Inconsistent depreciation and double-taxation: the Trans-Alaskan Pipeline System property tax

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ABSTRACT

The Trans Alaska Pipeline System is subject to an annual state ad valorem property tax. In 2005 the state changed the assessment method from an income approach to a cost approach. Under the income approach assessed value was based on tariff income, which included units-of-production depreciation. Under the cost approach value was based on replacement cost new less straight-line depreciation.

When the assessment means was changed there was no adjustment for past depreciation. This inconsistency in depreciation treatment caused assets to be depreciated more than once over time, with the result being a double taxation of the property.

Keywords: property tax, depreciation, double-taxation, Alaska, assessment

I. INTRODUCTION

The Trans Alaska Pipeline System (TAPS) is the means for transporting the billions of barrels of Alaska North Slope (ANS) oil 800 miles to the port of Valdez, where it is moved by marine tankers, mostly to West Coast markets. Construction of the pipeline began in 1974, with operations commencing in 1977. The original cost was $7.2 billion, with another $1.7 billion incurred through 2006. Throughput peaked at 2.1 million barrels per day (mmbd) in 1988. Now it carries less than 600,000 mmbd.

The pipeline is subject to an annual state (Alaska) ad valorem property tax of 20 mills (Alaska Stat. § 43.56). The taxable property means the "real and tangible personal property" (Alaska Stat. § 43.56.210(5)), which consists of the machinery, equipment, and real property between the first pump station and the Valdez Marine Terminal inclusive.

The Alaska Department of Revenue (DOR) assesses the value of the property based on its "full and true value" (Alaska Stat. § 43.56.010(a)). The full and true value of pipeline property is determined "with due regard to the economic value of the property based on the estimated life of the proven reserves of gas or unrefined oil then technically, economically, and legally deliverable into the transportation facility" (Alaska Stat. § 43.56.060(e)(2)).

Economic value is determined by the use of "standard appraisal methods such as replacement cost less depreciation, capitalization of estimated future net income, analysis of sales, or other acceptable methods" (15 AAC 56.110(c) (Regulation per Alaska Administrative Code)).

In 2005 DOR changed the assessment method from an income approach to a cost approach. Under the income approach assessed value was based on the net present value of the projected future annual net tariff cash flow over the economic life of the pipeline. One of the significant tariff cash flow elements was depreciation, which was based on a units-of-production (UOP) method at the time. Under UOP costs are allocated over time in proportion to the asset's use in operations.

Under the cost approach assessed value was based on replacement cost new less depreciation. DOR employed straight-line (SL) depreciation in assessing. Under straight-line depreciation an equal amount of depreciation expense is allocated to each period of the asset's useful life.

The assessments for the years 2006-2009 were appealed in an adjudication process that resulted in two non-jury de novo trials, covering a multiplicity of issues, including depreciation, in the Superior Court for the State of Alaska, Third Judicial District at Anchorage. The trial for the 2006 assessment was held in 2009, with a decision rendered in 2010. The trial for the 2007-2009 assessments (consolidated) was held in 2011, with a decision rendered in the same year. Judge Sharon L. Gleason (JG) presided in both trials. At this time the decisions for both trials are on appeal to the Alaska Supreme Court.

The parties to the trial consisted of a) the pipeline owners (BP Pipelines [Alaska] Inc., ExxonMobil Pipeline Co., Unocal Pipeline Co., ConocoPhillips Transportation Alaska, Inc., Koch Alaska Pipeline Co., and Alyeska Pipeline Service Co. [as agent for the owners], b) the State of Alaska Dept. of Revenue, and c) the municipalities the pipeline passes through, which are entitled to a share of the tax (North Slope Borough, Fairbanks North Star Borough, and City of Valdez).

The author was an expert witness for the pipeline owners at the second trial.

When the assessment means was changed in 2005 from an income to a cost approach, with the ensuing change in depreciation method from UOP to SL , there was no adjustment for past depreciation. Because of depreciation the value calculated one year affects the value in other years; there is an interdependency of value in time.

This inconsistency in depreciation treatment caused assets to be depreciated more than once over time, with the result being a double taxation of the property. This account will explore how that happens.

This issue was not addressed in first trial. The author addressed it in the second trial. (Marks)

In her decision on the first trial, as the issue was not contested, JG simply accepted without comment the unadjusted depreciation approach employed by DOR.

In the second trial the issue was contested. However, JG again did not adjust the depreciation approach. The following is an economic evaluation of that decision.

II. BACKGROUND

Between 1975 and 1980 a cost approach was used to value TAPS for the ad valorem tax. Between 1981 and 1985 a combination of a cost and income approach was used. The income approach was based on the net cash income of the annual pipeline tariff cash receipts less pipeline cash expenses. The assessed value of TAPS was the net present value of the projected future annual net income amounts over the life of the pipeline.

Beginning with the initial operation of TAPS there had been a tariff dispute between the owners and the State of Alaska. By 1986 a settlement had been crafted, including the Federal Energy Regulatory Commission (FERC) as a party.

The settlement included the establishing of a detailed calculation for determining the tariff. It was called the TAPS Settlement Methodology, or TSM, and is described below.

A pure income approach was used between 1986, when the TSM began, and 2001. From 2002-2004 the assessed value was based on a negotiated settlement between the TAPS owners and the municipalities, based on both cost and income, provided the Department of Revenue did not find values other than those in the agreement. A cost approach was implemented in 2005.

In summary, for the 24-year period between 1981 and 2004 the income approach had a material bearing.

Under TSM the tariff, and subsequently the income approach, consisted of the following main elements:

- Depreciation
- Recovery of deferred return
- After-tax margin
- Operating costs
- DR&R allowance
- Income tax allowance

The main cash expenses consisted of:

- Operating costs
- DR&R allowance (pre-payment of a future expense)
- Income tax allowance

The main elements of net cash flow were:

- Depreciation

- Recovery of deferred return
- After-tax margin
- Relatively smaller amounts for additions to new depreciable property in service and net additions to deferred tax

TSM was a unique construct. One aspect was its accelerated treatment of depreciation:

> In industries where the future level of economic activity varies over an asset's life(such as the natural gas pipeline or extraction industries), it is not unusual to use a schedule based upon "unit of throughput" (or "unit of production"). Under this method, the depreciation allowance in any year is calculated by multiplying the unrecovered investment in the asset by the ratio of the throughput or production for that year to the total expected throughput or production over the remaining life of the asset.
>
> The TSM employs a unit of throughput depreciation schedule which, through depreciation, was accelerated in order to meet the Protestants' objective of ensuring a declining tariff profile.
>
> The Protestants' (State of Alaska) objective of ensuring a declining tariff profile required that a large fraction of the original investment be depreciated in the early years of TAPS. Consequently, the rate base – the amount upon which the owners earn their rate of return – shrinks rapidly. For example, by 1990 the depreciated cost arising from pre-operational investment in TAPS would be approximately one-fifth of its 1977 historical cost, even though about two-thirds of the system's economic life still remains. (FERC)

The depreciation factors for TSM were based on actual and projected throughput through 2011, with UOP depreciation. The UOP factors were adjusted by a throughput adjustment factor to front-end load depreciation even more, as indicated in Table 1 (Appendix). The depreciation factors were designed to recover all costs by 2011. (In the earlier years of TAPS this was considered the life of TAPS.)

This was intentionally instituted to accelerate, or front-end load the tariff with a high amount in early years, resulting in a low amount in later years, in order to encourage future development. Moreover, it reflected the expected oil flow through TAPS, with high amounts early on and lower amounts later.

The early higher depreciation caused the tariff to be higher than under SL depreciation.

The anticipated production profile for TAPS at the time of start-up is indicated in Figure 1 (Appendix). Its expected life was 35 years, from 1977-2011.

The comparison between the annual depreciation factors from TSM with what UOP depreciation would have been between 1977-2011 is indicated in Figure 2 (Appendix). Note that the TSM and UOP are similar, with TSM accentuated by the throughput adjustment factor.

The recovery of deferred return and after-tax margin (the other two major elements of tariff income) were also calculated using the same depreciation factors. The recovery of deferred return was based on depreciation of the original deferred return plus an inflation adjustment. The recovery of deferred return under TSM was higher earlier on because of the high depreciation factors. Since the rate base for the inflation component was based on an amount reduced by depreciation, the higher earlier depreciation created a lower rate base and a smaller inflation

component in the out years. Coupled with the lower depreciation then, the recovery of deferred was lower in the out years.

The after-tax margin through 1989 was 6.4% of the original rate base at year end. The rate base was a function of depreciation. After 1989 the after tax-margin was based on a fixed per barrel allowance. Whereas the front-end loaded depreciation factors front-end loaded depreciation and the recovery of deferred return, they decreased the after-tax margin through 1989 since the original rate base was reduced by the higher depreciation amounts.

The net effect from the front-end loaded depreciation factors was to intentionally front-end load the tariff. As a result, the accelerated depreciation also front-end loaded cash income, the assessment, and the ad valorem tax.

This effect is exacerbated on a net present value basis. On a present value basis events that occur sooner carry more weight because of the time value of money. This was all compounded by the high inflation rates in the early 1980's. This had the effect of highlighting the financial severity to the taxpayers of the front-end loading of the ad valorem tax under the income approach because of the accelerated depreciation.

In 2004 when the pure income approach ceased, 96% of the original and incremental cost of TAPS had been recovered through depreciation. New capital additions were also subject to the same accelerated depreciation. (The model for deriving this was the most recent common working program as of January 2011 used by parties in previous FERC tariff rate cases. The model went out to 2011 with no new depreciable property in service after 2006.) (TSM 06 Final.XLS found at http://elibrary.ferc.gov/idmes/File_list.asp?document_ids=4360978)

III. INCONSISTENT DEPRECIATION AND DOUBLE-TAXATION

DOR started assessing under the cost approach in 2005. Under the cost approach assessed value is based on replacement cost new less economic age-life depreciation, as well as other lesser deduction adjustments for functional and economic obsolescence, and other smaller items. The State implemented the cost approach with SL depreciation.

Using the 2009 figures as an example, JG ruled that replacement cost was $18.7 billion. The pipeline has been operating since 1977; in 2009 it had an effective age of 30.5 years. JG determined the life of TAPS is at least through 2068; it would have a 90.5 year life. Thus the replacement cost value would be reduced through depreciation by 33.7% (30.5 / 90.5), or $6.3 billion. (§ 509)

The rationale for switching from the income to cost approach can be summarized in the remarks of the State petroleum property assessor: "Because its original costs are almost fully depreciated for rate making purposes within the regulatory process, TAPS will have little value as a standalone investment within a few years." (Hoffbeck)

The switch between the means of assessment also meant a switch in depreciation methods, as well. However, there was no adjustment for past depreciation incurred under the prior method.

Changing depreciation methods in the middle of an asset's life is a significant economic and financial event. Both GAAP and the IRS consider it nothing less than a change in accounting principle. The failure to make any adjustments from changing depreciation methods can result in drastic economic distortions.

Under FASB all changes in accounting principles require disclosure of the new principle and retrospective application. *(SFAS* No. 154*)*

Similarly, under federal tax law, a taxpayer must obtain the permission of the Commissioner of Internal Revenue, and then, again, calculate the retrospective application with the commensurate adjustments in tax liability. (*IRC* Section 481)

For 2009, for example, again, JG ruled TAPS had a life through 2068. The comparison between TSM and SL depreciation on the original depreciable property between 1977 and 2068 is indicated in Figure 3 (Appendix).

The comparison between how much accumulated depreciation will have occurred over time between the TSM and SL depreciation methods is indicated in Figure 4 (Appendix). At any point in time more has been depreciated under the TSM depreciation, and recently much more. For example, by 1999, 98% of depreciation has occurred under TSM, as opposed to 24% under SL. By 2004 when the income approach ended, nearly 100% of the original TAPS cost had been depreciated under TSM.

Under the income approach high depreciation early on resulted in high assessments in the past. The unique TSM mechanism for accelerated depreciation caused the tariff income to be higher in early years, and consequently lower later on. This resulted in a higher assessed value for TAPS, and higher ad valorem property taxes in the early years. If this process had been allowed to play itself out, the income, assessment, and tax would have been lower now to balance out the initial high taxes.

But the cost approach, with SL depreciation, results in lower past depreciation. This means less depreciation will be deducted, resulting in high assessments going forward. Switching to the cost approach has caused high assessments going forward. Thus the tax was high early on, and high now: a classic "heads I win / tails you lose" scenario. The inconsistent treatment of depreciation caused high assessments under both approaches.

Not only is this inconsistent, but it creates prejudice against the taxpayers. Specifically, in light of how TAPS was assessed in the past, the depreciation method in the ruling double-counts TAPS value over time, and double-taxes the asset. Amounts that were depreciated in the past, which increased the assessment under one method, have been put back into the past under the new method, which will also increase the assessment under the new method going forward.

At the time of the ruling 96% of the cost of TAPS had been depreciated through TSM. The increased depreciation had directly led to increased tax. Even though nearly 96% had been depreciated, for the depreciation adjustment JG's ruling, per the SL depreciation method, implicitly took 64% of those depreciated costs and deemed them un-depreciated again (96% X [1 - 33.7%]), reducing the depreciation adjustment, with the result of increasing the ad valorem tax again. Those previously depreciated costs had been a contributor towards the billions of dollars in ad valorem tax previously paid. The past had been re-invented.

The derivation of tariff income under TSM from 1981 (when the income approach began) through 2009 is indicated in Table 2 (Appendix). These figures are for illustrative purposes. (TSM 06 Final.XLS found at http://elibrary.ferc.gov/idmes/File_list.asp?document_ids=4360978)

Note that TSM *per se* was not used after 2004. Post-2004 the FERC 154-B methodology came into play. However, the rate base was still that established by TSM, with front-end loaded depreciation. For 2005-2007 the 2004 tariff established the floor (post-refund) based on 154-B.

For 2008 there was a settlement based on both TSM and 154-B. The 154-B methodology produces a lower tariff income than TSM. (Toof)

The estimated assessments per the income approach as incurred, as levelized, and the actual assessments are indicated in Figure 5 (Appendix). The dotted line in Figure 5 shows how

the yearly tariff incomes in Table 2 would translate to assessed value for TAPS using the income approach from 1981-2009. This is the net present value for all future tariff incomes for any one year, discounted, for illustrative purposes, at 10%.

Unfortunately the data is not available to replicate the assessments that were made under the income approach for many years in that era. Accordingly, there are many unknowns, including the discount rate, forecasted volumes, life of TAPS, how the tariff was modeled post-TSM (after 2011), and how exactly the cost and income approaches were combined in those particular years. Thus these are estimates, and again, this example here is illustrative of the effect of front-end loading the tariff. Moreover, these estimates closely track the actual assessments in the dashed line through 2004.

The solid line in Figure 5 shows what the levelized value of this same income approach would have been had it not been front-end loaded, but equalized each year so that the net present value (at 10%) is the same as with the dotted line.

The dashed line depicts the actual assessments. It tracks the dotted line for the years the income approach was used. It rises rapidly when the cost approach begins in 2005.

Given these figures, had the assessed value been set at $6.4 billion for every year between 1981 and 2009 (with the resultant ad valorem tax), the net present value of the assessed value, and the ad valorem tax, would have been the same as that established with the actual pattern depicted in the dotted line.

Instead, the actual assessment, and ad valorem tax, was higher in the earlier years. The income approach with UOP depreciation was used when it generated high assessments, but abandoned before the offsetting and compensating long-term effect of front-end loading the tariff, in the form of lower assessments, and lower ad valorem taxes, had played itself out.

IV. CONCLUSION

In her ruling JG rejected these arguments simply stating, the "argument was not persuasive to the Court, as the 'value' of the asset for rate-making purposes is not related to its 'full and true value' as defined by AS 43.56.060(e) for ad valorem tax purposes." (§ 379)

Economically, this is puzzling insofar as under the income approach the value of the asset for rate-making purposes explicitly determined its full and true value for the property tax.

The property tax statute dictates that assessments are based on value. Because of depreciation the value calculated one year affects the value in other years; there is an interdependency of value in time. By changing depreciation methods without adjustments the ruling has violated that relationship. Not only is this inconsistent, but has created an unfair and unreasonable prejudice against the taxpayers.

Many tax laws involve depreciation. While laws may provide administration flexibility for different approaches, and changing approaches, in order to reflect the economic consequences of policies, legislative bodies and judicial opinions need to recognize that any change in approach be associated with adjustments for past determinations.

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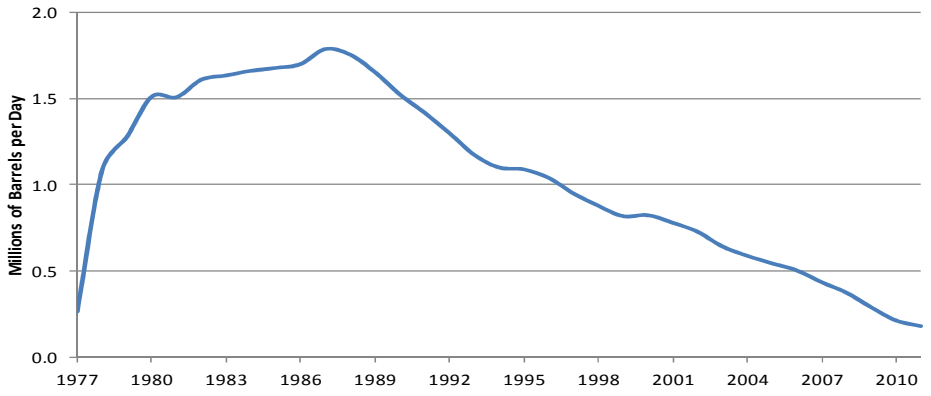
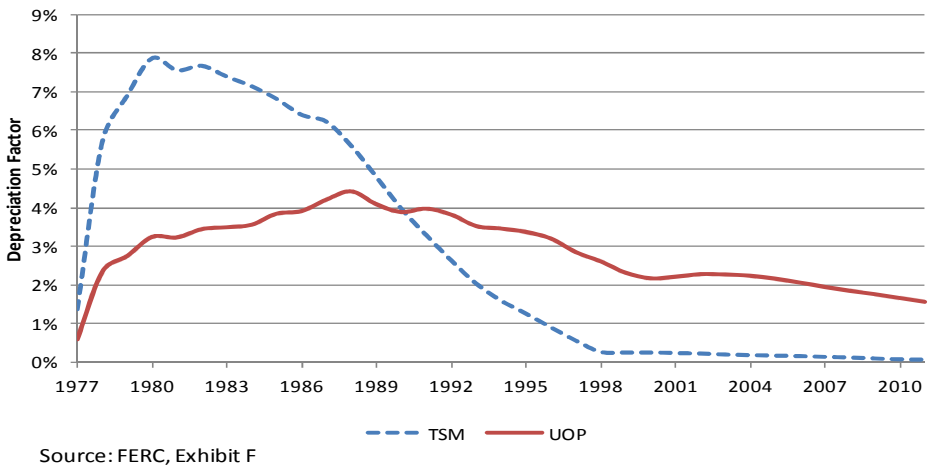
APPENDIX

Figure 1
Anticipated TAPS Production Profile at Start-Up
(Millions of Barrels per Day)



Source: FERC, Appendix 5

Figure 2
TSM vs. Units-of-Production Depreciation



Source: FERC, Exhibit F

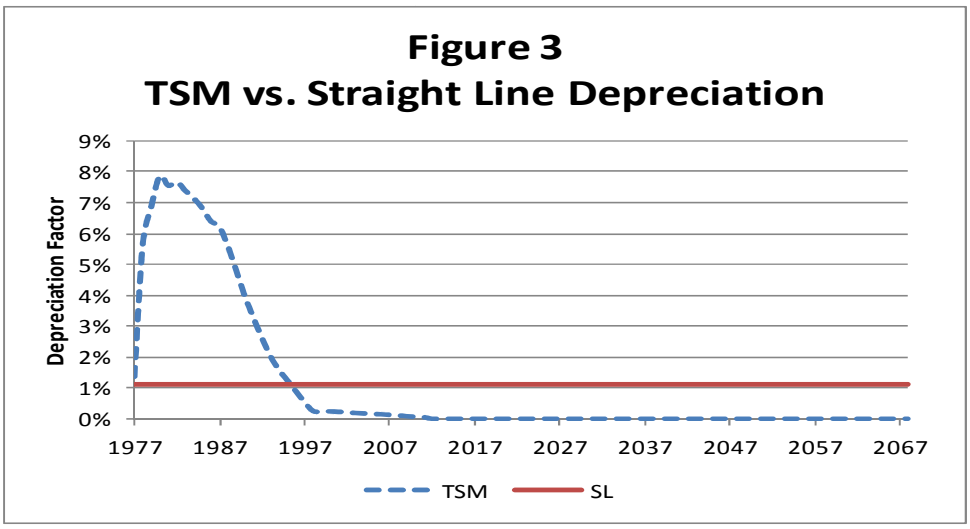


Figure 3
TSM vs. Straight Line Depreciation
Depreciation Factor
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
1977
1987
1997
2007
2017
2027
2037
2047
2057
2067
TSM
SL

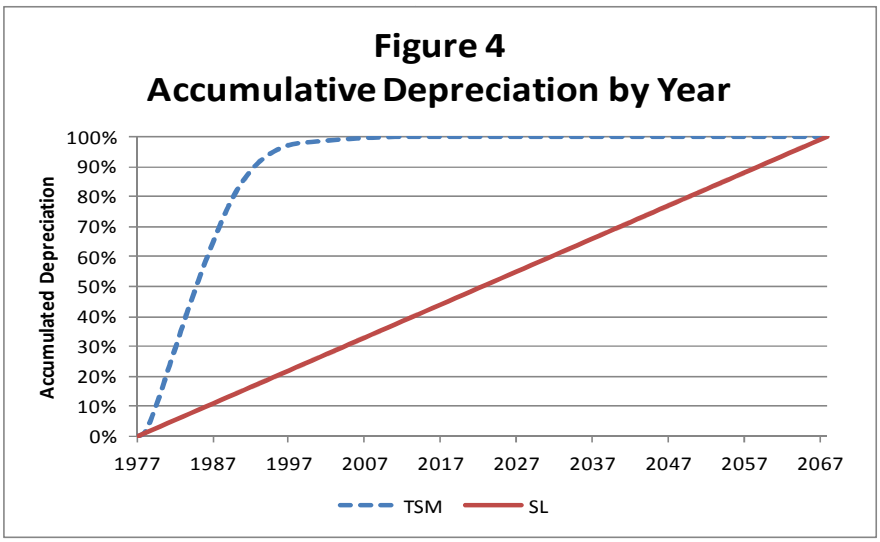


Figure 4
Accumulative Depreciation by Year
Accumulated Depreciation
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1977
1987
1997
2007
2017
2027
2037
2047
2057
2067
TSM
SL

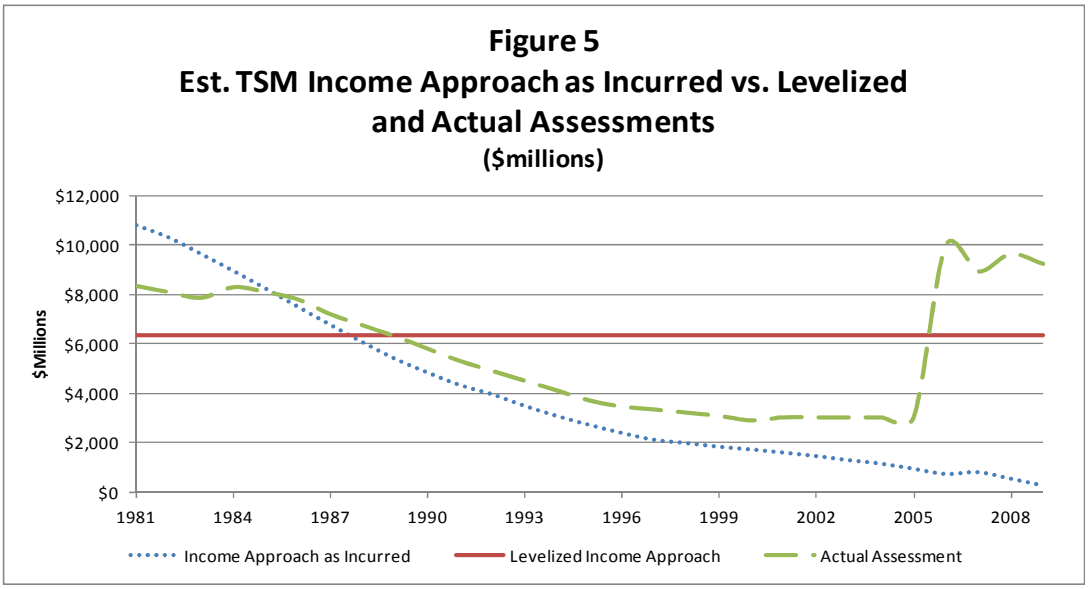


Figure 5
Est. TSM Income Approach as Incurred vs. Levelized and Actual Assessments
($millions)
$Millions
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
1981
1984
1987
1990
1993
1996
1999
2002
2005
2008
Income Approach as Incurred
Levelized Income Approach
Actual Assessment

TABLE 1
Derivation of TSM Depreciation Factors

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
Year	Actual and Projected Throughput (Million Barrels)	Throughput Adjustment Factor (Decimal)	Adjusted Throughput (Million Barrels) (C2 x C3)	Depreciation Decimal (C4 / Sum C4)	Depreciation Percentage (C5 X 100)	rate base ($C7_{[t-1]}$ - C6)	Depreciation Factor (Decimal) (C6 / $C7_{[t-1]}$)
1977	97.094	1.00	97.094	0.015032	1.503178	98.496822	0.015032
1978	395.905	1.00	395.905	0.061293	6.129274	92.367548	0.062228
1979	466.759	1.00	466.759	0.072262	7.226213	85.141334	0.078233
1980	552.294	0.95	524.679	0.081229	8.122917	77.018418	0.095405
1981	551.085	0.90	495.977	0.076785	7.678549	69.339869	0.099698
1982	587.985	0.85	499.787	0.077375	7.737546	61.602323	0.111589
1983	596.869	0.80	477.495	0.073924	7.392428	54.209895	0.120002
1984	607.135	0.75	455.351	0.070496	7.049602	47.160293	0.130043
1985	613.200	0.70	429.240	0.066454	6.645356	40.514937	0.140910
1986	620.500	0.65	403.325	0.062441	6.244148	34.270789	0.154120
1987	653.351	0.60	392.011	0.060690	6.068982	28.201806	0.177089
1988	640.575	0.55	352.316	0.054544	5.454447	22.747359	0.193408
1989	604.075	0.50	302.038	0.046760	4.676048	18.071311	0.205564
1990	556.625	0.45	250.481	0.038779	3.877870	14.193441	0.214587
1991	518.300	0.40	207.320	0.032097	3.209662	10.983779	0.226137
1992	475.413	0.35	166.395	0.025761	2.576067	8.407712	0.234534
1993	428.875	0.30	128.663	0.019919	1.991912	6.415801	0.236915
1994	402.413	0.25	100.603	0.015575	1.557507	4.858293	0.242761
1995	397.851	0.20	79.570	0.012319	1.231880	3.626413	0.253562
1996	379.600	0.15	56.940	0.008815	0.881527	2.744886	0.243085
1997	346.751	0.10	34.675	0.005368	0.536829	2.208057	0.195574
1998	321.200	0.05	16.060	0.002486	0.248636	1.959422	0.112604
1999	299.300	0.05	14.965	0.002317	0.231683	1.727738	0.118241
2000	301.125	0.05	15.056	0.002331	0.233096	1.494642	0.134914
2001	284.700	0.05	14.235	0.002204	0.220382	1.274261	0.147448
2002	266.451	0.05	13.323	0.002063	0.206255	1.068005	0.161863
2003	235.425	0.05	11.771	0.001822	0.182239	0.885766	0.170635
2004	215.351	0.05	10.768	0.001667	0.166700	0.719067	0.188198
2005	198.925	0.05	9.946	0.001540	0.153985	0.565082	0.214145
2006	184.325	0.05	9.216	0.001427	0.142683	0.422399	0.252500
2007	158.775	0.05	7.939	0.001229	0.122905	0.299494	0.290969
2008	136.875	0.05	6.844	0.001060	0.105953	0.193541	0.353773
2009	105.851	0.05	5.293	0.000819	0.081938	0.111604	0.423360
2010	78.475	0.05	3.924	0.000607	0.060746	0.050857	0.544304
2011	65.700	0.05	3.285	0.000509	0.050857	0.000000	1.000000

Source: FERC, Exhibit F

Table 2
Components of Tariff Income under TSM
1981-2009
($millions)

	Depreciation	Recovery of Deferred Return	After-Tax Margin	Net Additions to Deferred Tax	Additions to Depreciable Property in Service	TOTAL
1981	602	400	612	19	49	1,584
1982	611	508	610	25	50	1,703
1983	589	551	577	19	75	1,660
1984	569	561	525	10	50	1,616
1985	543	575	476	3	29	1,568
1986	515	578	423	-10	20	1,485
1987	504	582	362	-27	33	1,388
1988	459	559	308	-37	10	1,278
1989	395	515	257	-34	37	1,097
1990	336	464	303	-29	81	993
1991	296	420	326	-27	203	811
1992	286	363	336	-48	69	868
1993	237	297	321	-47	46	762
1994	196	245	322	-50	43	670
1995	165	204	318	-55	36	597
1996	127	154	309	-41	29	520
1997	82	99	290	-21	104	345
1998	50	49	275	-5	21	348
1999	49	47	251	-5	46	295
2000	55	50	243	-6	40	302
2001	56	51	249	-6	50	300
2002	58	51	255	-5	44	314
2003	56	47	257	-4	86	270
2004	60	46	251	-4	29	324
2005	58	45	248	-3	43	305
2006	59	45	248	1	350	3
2007	94	47	239	-36	0	345
2008	81	44	234	-31	0	329
2009	63	36	228	-23	0	304