	117	9,789	12,883	23,924	46,712
Rhode Island	27	565	1,019	895	2,506
South Carolina	86	1,652	2,774	6,874	11,387
South Dakota	352	66	461	12,330	13,208
Tennessee	202	4,318	7,694	41,021	53,236
Texas	516	13,103	18,170	46,750	78,539
Utah	47	1,001	2,218	10,541	13,807
Vermont	7	477	0	1,821	2,305
Virginia	85	5,123	0	12,167	17,375
Washington	488	7,896	13,400	32,703	54,488
West Virginia	73	1,082	135	2,962	4,252
Wisconsin	77	5,596	10,405	15,432	31,510
Wyoming	36	853	1,458	4,406	6,752
Puerto Rico	82	3,213	5,613	7,248	16,157
Other	123	801	1,335	4,390	6,649
<b>U.S. Total</b>	<b>11,196</b>	<b>200,247</b>	<b>276,003</b>	<b>981,723</b>	<b>1,469,170</b>

Source: EPA estimates. PV calculated over 10 years using a 3% discount rate.

- II. The following areas of the current or baseline requirements for commercial applicators are revised: establishment of application method-specific categories; supervision of noncertified applicators; minimum age requirements; and recertification requirements. In Table B.2.2, the present values (PV) of costs of the current requirements for each of the rule areas are presented and summed to obtain the present value of the total cost of the current requirements, by jurisdiction.

Table B.2.2. Present Value of Commercial Applicator Baseline Requirements

	PV(RC <sup>B</sup> ) Cat	PV(RC <sup>B</sup> ) Supervision	PV(RC <sup>B</sup> ) Age	PV(RC <sup>B</sup> ) Recertification	Sum
	\$1,000				
Alabama	8	0	2,279	13,025	15,312
Alaska	3	0	149	976	1,128
Arizona	36	0	3,288	27,104	30,428
Arkansas	19	0	1,681	4,153	5,853
California	305	0	18,343	157,139	175,788
Colorado	14	3,536	4,041	3,832	11,424
Connecticut	4	2,290	2,466	4,156	8,915
Delaware	12	0	1,308	8,636	9,955
Florida	1,061	15,537	16,625	54,005	87,228
Georgia	237	0	4,296	12,282	16,815
Hawaii	35	0	971	2,798	3,804
Idaho	0	2,595	2,727	24,596	29,918
Illinois	209	4,694	6,547	28,603	40,052

Indiana	254	5,968	6,885	44,224	57,331
Iowa	662	0	688	48,553	49,903
Kansas	0	3,663	3,811	12,627	20,101
Kentucky	117	6,438	8,128	20,121	34,805
Louisiana	278	2,123	2,279	6,988	11,668
Maine	29	0	672	2,016	2,718
Maryland	220	3,729	0	8,790	12,739
Massachusetts	17	1,573	0	3,780	5,370
Michigan	58	8,668	9,041	55,287	73,054
Minnesota	327	0	847	21,090	22,264
Mississippi	175	650	710	2,857	4,393
Missouri	55	4,742	4,969	8,179	17,944
Montana	18	866	1,061	3,812	5,758
Nebraska	444	5,452	6,156	10,204	22,257
Nevada	6	1,803	2,070	2,306	6,186
New Hampshire	19	19	0	2,197	2,234
New Jersey	74	4,532	0	13,357	17,963
New Mexico	9	620	953	7,922	9,503
New York	55	12,101	12,665	32,643	57,464
North Carolina	24	12,391	12,964	23,934	49,313
North Dakota	325	0	3,325	7,072	10,722
Ohio	123	4,237	4,958	12,653	21,970
Oklahoma	100	0	7,575	37,530	45,205
Oregon	23	3,046	3,250	11,263	17,583
Pennsylvania	117	9,789	10,236	23,924	44,066
Rhode Island	1	0	810	875	1,687
South Carolina	86	0	2,204	5,894	8,185
South Dakota	30	0	369	12,089	12,488
Tennessee	0	0	6,116	40,847	46,963
Texas	516	13,103	14,443	46,750	74,812
Utah	47	0	1,766	10,504	12,317
Vermont	7	0	0	1,821	1,828
Virginia	85	5,123	0	12,167	17,375
Washington	21	0	10,647	32,354	43,023
West Virginia	5	1,058	108	2,912	4,083
Wisconsin	77	0	8,273	14,012	22,362
Wyoming	36	0	1,158	4,372	5,567
Puerto Rico	0	0	4,461	6,304	10,765
Other	0	0	1,061	4,029	5,091
<b>U.S. Total</b>	<b>6,383</b>	<b>140,347</b>	<b>219,381</b>	<b>959,564</b>	<b>1,325,675</b>

Source: EPA estimates. PV calculated over 10 years using a 3% discount rate.

### B.3. State, Other Jurisdictions, and Federal Agencies

- I. The final revisions for the governmental entities include the following areas: change state laws and regulations as needed to revise state certification plans; EPA cost of reviewing and approving the revised state plans; develop exam materials for application method-specific categories and other exam/training materials; costs of updating state tracking database; and administering or proctoring certification/recertification exams/training. In Table B.3.1, the present values (PV) of costs of the final requirements for each of the rule areas are presented and summed to obtain the present value of the total cost of the final revisions, by jurisdiction.

Table B.3.1. Present Value of Final Requirements for Governmental Entities

	PV(RC <sup>P</sup> ) Revise plans	PV(RC <sup>P</sup> ) EPA cost	PV(RC <sup>P</sup> ) Develop exam	PV(RC <sup>P</sup> ) Tracking database	PV(RC <sup>P</sup> ) Proctor	Sum
	\$1,000					
Alabama	414	3	14	197	603	1,231
Alaska	414	3	0	197	40	654
Arizona	414	3	4	197	1,058	1,677
Arkansas	414	3	28	197	977	1,619
California	414	3	30	197	9,210	9,855
Colorado	414	3	24	197	626	1,265
Connecticut	414	3	10	197	175	799
Delaware	414	3	14	197	382	1,010
Florida	414	3	20	197	7,627	8,261
Georgia	414	3	32	197	1,512	2,159
Hawaii	414	3	10	197	316	940
Idaho	414	3	34	197	1,043	1,692
Illinois	414	3	20	197	1,412	2,046
Indiana	414	3	20	197	3,102	3,737
Iowa	414	3	10	296	3,724	4,447
Kansas	414	3	34	197	1,195	1,844
Kentucky	414	3	22	197	1,647	2,283
Louisiana	414	3	30	197	859	1,503
Maine	414	3	10	197	235	860
Maryland	414	3	10	197	1,730	2,355
Massachusetts	414	3	10	197	210	835
Michigan	414	3	20	197	2,373	3,007
Minnesota	414	3	10	197	1,616	2,240
Mississippi	414	3	20	197	586	1,221
Missouri	414	3	28	197	1,473	2,115
Montana	414	3	4	197	287	905
Nebraska	414	3	20	197	1,694	2,328
Nevada	414	3	4	197	257	876
New Hampshire	414	3	10	197	123	748
New Jersey	414	3	10	197	723	1,348
New Mexico	414	3	14	197	380	1,008
New York	414	3	10	197	1,348	1,972
North Carolina	414	3	24	197	1,552	2,190



North Dakota	414	3	10	197	1,825	2,450
Ohio	414	3	0	197	1,540	2,155
Oklahoma	414	3	24	197	2,041	2,679
Oregon	414	3	24	197	790	1,428
Pennsylvania	414	3	0	197	1,834	2,448
Rhode Island	414	3	14	197	68	696
South Carolina	414	3	10	197	677	1,302
South Dakota	414	3	28	197	1,247	1,889
Tennessee	414	3	36	197	1,561	2,211
Texas	414	3	20	197	4,681	5,315
Utah	414	3	0	197	537	1,151
Vermont	414	3	10	197	81	706
Virginia	414	3	10	197	897	1,522
Washington	414	3	24	887	1,948	3,277
West Virginia	414	3	14	197	224	852
Wisconsin	414	3	10	197	934	1,558
Wyoming	414	3	14	114	363	909
Puerto Rico	414	3	0	197	671	1,286
Other	423	67	0	197	381	1,069
<b>U.S. Total</b>	<b>21,553</b>	<b>221</b>	<b>810</b>	<b>10,954</b>	<b>72,397</b>	<b>105,934</b>

Source: EPA estimates. PV calculated over 10 years using a 3% discount rate.

- II. The following areas of the current or baseline requirements for the government entities are revised: change state laws and regulations as needed to revise state certification plans; EPA cost of reviewing and approving the revised state plans; develop exam materials for application method-specific categories and other exam/training materials; costs of updating state tracking database; and administering or proctoring certification/recertification exams/training. In Table B.3.2, the present values (PV) of costs of the current requirements for each of the rule areas are presented and summed to obtain the present value of the total cost of the current requirements, by jurisdiction.

Table B.3.2. Present Value of Governmental Baseline Requirements

	PV(RC <sup>B</sup> ) Revise plans	PV(RC <sup>B</sup> ) EPA cost	PV(RC <sup>B</sup> ) Develop exam	PV(RC <sup>B</sup> ) Tracking database	PV(RC <sup>B</sup> ) Proctor	Sum
	\$1,000					
Alabama	0	0	0	0	449	449
Alaska	0	0	0	0	40	40
Arizona	0	0	0	0	905	905
Arkansas	0	0	0	0	324	324
California	0	0	0	0	6,772	6,772
Colorado	0	0	0	0	184	184
Connecticut	0	0	0	0	122	122
Delaware	0	0	0	0	301	301
Florida	0	0	0	0	4,991	4,991
Georgia	0	0	0	0	795	795

Hawaii	0	0	0	0	228	228
Idaho	0	0	0	0	720	720
Illinois	0	0	0	0	1,213	1,213
Indiana	0	0	0	0	2,841	2,841
Iowa	0	0	0	0	3,426	3,426
Kansas	0	0	0	0	366	366
Kentucky	0	0	0	0	865	865
Louisiana	0	0	0	0	215	215
Maine	0	0	0	0	155	155
Maryland	0	0	0	0	1,100	1,100
Massachusetts	0	0	0	0	176	176
Michigan	0	0	0	0	2,008	2,008
Minnesota	0	0	0	0	1,285	1,285
Mississippi	0	0	0	0	163	163
Missouri	0	0	0	0	547	547
Montana	0	0	0	0	198	198
Nebraska	0	0	0	0	631	631
Nevada	0	0	0	0	184	184
New Hampshire	0	0	0	0	99	99
New Jersey	0	0	0	0	503	503
New Mexico	0	0	0	0	261	261
New York	0	0	0	0	1,112	1,112
North Carolina	0	0	0	0	804	804
North Dakota	0	0	0	0	1,157	1,157
Ohio	0	0	0	0	676	676
Oklahoma	0	0	0	0	1,370	1,370
Oregon	0	0	0	0	528	528
Pennsylvania	0	0	0	0	1,106	1,106
Rhode Island	0	0	0	0	27	27
South Carolina	0	0	0	0	276	276
South Dakota	0	0	0	0	604	604
Tennessee	0	0	0	0	1,090	1,090
Texas	0	0	0	0	4,190	4,190
Utah	0	0	0	0	443	443
Vermont	0	0	0	0	69	69
Virginia	0	0	0	0	570	570
Washington	0	0	0	0	1,174	1,174
West Virginia	0	0	0	0	106	106
Wisconsin	0	0	0	0	475	475
Wyoming	0	0	0	0	225	225
Puerto Rico	0	0	0	0	255	255
Other	0	0	0	0	87	87
<b>U.S. Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>48,414</b>	<b>48,414</b>

Source: EPA estimates. PV calculated over 10 years using a 3% discount rate.

Finally, the total incremental cost of the final revisions for a jurisdiction can be obtained by summing the total incremental costs of private applicators, commercial applicators, and the

governmental entities for the jurisdiction from the above tables. Summing across the jurisdictions will yield the national total incremental cost of the final revisions.