

**State Shipment Fees as a Supplement to Federal Financial Assistance under  
Section 180(c) of the Nuclear Waste Policy Act – 9398**

Lisa R. Janairo (ljanairo@csg.org)  
The Council of State Governments, Midwestern Office  
PO Box 981, Sheboygan, WI, 53082-0981

**ABSTRACT**

In Section 180(c) of the Nuclear Waste Policy Act (NWPA), Congress requires the Secretary of Energy to provide financial and technical assistance to states and tribes that will be affected by shipments of spent nuclear fuel and high-level radioactive waste (HLW) to a national repository or other NWPA-mandated facility. Although Section 180(c) assistance may be an important source of revenue for some states, two major limitations will reduce its effectiveness in preparing state and local personnel along shipping routes for their oversight and emergency response roles in connection with shipments to a national repository. First, Section 180(c) applies only to shipments to facilities mandated by the NWPA, therefore unless Congress amends the NWPA, the Secretary has no obligation to provide assistance to states and tribes that are affected by shipments to private facilities or to other federal storage locations. Second, the U.S. Department of Energy (DOE) has interpreted Section 180(c) assistance as solely intended “for training,” not for actually carrying out activities such as inspecting or escorting shipments. No mechanism or mandate currently exists for DOE to provide states with assistance in connection with operations-related activities.

This paper looks at state shipment fees as a supplement to or a substitute for the federal financial assistance that is available through Section 180(c) specifically with regard to states. Using DOE’s data on projected shipment numbers, representative routes, and affected population, and following the department’s proposed formula for allocating Section 180(c) assistance, the author examined the potential revenues states could reap through a standard fee as opposed to the NWPA-mandated assistance. The analysis shows that, while more states would likely derive greater benefit from Section 180(c) grants than they would from fees, the states with the highest projected shipment numbers would appear to gain by foregoing Section 180(c) assistance and instead charging a fee for each shipment that passes through. Despite fees coming with some disadvantages, they offer states the advantages of relative simplicity compared to the grant application process, greater certainty of the revenue source, and flexibility in using fee revenue. For these reasons, some states may wish to examine more closely the adoption of fee legislation or rules.

**INTRODUCTION**

The 1987 amendments of the NWPA included Section 180(c), which requires DOE to provide financial and technical assistance to states and tribes:

“The Secretary shall provide technical assistance and funds to States for training for public safety officials of appropriate units of local government and Indian tribes through whose jurisdiction the Secretary plans to transport spent nuclear fuel or high-level radioactive waste under subtitle A or under subtitle C. Training shall cover procedures required for safe routine transportation of these materials, as well as procedures for dealing with emergency response situations” [1].

Between 1995 and 1998, DOE’s Office of Civilian Radioactive Waste Management (OCRWM) worked with its transportation stakeholders to develop a proposed policy and procedures for implementing Section 180(c) [2]. Toward the end of this process, OCRWM terminated most of its transportation institutional activities as a result of the opening date for the repository shifting to 2010. In 2004, following Congressional and Presidential approval two years earlier of DOE’s recommendation to develop the repository at Yucca Mountain, OCRWM resumed its stakeholder interactions on Section 180(c) implementation. Working through the Transportation External Coordination Working Group, a well-established stakeholder forum operating since 1992, OCRWM set up a Section 180(c) Topic Group to examine the issues pertaining to Section 180(c) and seek to resolve them. This process for resolving issues pertaining to Section 180(c) was a model for cooperation and consultation with affected stakeholders, resulting in widespread consensus among those stakeholders on most issues [3].

Contributing to the effort through their membership on four regional committees, the states reached agreement on all but one issue related to Section 180(c) – that being the formula for allocating the available funding [3]. All four regions agreed that a portion of the funding should be awarded to meet basic needs, which resulted in the proposal to award states a one-time \$200,000 planning grant plus a \$100,000 base grant each year that shipments are planned through a state. Three of the regions, however, felt the grants should include a variable component based on potential impacts on a state. The approach recommended by these regions – the Midwest, Northeast, and the South – was to follow the example of the U.S. Department of Transportation’s (DOT) Hazardous Materials Emergency Preparedness grants. To allocate funding under that program, DOT uses a formula that ties funding levels to measurable, objective criteria as measures of potential impacts. In the case of Section 180(c) and the impact of OCRWM’s shipments, the three regions proposed using a formula that considers affected population, miles traveled in a state, the number of shipments, and the number of originating facilities to determine the award for which each state is eligible. With weighting, the formula for the variable portion of the grants is as follows:

$$\text{Impact Factor} = (.3\text{POP} + .3\text{MILES} + .3\text{SHIPMENTS} + .1\text{FACILITIES})$$

This impact factor would then be multiplied by the total amount of funding available to the variable grants to determine the amount of a state’s variable grant under Section 180(c). OCRWM adopted this approach in the revised policy and procedures published in the *Federal Register* in 2007 [4]. It is important to note that OCRWM would not automatically award the states the total of base funding plus variable funding, but rather states would have to justify that level of expenditure in annual applications to receive Section 180(c) funding [4, 5].

Despite the disagreement over the funding allocation formula, the states were largely supportive of the proposed policy and procedures that OCRWM published in 2007. OCRWM later supplemented the policy to complete the picture with regard to tribal allocations in a *Federal Register* notice on October 31, 2008, which preserved the original proposed funding formula for state grants [6]. OCRWM has not identified a target date for finalizing the policy. The analysis in this paper relies upon the current planning for Section 180(c) identified in the 2007 and 2008 *Federal Register* notices.

During the collaborative process for resolving Section 180(c) issues, DOE and its state stakeholders discussed at length two major limitations. First, federal assistance under Section 180(c) applies only to shipments to an NWPAmandated facility. The states first became concerned about this limitation when Private Fuel Storage, LLC, was actively pursuing the development of a private, centralized storage facility on tribal lands in Utah [7]. The states argued that shipments to a private facility such as the proposed one in Utah would only become necessary as a result of DOE’s failure to begin accepting spent nuclear fuel in 1998 as required by the standard disposal contracts between DOE and the utilities [8]. The states felt strongly that Section 180(c) should apply to shipments of waste ultimately destined for Yucca Mountain, regardless of whether the waste heads first to an interim destination [8]. DOE was not unsympathetic to the states’ concern, however it stood by its interpretation of the act as limiting Section 180(c) assistance to shipments to facilities mandated under the NWPAm. The development of the Private Fuel Storage facility has been put on indefinite hold, however this issue remains a concern because of fairly recent Congressional interest in storage proposals as an interim step while waiting for OCRWM to open the repository at Yucca Mountain [9].

The second limitation is that DOE interprets Section 180(c) as calling upon the Secretary of Energy to provide assistance to states only “for training.” Restricting Section 180(c) assistance in this way will inhibit the states’ ability to establish for OCRWM’s shipments the same type of comprehensive transportation safety programs that they have developed in connection with shipments of transuranic waste to DOE’s Waste Isolation Pilot Plant (WIPP) [10]. The states, however, point to the WIPP experience as a good one that marks the *minimum* expected of the OCRWM program. Indeed, the states expect OCRWM to *go beyond* WIPP, with the states having “an even greater level of operational involvement with OCRWM’s shipments than they have had with past DOE shipping campaigns” [10]. Rather than impose on state taxpayers the cost of developing comprehensive transportation safety programs, the states felt strongly that DOE should “provide the states with financial and technical assistance for both training and operations activities” [11]. The states recommended that DOE work with them to identify another mechanism separate from Section 180(c) to fund these activities [10]. But to date, OCRWM has not aggressively pursued most of the states’ institutional priorities for the shipping program and, in fact, has proposed scaling back its work with the states [12]. As a result, there is reason to doubt that OCRWM will carry out this specific recommendation to the states’ satisfaction.

Fortunately for the states, there is another option for generating the revenue they will need to fund not only training but also operations-related activities – and to fund all these activities regardless of the destination for shipments. State fees on radioactive waste shipments have long been a source of funding for some states, notably in the Midwest. State fees are permitted under federal hazardous materials transportation law as long as the fee is “fair and used for a purpose related to transporting hazardous material, including enforcement and planning, developing, and maintaining a capability for emergency response” [13]. In all, 23 states assess fees on shipments of spent fuel and HLW [14]. Some fees are nominal, like Oregon’s charge of \$70 per shipment [15]. Other states impose fees that are mode-dependent. Illinois, for example, charges \$2,500 per cask for shipments by truck, but for shipments by train the state charges \$4,500 for the first cask and \$3,000 for each additional cask [16]. Only Iowa incorporates into its fee a provision for the state to waive the fee, at its discretion, if the shipper makes available an alternate source of funding to the state (e.g., Section 180(c)) [17].

When compared to Section 180(c) assistance, state fees offer many benefits to the states. First, whereas Section 180(c) assistance applies very narrowly to shipments OCRWM will conduct to an NWPA-mandated facility, state fees can apply to all shipments of spent fuel and high-level waste regardless of the shipper or the destination. Second, compared to the time-consuming process of applying for and reporting on the use of Section 180(c) assistance, the collection of fees is a simple, straightforward process – one that states are already accustomed to performing and would be carrying out even in the absence of OCRWM’s shipments. Third, fees eliminate the need for the states to rely on the goodwill or commitment of shippers like OCRWM to cover the states’ costs. By having this certain source of revenue, the states avoid having to ask taxpayers to foot the bill for shipment-related activities.

Finally, because there are no limitations that the funding be used solely for training, states can use the revenue generated from fees to cover a wide range of activities. This flexibility is a boon for states, but could potentially pose a problem for OCRWM as it implements Section 180(c). In the 2007 *Federal Register* notice, OCRWM posed a question that came up frequently in the discussion as the Section 180(c) Topic Group worked on the proposed policy – namely, how to structure the 180(c) program to avoid situations in which OCRWM would wind up “paying twice for the same activity” [4]. The Section 180(c) Topic Group recommended that, because states use their fee revenue to pay for all kinds of activities, not just training, DOE should “not deduct the cost of state fees from a state’s Section 180(c) award unless separately negotiated with the state” [18]. OCRWM’s proposed policy, however, left unanswered the question of whether and, if so, how shipment fees would factor into a state’s financial assistance award.

Despite the advantages of state shipment fees, they do have some potential downsides. First, because fees are collected at the time of shipment or afterward, the state might not have funding available in the years before OCRWM’s shipments begin to prepare adequately along the routes. One way to overcome the timing issue may be for states that have no past fee revenue to draw upon to set aside a modest amount of “seed money” from general revenue in advance of a significant shipping campaign such as OCRWM’s. Second, for some states, it would simply not be feasible to build and maintain a comprehensive transportation safety program funded by fees alone. This would most likely be the case with states that have few shipments. One way around this problem would be for these states to forego extensive preparations along entire shipping routes in favor of less resource-intensive measures like providing security and emergency response escorts for the few shipments that will take place. While practical in theory, it is each state’s right to determine how best to protect the health and safety of the public and the environment, and to do so within the state’s own unique emergency management infrastructure.

Third, the total fee revenue in any particular year might not be known in advance and could vary considerably from year to year. Federal financial assistance under Section 180(c) would also be uncertain because award levels would be dependent upon OCRWM requesting and Congress appropriating sufficient funding. The year-to-year variability of Section 180(c) assistance could be less pronounced if OCRWM follows the recommendation of the Section 180(c) Topic Group and continues to provide funding to states even if shipments lapse for up to three years [19]. Finally, for some states, carrying over funding from one fiscal year to the next could be a problem. There may be administrative or legislative remedies to this potential downside to fees.

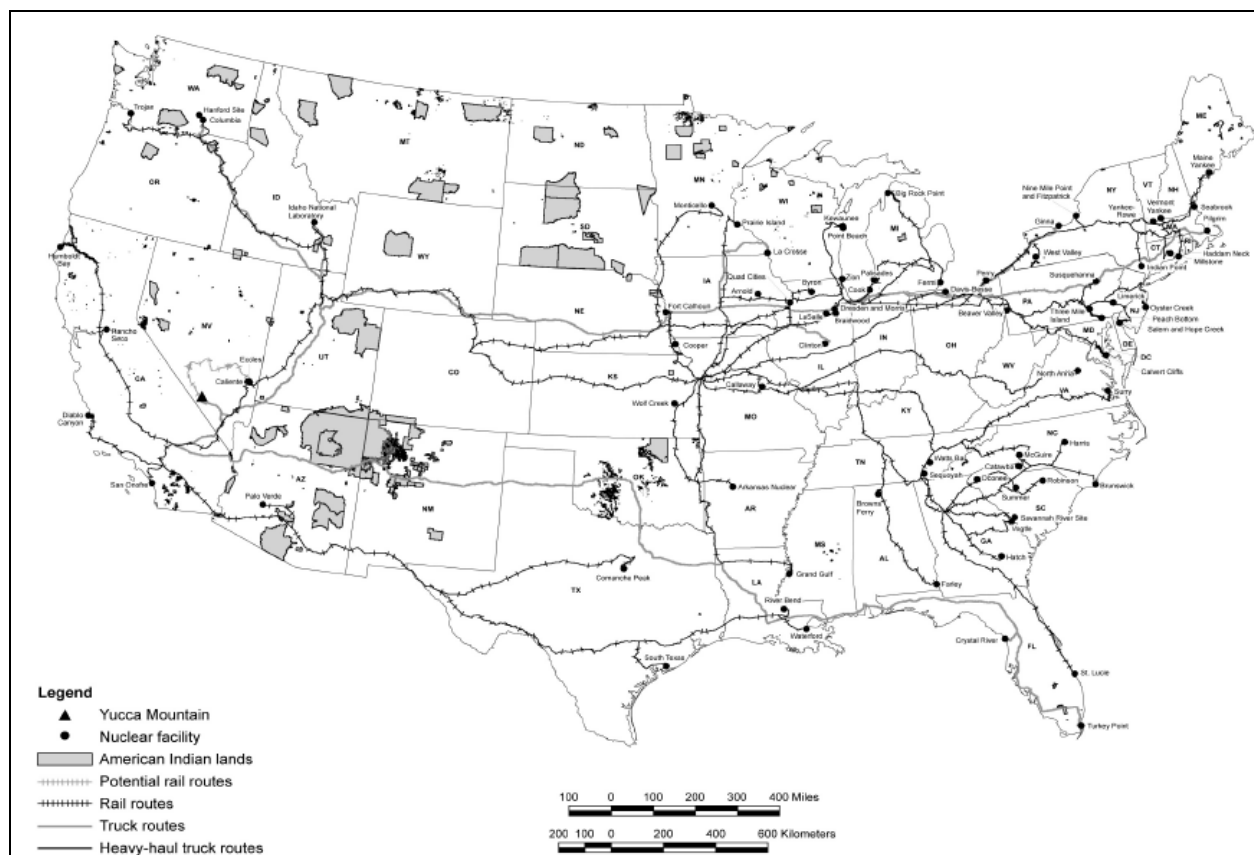
### **Comparison of Fees to Section 180(c) assistance**

To determine whether fees would make an appealing complement to or substitute for Section 180(c) assistance, the author examined the potential outcomes for states under two scenarios. Both scenarios relied upon the same data and simplifying assumptions:

1. The scope was limited to shipments of spent fuel, not high-level waste.
2. Data on shipment numbers, mode, and shipping facilities are derived from DOE's Supplemental Environmental Impact Statement on Yucca Mountain (SEIS) [20].
3. Data on affected population and route miles are derived from the SEIS and DOE's routing model TRAGIS.
4. OCRWM's implementation of Section 180(c) will follow the plan described in the 2007 and 2008 *Federal Register* notices [4,6].
5. For each state, a standard fee of \$3,500 per cask would apply to every shipment regardless of mode.
6. Rail shipments would consist of three casks per train, while each truck shipment would consist of a single cask.
7. Total assistance available under Section 180(c) in any given year would be \$10 million, except in the first four years of implementation (see the discussion below).
8. The payment of fees would be unconstrained – that is, OCRWM's transportation budget would be sufficient to pay all shipment fees.
9. Shipments to the repository would last for 24 years.
10. Section 180(c) awards would commence four years prior to the start of shipments and last through the final shipping year.
11. All cost or revenue estimates are in constant dollars.

The first scenario attempted to factor in the variable impacts on individual states by simulating what the Section 180(c) awards might look like in the first 10 years of the shipping program, using the representative routes identified in the SEIS (Figure I).

Figure I. Representative Shipping Routes from OCRWM’s SEIS [20]



OCRWM has not produced any publicly available projections for the shipping queue, therefore the author used unpublished projections calculated by the staff of the Council of State Governments’ Midwestern Radioactive Materials Transportation Project [21]. These projections are based on OCRWM’s “Annual Acceptance Ranking and Capacity Report” [22] with two key assumptions. First, the utility that holds the place in the queue will ship spent fuel from the site that generated the right. That is, there would be no trading of rights between utilities. Second, in contrast to this limitation on utility trading, OCRWM could do some of its own trading in order to completely fill a cask when picking up spent fuel from any site. In other words, if a utility’s allotment in any given year would leave a cask partly empty, OCRWM would accept additional waste from that site in order to improve the efficiency of the transportation system. Accepting this additional waste would affect the total amount of waste OCRWM would receive in that year but would not have an impact on any allocations in future years.

OCRWM’s intention is to begin awarding Section 180(c) grants to affected states four years prior to the start of shipments (T-4) [4]. In that year, each state affected by shipments in the first shipping year (T) would be eligible for an assessment and planning grant of \$200,000, therefore the total amount needed for 180(c) grants in T-4 would be the number of eligible states (20) multiplied by \$200,000 for a total of \$4 million.

In year T-3, these 20 states would each receive their \$100,000 base grant, plus 18 additional states would be eligible for assessment and planning grants. OCRWM has not indicated how it would allocate funding between base grants and the variable grants, so the author simplified the approach by assigning the same amount to variable grants as the base grants in the years prior to shipments commencing (T-3 through T-1). Starting in year T, the first year of shipments, the total amount of Section 180(c) assistance would be \$10 million. The amount reserved for the variable grants would be \$10 million minus whatever funding was required for the combined sum of the assessment and planning grants and the base grants.

It is important to note that, because variable grants are tied to potential impact, the variable grant amounts are based on shipping projections three years out. The timing satisfies the states' request that DOE make Section 180(c) assistance available to states at least three years before shipments begin. Because OCRWM's "Annual Acceptance Ranking and Capacity Report" does not have projections beyond the 10<sup>th</sup> shipping year, the analysis had to use a surrogate for shipping years 11, 12, and 13 in order to estimate the Section 180(c) award levels in shipping years 8, 9, and 10, respectively. That surrogate collapsed the remaining projected shipments after the 10<sup>th</sup> year into one year and calculated the 180(c) award for that year. The author then used the same level of 180(c) assistance for shipping years 8-10. No such surrogate was needed to calculate potential fee revenue in those years because the projected shipment numbers were available.

Under the "First 10 Years" scenario, it appears that most states would stand to gain more through Section 180(c) grants than they would by charging a fee of \$3,500 per cask (Table I).

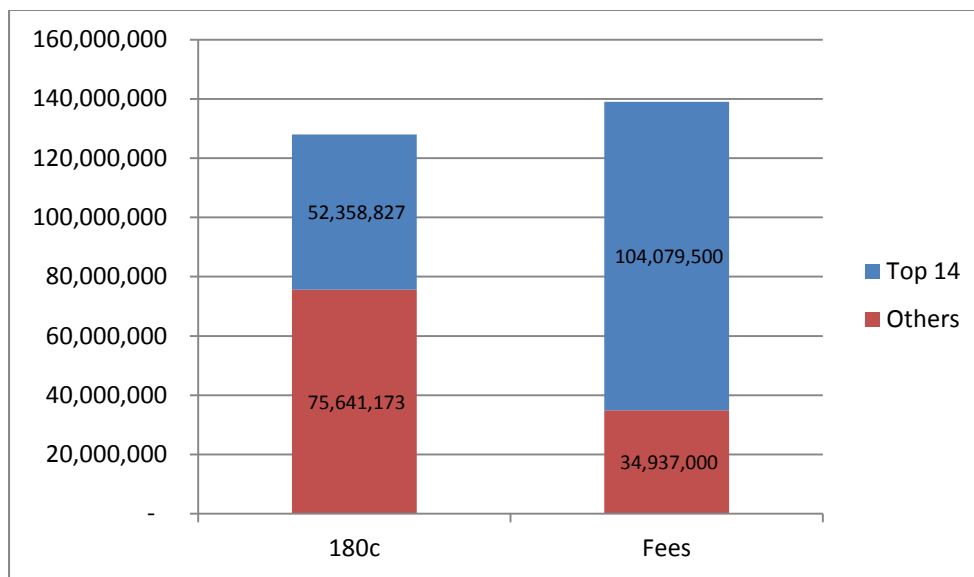
**Table I. Comparison of Potential Fee Revenue to Projected Section 180(c) Assistance: First 10 Years of Shipments**

State	Casks	Fees	Section 180(c)	Fees Minus 180(c)
AL	718	2,513,000	1,840,982	672,018
AR	75	262,500	1,225,529	(963,029)
AZ	1,204	4,214,000	2,637,914	1,576,086
CA	577	2,019,500	8,062,954	(6,043,454)
CO	2,616	9,156,000	2,356,243	6,799,757
CT	302	1,057,000	3,511,620	(2,454,620)
DC	114	399,000	1,232,701	(833,701)
FL	457	1,599,500	1,761,705	(162,205)
GA	396	1,386,000	1,523,888	(137,888)
IA	2,274	7,959,000	4,790,344	3,168,656
ID	63	220,500	1,217,641	(997,141)
IL	3,015	10,552,500	7,549,606	3,002,894
IN	2,425	8,487,500	4,709,561	3,777,939
KS	1,020	3,570,000	1,734,720	1,835,280
KY	729	2,551,500	1,636,478	915,022
LA	442	1,547,000	1,766,195	(219,195)
MA	428	1,498,000	3,094,519	(1,596,519)
MD	114	399,000	1,232,701	(833,701)
ME	54	189,000	1,414,330	(1,225,330)
MI	386	1,351,000	4,312,301	(2,961,301)
MN	141	493,500	1,884,351	(1,390,851)
MO	1,020	3,570,000	1,734,720	1,835,280
MS	421	1,473,500	1,758,512	(285,012)
NC	150	525,000	1,356,120	(831,120)
NE	3,372	11,802,000	5,464,638	6,337,362
NH	54	189,000	1,417,275	(1,228,275)
NJ	126	441,000	3,260,247	(2,819,247)
NM	421	1,473,500	1,763,725	(290,225)
NV	4,012	14,042,000	5,699,602	8,342,398
NY	779	2,726,500	6,465,181	(3,738,681)
OH	1,373	4,805,500	6,001,645	(1,196,145)
OK	466	1,631,000	1,768,315	(137,315)
OR	63	220,500	1,217,641	(997,141)
PA	1,283	4,490,500	5,206,782	(716,282)
SC	270	945,000	1,486,409	(541,409)
SD	39	136,500	1,210,998	(1,074,498)
TN	729	2,551,500	1,636,478	915,022
TX	433	1,515,500	1,771,917	(256,417)
UT	3,435	12,022,500	5,546,844	6,475,656
VA	147	514,500	1,449,490	(934,990)
VT	126	441,000	1,557,502	(1,116,502)
WA	24	84,000	908,963	(824,963)
WI	144	504,000	3,567,317	(3,063,317)
WV	114	399,000	1,232,701	(833,701)
WY	3,168	11,088,000	5,020,698	6,067,302
<b>Total</b>		<b>139,016,500</b>	<b>128,000,000</b>	<b>11,016,500</b>

Of the 45 states affected by OCRWM's representative routes to the repository, 31 would fare better through Section 180(c) over the first 10 years of shipments. The 14 states that would fare better with fees are Alabama, Arizona, Colorado, Iowa, Illinois, Indiana, Kansas, Kentucky, Missouri, Nebraska, Nevada, Tennessee, Utah, and Wyoming. These states are a significant exception because they include the top 12 states in terms of shipment numbers. This

makes sense, of course, because fees are based solely on shipment numbers whereas Section 180(c) considers other factors like population and mileage. Looking at the portion of total payments that would go to these 14 states, the difference is striking. These 14 states would reap 41% of the estimated Section 180(c) payments if they applied for the grants, but they would take in 75% of the estimated funding under an all-fees approach (Figure II).

**Figure II. Section 180(c) Awards versus Fees: First 10 Years**



Each of the states most heavily impacted by shipments in terms of numbers alone would take in at least 30% more with fees than they would with Section 180(c) grants. For half of these 14 states, shipment fees could bring in more than twice the revenue the states would receive through the Section 180(c) program.

It is important to note that the total cost to OCRWM over the first 10 years of shipments would be \$11 million less for the Section 180(c) grants than it would be for state fees. The “First 10 Years” scenario projected OCRWM would spend a total of \$128 million to implement Section 180(c), compared to \$139 million for fees over the same period under an all-fees approach.

Looking closely at the 14 states that could do better with fees, the potential fee revenue in these states – \$104.1 million – would be only \$24 million less than the entire Section 180(c) outlay through the 10<sup>th</sup> year of shipments. The difference between these numbers is even more significant when one considers that, under the all-fees approach, the first 10 years of shipments involves fees being charged only over 10 years. For the Section 180(c) awards, however, the first 10 years of shipments are associated with 14 years of grants – 10 shipping years plus the four years prior to the start of shipments.

The second scenario involved taking a very simple snapshot of the lifetime of the shipping program by condensing all shipments into one year, then comparing what the states would receive under the proposed Section 180(c) award process to the revenue they could recoup from a fee. In essence, the approach was to do for the entire lifetime of the program what was necessary for shipping years 11-13 in the “First 10 Years” scenario. To calculate the grants, the total 180(c) funding available was calculated to be \$268 million, which is the sum of 24 years of funding at \$10 million per year plus \$28 million for the first four years of implementation. Each state was assumed to receive a single \$200,000 assessment and planning grant, plus a \$100,000 base grant each year for 27 years (24-year shipping program plus three years prior to shipments beginning).

Subtracting the planning and base grants from the total available left \$137.5 million available for the variable grants. To calculate the variable component, the author used total shipment numbers and facilities in the allocation formula. For route miles and population, the author used the highest estimate for the first 10 years of shipments. That is, the



largest impact on a state in the first 10 years was used to calculate that state's "impact factor" for the variable portion of the Section 180(c) grants.

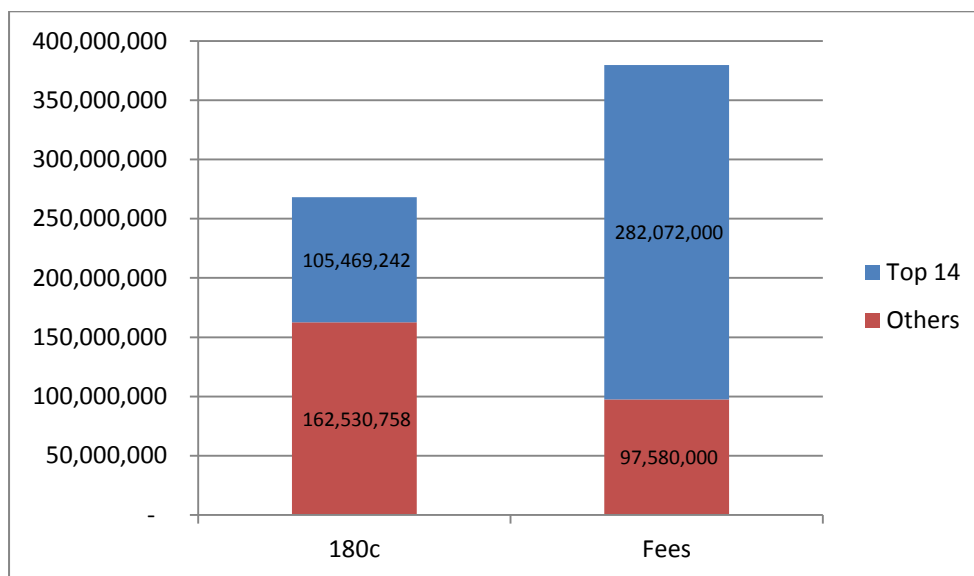
The results largely confirmed the findings for the more elaborate analysis of the first 10 years of shipments (Table II).

**Table II. Comparison of Potential Fee Revenue to Projected Section 180(c) Assistance: Lifetime of Program**

State	Casks	Fees	180(c) Impact Factor	180(c) Funding	Fees Minus 180C
AL	2,523	8,830,500	0.038	8,120,714	709,786
AR	227	794,500	0.005	3,547,093	(2,752,593)
AZ	3,176	11,116,000	0.030	7,077,260	4,038,740
CA	1,682	5,887,000	0.056	10,657,006	(4,770,006)
CO	6,669	23,341,500	0.019	5,570,307	17,771,193
CT	560	1,960,000	0.013	4,668,963	(2,708,963)
DC	138	483,000	0.002	3,220,605	(2,737,605)
FL	995	3,482,500	0.030	7,080,811	(3,598,311)
GA	1,824	6,384,000	0.028	6,735,643	(351,643)
IA	3,050	10,675,000	0.031	7,187,073	3,487,927
ID	2,005	7,017,500	0.010	4,271,528	2,745,972
IL	7,751	27,128,500	0.073	12,961,260	14,167,240
IN	6,312	22,092,000	0.036	7,916,798	14,175,202
KS	6,284	21,994,000	0.019	5,466,374	16,527,626
KY	2,710	9,485,000	0.013	4,741,302	4,743,698
LA	1,090	3,815,000	0.024	6,133,635	(2,318,635)
MA	759	2,656,500	0.017	5,249,331	(2,592,831)
MD	138	483,000	0.006	3,735,352	(3,252,352)
ME	60	210,000	0.004	3,386,930	(3,176,930)
MI	900	3,150,000	0.020	5,654,301	(2,504,301)
MN	190	665,000	0.013	4,624,443	(3,959,443)
MO	6,185	21,647,500	0.033	7,462,771	14,184,729
MS	957	3,349,500	0.012	4,560,241	(1,210,741)
NC	502	1,757,000	0.017	5,298,856	(3,541,856)
NE	2,273	7,955,500	0.035	7,742,919	212,581
NH	110	385,000	0.003	3,271,840	(2,886,840)
NJ	276	966,000	0.014	4,774,947	(3,808,947)
NM	1,184	4,144,000	0.013	4,619,234	(475,234)
NV	12,145	42,507,500	0.044	8,969,966	33,537,534
NY	1,484	5,194,000	0.028	6,785,617	(1,591,617)
OH	2,826	9,891,000	0.046	9,221,983	669,017
OK	1,084	3,794,000	0.013	4,733,061	(939,061)
OR	1,310	4,585,000	0.013	4,668,310	(83,310)
PA	2,576	9,016,000	0.048	9,437,401	(421,401)
SC	1,517	5,309,500	0.018	5,336,975	(27,475)
SD	44	154,000	0.000	2,931,741	(2,777,741)
TN	2,593	9,075,500	0.023	6,129,818	2,945,682
TX	1,284	4,494,000	0.045	9,039,551	(4,545,551)
UT	10,463	36,620,500	0.043	8,790,425	27,830,075
VA	238	833,000	0.013	4,709,061	(3,876,061)
VT	199	696,500	0.002	3,149,032	(2,452,532)
WA	1,277	4,469,500	0.006	3,709,244	760,256
WI	189	661,500	0.009	4,192,387	(3,530,887)
WV	255	892,500	0.002	3,125,636	(2,233,136)
WY	8,458	29,603,000	0.032	7,332,253	22,270,747
<b>Total</b>		<b>379,652,000</b>	<b>1.000</b>	<b>268,000,000</b>	<b>111,652,000</b>

Over the lifetime of the program, an all-fees approach would benefit a few more states – 17 compared to 14 for the “First 10 Years” scenario. Most states would benefit more through the Section 180(c) grants, as would the OCRWM program itself: total outlays for Section 180(c) grants would be \$268 million compared to a whopping \$379.7 million for an all-fees approach. The 14 states that fare better under fees for both scenarios would earn more over the lifetime of the shipping program than the entire amount allocated to Section 180(c) grants – \$282.1 million in fees compared to \$268 million in Section 180(c) grants. Similar to the “First 10 Years” scenario, over the lifetime, these 14 states would take in three of every four dollars OCRWM would spend on fees (Figure III).

**Figure III. Section 180(c) Awards versus Fees: Lifetime of Program**



Opting for Section 180(c) grants instead of fees, these states together would receive only 40% of the available funding. Also consistent with the “First 10 Years” scenario, the total cost to OCRWM under an all-fees approach would be over 40% higher than it would be for Section 180(c) grants over the life of the program.

It appears, then, that the majority of states as well as the OCRWM program itself would fare better if all the states accepted Section 180(c) grants and did not charge fees on shipments. The situation is complicated, however, by the finding that 14 states not only would do better with fees but would do *much* better. To help understand the potential ramifications of these findings – and to identify areas for future study – we need to consider the limitations of the analysis.

First, the analysis is only as good as the projections, and those are only as good as the raw data. While the data and the projections were developed with great care and thought by many people, OCRWM has not settled on some very important matters that could greatly impact the parameters. For example, what will the shipping queue look like? For small sites – say, the LaCrosse nuclear power plant in Wisconsin – would OCRWM pick up all the waste in the first year of shipping from the site? Or would OCRWM return to the site year after year, picking up only its small allotment in each year? Similarly, will OCRWM commit to filling three rail casks for each shipment to maximize efficiency? Or could a shipment consist of one or two casks? If the latter, would those casks later be joined by casks from other power plants in some yet-to-be-identified marshalling yard – again, with the goal of maximizing the efficiency of rail shipments? Questions about routes, shipment configuration, and the timing of shipments remain unanswered and will likely remain so until OCRWM releases its long-awaited transportation operations plan.

Second, the analysis assumes a standard fee of \$3,500 per cask for every state. This fee is a modified version of some existing fees in the Midwest, as well as fees that were proposed but not passed in two Midwestern states. States may, indeed, be able to justify charging this amount for each shipping cask on the grounds that the revenue is used to pay for shipment-related activities such as training, inspections, escorts, and public information. However it

is possible that OCRWM, faced with paying almost \$400 million in fees alone, would challenge the states' right to impose such fees. Whether OCRWM would successfully make such a challenge would clearly have an impact on the states' ability to use fees as a substitute for Section 180(c).

Third, the results could change significantly if OCRWM were to alter the current plan for implementing Section 180(c). The most likely candidates for change would be the level of the base grant, the weighting of the variable grant factors, splitting the available funding among the variable grants and base grants, and the total amount of funding available. Regarding the base grants, some have suggested that \$100,000 is too high for states that will have very short-term campaigns involving a small number of shipments. Lower base grants could give these states the incentive to employ more efficient approaches to dealing with shipments – such as escorting instead of training along the shipping routes. While perhaps more efficient, one problem with this approach is that, as noted earlier, states have the right to take different approaches to protecting public health and safety. Furthermore, under OCRWM's interpretation of Congress' mandate, the states cannot receive Section 180(c) assistance for implementing these lower-cost, more efficient measures. The choice states face is to train, using Section 180(c) funding, or inspect and escort without federal financial assistance. Nevertheless, if OCRWM were to reduce the level of the base grant, more funding would be available to variable grants which could affect the comparison.

The weighting of the variable grant factors has been called arbitrary, which may or may not be a valid claim. Certainly, changing the weighting would have an impact on the outcome of this analysis. Finally, OCRWM has consistently thrown out the figure of \$10 million as a nice round, reasonable amount for the Section 180(c) awards. Whether OCRWM considers this amount sufficient for the states or whether a portion would be reserved for the tribes is another question that needs to be answered. And whether OCRWM will be able to follow through on its very tentative goal of budgeting \$10 million for Section 180(c) remains to be seen. In addition, state fees would likely remain constant for long periods of time because of the difficulty of amending state statutes and rules. Section 180(c) funding, in contrast, will be adjusted annually for inflation [4].

Finally, the analysis offers the choice of fees or Section 180(c) assistance – not both. Perhaps the ideal scenario would be for states to rely on Section 180(c) assistance for all training-related activities, with a shipment fee supplementing this assistance to cover state actions like tracking, inspecting, and escorting. This hybrid solution could help states by providing the revenue they need for the operations-related activities that Section 180(c) will not cover. It could also potentially help OCRWM by reducing the cost to the program if, for example, negotiations with the states resulted in a lower standard fee on the order of \$2,000-2,500.

Related to this last point, the analysis also overlooks another potential scenario: having some states charge fees and entirely forego Section 180(c) assistance, while the rest rely on Section 180(c). This type of approach might work well as long as OCRWM does not penalize the non-fee states by severely restricting the Section 180(c) budget in order to earmark funding to pay fees to states that charge them.

## **Conclusion**

The results of this analysis raise some interesting questions for the states and OCRWM to consider. For the states, the obvious question is to ask whether a shipment fee might be worth pursuing well ahead of the OCRWM shipments getting underway. As evidenced by many attempts in the Midwest, enacting fees is not an easy matter. "Fee" is just another word for "tax," and few state legislators welcome the opportunity to pass more taxes. But in many states – namely, those likely to have the highest shipment numbers – the new fee or tax would ultimately reduce the cost to taxpayers of getting the state and its communities ready for OCRWM's shipments. In these states, opting for fees instead of Section 180(c) assistance would not only increase revenue to the states but would also simplify the administrative burden and guarantee that the state would have the resources to pay for important state safety and security measures like inspections and escorts.

For OCRWM, there are two key lessons learned from this analysis. First, the gaps in the analysis underscore the need for OCRWM to do a better job developing a game plan for conducting shipments to the repository. Or, to be fair, if a detailed game plan already exists, OCRWM needs to do a better job sharing it with key stakeholders like the states that will be affected by shipments so that they can begin to assess the impacts they will likely face.

Second, OCRWM should consider the full set of impacts of each decision it makes with regard to shipments. The matter of the shipping queue, the number and timing of shipments, the number of routes, the rate of acceptance – all these factors in some way will affect the implementation of Section 180(c). While the changes might not be significant for OCRWM if it holds the total Section 180(c) assistance constant at \$10 million per year (adjusted for inflation), the impact could be significant on the individual states. Using multiple routes through a state, for example, may be sensible from the standpoint of logistics, however it will create a significant burden on the state to prepare. This burden, in turn, will cause the scarce resources available under Section 180(c) to be spread unnecessarily thin. To make sure the Section 180(c) program achieves the outcome Congress intended, OCRWM must engage the states in developing a transportation operations plan and a shipping schedule that maximize the efficiency of the transportation system and, as a result, reduce the impact on state resources.

## REFERENCES

1. Nuclear Waste Policy Amendments Act, Title V of Public Law 100-203, December 22, 1987.
2. U.S. DEPARTMENT OF ENERGY, OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT (US DOE/OCRWM), “Safe Routine Transportation and Emergency Response Training; Technical Assistance and Funding: Notice of revised proposed policy and procedures” *Federal Register* 63 (83), pp. 23753-66 (April 30, 1998).
3. C. MACALUSO, T. STRONG, L. JANAIRO, and E. HELVEY, “A Collaborative Approach to Transportation Planning: Federal and State Perspectives on Section 180(c) Program Development,” Waste Management Conference 2006.
4. US DOE/OCRWM, “Safe Routine Transportation and Emergency Response Training; Technical Assistance and Funding: Notice of revised proposed policy and request for comments,” *Federal Register* 72 (140), pp. 40139-45 (July 23, 2007).
5. R. OWEN and J. BEETEM, Letter to Corinne Macaluso (OCRWM) transmitting comments from the CSG Midwestern Radioactive Materials Transportation Committee on OCRWM’s July 2007 *Federal Register* notice seeking comments on the revised proposed policy and procedures for Section 180(c), October 9, 2007.
6. US DOE/OCRWM, “Safe Routine Transportation and Emergency Response Training; Technical Assistance and Funding: Notice of revised proposed policy and request for comments,” *Federal Register* 73 (212), pp. 64933-39 (October 31, 2008).
7. H. BORCHERT, Letter from the Chair of the CSG Midwestern High-Level Radioactive Waste Committee to Dr. Daniel Dreyfus, OCRWM Director, May 17, 1995.
8. D. CROSE, Letter from the Chair of the CSG Midwestern High-Level Radioactive Waste Committee to Ms. Corinne Macaluso, OCRWM, September 25, 1996.
9. S. 3215, “Strengthening Management of Advanced Recycling Technologies Act of 2008” 110<sup>th</sup> Congress, 2<sup>nd</sup> Session.
10. SECTION 180(C) TOPIC GROUP, “Appendix J: Funding Operational Activities,” Discussion paper supporting OCRWM’s revised policy and procedures on Section 180(c) implementation, July 21, 2005.
11. STATE REGIONAL GROUPS, “Principles of Agreement Among States on Expectations Regarding Preparations for OCRWM Shipments,” February 2, 2005.
12. D. CHUNG, G. LANTHRUM, and D. MOODY, “Office of Environmental Management and Office of Civilian Radioactive Waste Management Plan for Stakeholder Interactions,” October 2008.
13. 49 U.S.C. Chapter 51, “Transportation of Hazardous Material,” Section 5125(g)(1).
14. NATIONAL CONFERENCE OF STATE LEGISLATURES, “State Permits and Fees (annual) for the Transportation of Radioactive Materials: Spent Fuel, High-Level Radioactive Waste, Transuranic Waste and Highway Route-Controlled Quantities of Radioactive Materials,” 2007.
15. OREGON ADMINISTRATIVE RULES 345-060-0006.
16. ILLINOIS NUCLEAR SAFETY PREPAREDNESS ACT, 420 ILCS 5/8, subparagraph (a)9.

17. IOWA ADMINISTRATIVE CODE 641—38.8(11).
18. SECTION 180(C) TOPIC GROUP, “Appendix I: State Fees,” Discussion paper supporting OCRWM’s revised policy and procedures on Section 180(c) implementation, July 21, 2005.
19. SECTION 180(C) TOPIC GROUP, “Appendix B: Timing and Eligibility,” Discussion paper supporting OCRWM’s revised policy and procedures on Section 180(c) implementation, July 21, 2005.
20. US DOE/OCRWM, “Final Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada” (DOE/EIS-0250F-S1), US DOE (2008).
21. S. WOCHOS and L. JANAIRO, unpublished database and cost analysis process, CSG Midwest (2007).
22. US DOE/OCRWM, “Acceptance Priority Ranking and Annual Capacity Report” (DOE/RW-0567), US DOE (2004).