# CHAPTER 8100
# DEPARTMENT OF REVENUE
# PROPERTY EQUALIZATION DIVISION
# AD VALOREM TAXES; UTILITIES



## 8100.0300 VALUATION.

Subpart 1. **General.** Because of the unique character of public utility companies, such as being subject to stringent government regulations over operations and earnings, the traditional approaches to valuation estimates of property (cost, capitalized income, and market) must be modified when utility property is valued. Consequently, for the 1985 and subsequent assessment years, until economic and technological factors dictate a change, the value of utility company property will be estimated in the manner provided in this chapter.

*[For text of subp 2, see M.R. 1985]*

Subp. 3. **Cost approach.** The cost factor to be considered in the utility valuation formula is the original cost less depreciation of the system plant, plus improvements to the system plant, plus the original cost of construction work in progress on the assessment date. The original cost of any leased operating property used by the utility must be reported to the commissioner in conjunction with the annual utility report. If the original cost of the leased operating property is not available, the commissioner shall make an estimate of the cost by capitalizing the lease payments. Depreciation will not be allowed on construction work in progress. Depreciation will be allowed as a deduction from cost in the amount allowed on the accounting records of the utility company, as such records are required to be maintained by the appropriate regulatory agency.

Depreciation, however, shall not exceed the prescribed percentage of cost: for electric companies, 20 percent; for gas distribution companies, 50 percent; and for pipeline companies, 50 percent.

A modification to the cost approach to value will be considered by the commissioner when valuing electric utility property. The original cost of an electric utility's major generating plants will be increased if the cost of the plant falls below a certain standard. The standard to be used will be a national average of the cost per kilowatt of installed capacity. The cost per kilowatt of installed capacity is the total construction cost of the generating plant divided by the number of kilowatts the plant is capable of producing. The national average to be used will be computed by totaling the construction costs, excluding the cost of land, for major generating plants within the 48 contiguous United States. The total cost of the plants will be divided by the total generating capacity of the same plants to arrive at an average cost per kilowatt of installed capacity. A separate average will be computed for each type of plant: gas turbine, hydroelectric, and steam-electric. The plants used in the calculation will exclude nuclear electric generating plants.

The information used to compute the average will be drawn from the latest issue of the United States Department of Energy publication, Historical Plant Cost and Annual Production Expenses for Selected Electric Plants. All plants included in this publication will be used in the computation of the national average by type of plant.

An example of this computation of the national average cost per kilowatt of installed capacity is as follows:

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Steam-Electric Generating Plants

| Plant | Plant Cost Excluding Land | Plant Capacity |
|---|---|---|
| A | $ 14,000,000 | 100,000 kw |
| B | 13,000,000 | 90,000 kw |
| C | 17,000,000 | 110,000 kw |
| D | 14,500,000 | 80,000 kw |
| E | 18,000,000 | 120,000 kw |
| F | 10,000,000 | 70,000 kw |
| G | 19,000,000 | 130,000 kw |
| H | 9,000,000 | 60,000 kw |
| I | 20,000,000 | 140,000 kw |
| J | 8,000,000 | 50,000 kw |
| | $142,500,000 | 950,000 kw |

Total plant cost ($142,500,000) divided by total plant capacity (950,000 kw) equals $150 average cost per kilowatt of installed capacity.

The national average cost per kilowatt of installed capacity will be compared to the specific cost per kilowatt of installed capacity for each of the major generating plants owned by the utility being valued. If the national average cost per kilowatt is greater than the subject plant cost, the subject plant will have additional dollars incorporated into its cost in order to raise its cost per kilowatt to the national average. If the subject plant's cost per kilowatt equals or exceeds the national average, no cost will be added.

The following example illustrates this procedure:

XYZ Utility

Steam-Electric Generating Plants

| | | | |
|---|---|---|---|
| 1. | Plant | #1 | #2 |
| 2. | Installed Capacity | 100,000 kw | 50,000 kw |
| 3. | Year in Service | 1970 | 1950 |
| 4. | Cost of Plant (Exclusive of Land) | $15,200,000 | $5,000,000 |
| 5. | Specific Plant Cost per kw | $152 | $100 |
| 6. | National Average Cost per kw | $150 | $150 |
| 7. | Deficiency | none | $ 50 |
| 8. | Additional Cost (Line 7 x Line 2) | none | $2,500,000 |

This additional cost to be added to the original cost of the specific plant will be reduced by an allowance for pollution control equipment and an allowance for obsolescence.

The allowance for pollution control equipment will be computed annually by totaling the construction costs, exclusive of land, of all major generating plants within Minnesota by type of plant. A total will also be made of the cost of the equipment in these plants which has been approved for tax exempt status in accordance with Minnesota Statutes, section 272.02, subdivision 1, clause (9). This total will also be computed by type of plant. The total of the approved pollution control equipment will be divided by the total construction cost, exclusive of land, of the plants in order to calculate a percentage. This percentage will be the ratio of dollars spent for pollution control equipment to total dollars spent to construct a specific type of power plant. This percentage will then be used to reduce the gross additional cost to be added to the cost of the specific generating plant. An example of this process is as follows:

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Steam-Electric Plants Within Minnesota

| Plant | Plant Cost Excluding Land | Cost of Approved Pollution Control Equipment |
|---|---|---|
| A | $15,200,000 | $1,500,000 |
| B | 10,000,000 | 1,000,000 |
| C | 5,000,000 | 700,000 |
| D | 20,000,000 | 2,000,000 |
| E | 16,500,000 | 1,470,000 |
| | $66,700,000 | $6,670,000 |

Total cost of approved pollution control equipment ($6,670,000) divided by total plant cost ($66,700,000) equals ten percent ratio of pollution control equipment expenditures to total expenditures for generating plant construction.

XYZ Utility

Steam-Electric Plant #2

| | | |
|---|---|---|
| 1. | Additional Cost Due to Computation of Average Cost per kw of Installed Capacity | $2,500,000 |
| 2. | 10% Allowance for Pollution Control Equipment | 250,000 |
| 3. | Additional Cost to be Added after Adjustment for Pollution Control Equipment | 2,250,000 |

The allowance for obsolescence which will be applied to the additional plant construction cost will be computed annually for hydroelectric and steam-electric generating plants. The information needed to compute the obsolescence factors will be drawn from the same publication that is used to compute the national average cost per kilowatt of installed capacity figure. Gas turbine plants will not have any obsolescence allowance applied to the additional cost added to the plants.

The obsolescence allowance for hydroelectric plants will be calculated through the use of a "plant factor." The plant factor is computed by dividing the number of kilowatt hours a generating plant actually produced in a year by the number of kilowatt hours the plant was capable of producing. The plant factor is normally expressed as a percentage. The mathematical expression of this factor is: net generation (kwh) divided by annual installed capacity (hours in a year X installed capacity (kw)). A standard plant factor will be computed for hydroelectric plants by averaging the plant factors of the ten plants with the highest plant factors in the average cost per kilowatt of installed capacity study. This standard will then be compared to an average of the most recent three years' plant factor of the subject plant. The amount the subject plant deviates from the standard is the amount of obsolescence which will be applied to the added cost.

An example of this obsolescence allowance computation is shown below.

Hydroelectric Plants

| Plant | Net Generation kwh (000) | Plant Capability kwh (000) | Plant Factor |
|---|---|---|---|
| A | 400,150 | 755,000 | 53 % |
| B | 300,040 | 577,000 | 52 % |
| C | 250,000 | 480,000 | 52 % |

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| | | | |
|---|---|---|---|
| D | 600,000 | 1,250,000 | 48 % |
| E | 896,000 | 1,600,000 | 56 % |
| F | 700,000 | 1,400,000 | 50 % |
| G | 507,000 | 975,000 | 52 % |
| H | 450,000 | 1,000,000 | 45 % |
| I | 376,000 | 800,000 | 47 % |
| J | 810,000 | 1,800,000 | 45 % |
| | | | Average 50 % |

XYZ Utility

Hydroelectric Plant #4

| Year | Net Generation kwh (000) | Plant Capability kwh (000) | Plant Factor |
|---|---|---|---|
| 19XX | 400,000 | 1,000,000 | 40 % |
| 19XX | 500,000 | 1,000,000 | 50 % |
| 19XX | 450,000 | 1,000,000 | 45 % |
| | | | Average 45 % |

Hydroelectric plant #4 plant factor (45 percent) divided by standard plant factor (50 percent) equals 90 percent. Therefore, hydroelectric plant #4 deviates from the standard by ten percent, or is ten percent obsolete.

The obsolescence allowance for steam-electric generating plants will be computed annually using two indicators. The first indicator will be the plant factor. The plant factor for steam-electric plants will be computed and applied in the same manner as the computation specified for hydroelectric plants. The only difference will be that the information used for the computation will be drawn from the latest Fossil-Fueled Steam-Electric Plant Section of the latest Historical Plant Cost and Annual Production and Expenses for Selected Electric Plants publication rather than the Hydro-Electric Plant section. Plant factors of the ten best steam-electric generating plants within the study period will be averaged. This average will be compared to the most recent three-year average plant factor for the subject plant. The subject plant's deviation from the standard plant factor is the amount of indicated obsolescence.

The second indicator which will be used to compute an obsolescence allowance for steam-electric generating plants will be a thermal efficiency factor. The source of information for this computation will also be the latest issue of the United States Department of Energy's publication, Historical Plant Cost and Annual Production Expenses for Selected Electric Plants, Fossil-Fueled Steam Electric Plant Section. Thermal efficiency for a generating plant is measured by the number of British thermal units (Btu's) required to produce one kilowatt hour. This efficiency rating can be obtained by dividing the number of kilowatt hours produced by a generating plant by the number of Btu's needed to produce this power. The number of Btu's used can be obtained by multiplying the units of fuel burned by the generating plant - tons of coal, gallons of oil, or cubic feet of gas - by the average Btu content of the fuel unit. The standard thermal efficiency factor will be computed by averaging the thermal efficiency factor of the ten most efficient steam-electric generating plants within the study period used to compute the average cost per kilowatt of installed capacity. This standard thermal efficiency factor will then be compared to the thermal efficiency factor of the subject plant. The amount the subject plant deviates from the standard is the amount of obsolescence indicated by this factor.

The two obsolescence figures for the subject plant as indicated by both the plant and thermal efficiency factors will then be averaged. This resulting average is the obsolescence allowance which will be applied to the cost added to the subject plant as a result of the average cost per kilowatt of installed capacity

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computation. In no instance shall the original cost of a generating plant be reduced by an allowance for obsolescence unless its cost is increased through the use of the average cost per kilowatt of installed capacity computation.

The following examples illustrate computation of the standard thermal efficiency factor; obsolescence indicated by the application of this factor to the subject plant; average obsolescence for steam-electric generating plants; and obsolescence allowance adjustment of the added cost due to the use of the average cost per kilowatt of installed capacity for the subject plant.

Steam-Electric Generating Plants

| Plant | Net Generation kwh (Millions) | Btu's Used (Millions) | Btu's per kwh |
|---|---|---|---|
| A | 2,000 | 18,400,000 | 9,200 |
| B | 6,000 | 53,400,000 | 8,900 |
| C | 8,000 | 72,000,000 | 9,000 |
| D | 5,000 | 45,500,000 | 9,100 |
| E | 3,000 | 26,400,000 | 8,800 |
| F | 1,000 | 9,000,000 | 9,000 |
| G | 4,000 | 36,600,000 | 9,150 |
| H | 9,000 | 80,550,000 | 8,950 |
| I | 7,000 | 61,950,000 | 8,850 |
| J | 5,000 | 45,250,000 | 9,050 |
| | | Average | 9,000 |

XYZ Utility Company

Steam-Electric Plant #2

| Net Generation kwh (Millions) | Btu's Used (Millions) | Btu's per kwh |
|---|---|---|
| 2,000 | 21,600,000 | 10,800 |

Steam-electric plant #2 thermal efficiency factor (10,800 Btu's per kwh) divided by standard thermal efficiency factor (9,000 Btu's per kwh) equals 120 percent. Therefore, steam-electric plant #2 deviates from the standard by 20 percent or is 20 percent obsolete.

XYZ Utility Company

Steam-Electric Plant #2

| | | |
|---|---|---|
| 1. | Obsolescence Indicated by Plant Factor | 10% |
| 2. | Obsolescence Indicated by Thermal Efficiency Factor | 20% |
| 3. | Obsolescence Allowance (Average of 1 and 2) | 15% |
| 4. | Additional Cost due to Computation of Average Cost per kw of Installed Capacity | $2,500,000 |
| 5. | 15% Obsolescence Allowance | 375,000 |
| 6. | Additional Cost to be Added after Adjustment for Obsolescence | 2,125,000 |

The cost indicator of value computed in accordance with this subpart will be weighted for each type of utility company as follows: electric companies, 85 percent; gas distribution companies, 75 percent; and pipeline companies, 75 percent.

The following example illustrates how the cost indicator of value would be computed for an electric company:

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| | | | |
|---|---|---|---|
| 1. | Utility Plant (Cost) | | $200,000,000 |
| 2. | Construction in Progress | | 5,500,000 |
| 3. | Additional Value From Average Cost per kw Computation | | 2,000,000 |
| 4. | Total Plant | | 207,500,000 |
| 5. | Nondepreciable Plant (Land, Intangibles, C.W.I.P.) | 17,500,000 | |
| 6. | Depreciable Plant | 190,000,000 | |
| 7. | Book Depreciation or Maximum 20% | | 36,100,000 |
| 8. | Total Cost Indicator of Value | | 171,400,000 |

Any company for which a modification is made under this subpart due to the average cost per kilowatt adjustment being made to original cost of a plant or plants located in Minnesota shall have an alternative cost indicator computation made without giving effect to the average cost per kilowatt adjustment of such plant or plants.

Subp. 4. **Income approach to valuation.** The income indicator of value will be estimated by weighting the net operating earnings of the utility company for the most recent three years as follows: most recent year, 40 percent; previous year, 35 percent; and final year, 25 percent. After considering, as far as possible, all conditions that may exist in the future that may affect the present annual return, including risk, life expectancy of the property, and cost of money, the capitalization rates used to compute value for the assessment will be: electric companies, 11.25 percent; gas distribution companies, 11.50 percent; and pipeline companies, 11.75 percent. The income indicator of value computed in accordance with this subpart will be weighted for each class of utility company as follows: electric companies, 15 percent; gas distribution companies, 25 percent; and pipeline companies, 25 percent.

The following example illustrates how the income indicator of value would be computed for a gas distribution company:

| | | 1982 | 1983 | 1984 |
|---|---|---|---|---|
| 1. | Net Operating Income | $ 596,160 | $ 488,911 | $ 579,600 |
| 2. | Capitalized Income @ 11.5% | 5,184,000 | 4,251,400 | 5,040,000 |
| 3. | Weighting Factor | 25 percent | 35 percent | 40 percent |
| 4. | Weighted Capitalized Income | 1,296,000 | 1,488,000 | 2,016,000 |
| 5. | Total Income Indicator of Value | | | 4,800,000 |

*[For text of subps 5 and 6, see M.R. 1985]*

Subp. 7. **Obsolescence allowances.** The commissioner shall adjust the value calculated under this part through the use of an obsolescence allowance. This allowance is intended to be used in order to recognize the effect the curtailment or termination of a pipeline's source of supply may have on its value. This allowance must be applied for each year at the time the utility files its Minnesota Department of Revenue Annual Utility Report. The utility's eligibility for this allowance will be based on the relevant facts for the specific valuation year. The application of an obsolescence allowance in any previous year shall have no bearing on the use of the allowance for a subsequent year. In order for a pipeline or a gas distribution company to be eligible for this allowance it must meet certain criteria or standards listed below. It is mandatory that standards in items A, B, and C be met by the utility. It is highly desirable that standards in items D and E also be met.

A. The utility shall demonstrate that its source of supply for gas or oil will be terminated within the next ten years.

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B. The utility shall be at, or above, the maximum depreciation allowance specified by subpart 3.

C. The utility shall have made application to the appropriate regulatory agency for increased depreciation allowances, and the application shall not have been denied or rejected.

D. The utility must not have made any major capital expenditures within the last three years.

E. The utility must not have sold any long-term bonds or signed any long-term notes within the last three years.

If the utility has made major capital expenditures or entered into long-term debt obligations within the last three years, a satisfactory explanation of the rationale for these actions shall be made to the commissioner before an allowance for obsolescence will be granted.

The obsolescence allowances which may be applied to the utility's value will be calculated in the following manner:

(1) Method 1. A five-year average of the utility's annual throughput will be calculated. The throughput for the assessment year will be compared to this average and a percentage calculated. This percentage will be applied to the cost indicator of value calculated under subpart 3 in order to adjust the indicator for obsolescence. The adjusted cost indicator of value will be used in the calculation of the unit value under subpart 5. The following is an example of this procedure:

| Year | Throughput in Barrels |
|---|---|
| 1979 | 1,200,000 |
| 1980 | 1,300,000 |
| 1981 | 1,150,000 |
| 1982 | 1,100,000 |
| 1983 | 1,050,000 |
| | 5,800,000 Total |
| | 1,160,000 Average Throughput |

| | | |
|---|---|---|
| 1. | 1984 Throughput | 1,000,000 Barrels |
| 2. | Percent of 1984 Throughput to Five-Year Average Throughput | 86% |
| 3. | Cost Indicator of Value | $6,300,000 |
| 4. | Cost Indicator Adjusted for Obsolescence | 5,418,000 |

(2) Method 2. The book depreciation shown on the books and accounts of the utility will be compared to the depreciation allowed by subpart 3. If the book depreciation exceeds the maximum depreciation allowance, 50 percent of the excess depreciation will be used in the calculation of the cost indicator of value. An example of this calculation is as follows:

| | | |
|---|---|---|
| 1. | Book Depreciation | $ 6,000,000 |
| 2. | Maximum Allowable Depreciation | 5,000,000 |
| 3. | Excess Depreciation | 1,000,000 |
| 4. | 50% of Excess Depreciation | 500,000 |
| 5. | Utility Plant | 11,000,000 |
| 6. | Construction Work in Progress | 50,000 |
| 7. | Total Plant | 11,050,000 |
| 8. | Nondepreciable Plant (Land, CWIP) | 1,050,000 |
| 9. | Depreciable Plant | 10,000,000 |
| 10. | Depreciation (Maximum 50%) | 5,000,000 |
| 11. | Obsolescence Allowance | 500,000 |
| 12. | Cost Indicator of Value | 5,550,000 |

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(3) Method 3. The income indicator of value computed in accordance with subpart 4 will be calculated by capitalizing the utility's three-year weighted net operating earnings for a specific term of years rather than into perpetuity. The term of years to be used will be the number of years remaining until the expected expiration of the utility's source of supply for product (oil, gas), or the number of years remaining until the utility's major assets (pipeline, pump stations, storage tanks, and similar assets) are fully depreciated, whichever is greater. An example of this capitalization process is as follows:

| | | 1982 | 1983 | 1984 |
|---|---|---|---|---|
| 1. | Net Operating Earnings | $1,320,000 | $1,000,000 | $800,000 |
| 2. | Weighting | 25% | 35% | 40% |
| 3. | Weighted Net Operating Earnings | $330,000 | $350,000 | $320,000 |
| 4. | Total Weighted Net Operating Earnings | | $1,000,000 | |
| 5. | Terms of years until major assets are fully depreciated | | | 8 |
| 6. | Capitalization rate pursuant to subpart 4 | | | 11.75% |
| 7. | Capitalization rate converted to term of 8 years | | | 19.9548% |
| 8. | Capitalized Income/Income Indicator of Value | | | $5,011,325 |

The commissioner shall apply to the valuation process whichever of the three obsolescence methods is most appropriate in order to equitably recognize the effect of obsolescence on the utility's value.

*[For text of subp 8, see M.R. 1985]*

**Statutory Authority:** *MS s 270.06 cl (14); 270.11 subds 1,6; 273.33 subd 2; 273.37 subd 2; 273.38*

**History:** *10 SR 18*

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