



Mid-Quarter and Short First Tax Year Depreciation

Solar assets eligible for ITC are classified as 5-year MACRS and follow a depreciation schedule that is double-declining balance switching to straight-line with, in general, one half-year of depreciation allocated to the first year. Two situations that affect how much depreciation is allocated to the first year are being subject to mid-quarter convention and having a short first tax year.

Mid-quarter convention is required if more than 40% of the depreciable basis of all property placed in service in a tax year is placed in service during the last three months of the tax year, regardless of the length of the tax year. This convention is applied to all MACRS assets that would normally have half-year first-year treatment placed in service that year. As a result, an asset placed in service in the first quarter would be allocated three and a half quarters of depreciation and an asset placed in service in the fourth quarter would get one half-quarter of depreciation.

A **short first tax year** occurs for the first year of a new taxable entity and causes the depreciation deduction to be prorated by months for an asset with a half-year first-year convention. For example, if a new corporation started on March 15th, it would get ten twelfths (10/12) of the half-year allocation of depreciation for the first year.

First consider the calculation of a **normal 5-year MACRS schedule** shown in the following table. For a 200%/SL half-year asset, the amount of depreciation in any year is the greater of either two times the declining balance or the beginning-of-year basis divided by the remaining life. The resulting schedule starts as a declining-balance schedule and switches to straight-line over the remaining life.

Year	%	Double-declining balance	Straight-line	Comments
1	20.00%	$2 \times 100\% / 5 \times \frac{1}{2}$	$> 100\% / 5 \times \frac{1}{2}$	Half-year convention
2	32.00%	$2 \times (100 - 20)\% / 5$	$> (100 - 20)\% / 4.5$	Remaining life is 4.5 years
3	19.20%	$2 \times (80 - 32)\% / 5$	$> (80 - 32)\% / 3.5$	
4	11.52%	$2 \times (48 - 19.2)\% / 5$	$= (48 - 19.2)\% / 2.5$	
5	11.52%	$2 \times (28.8 - 11.52)\% / 5$	$< (28.8 - 11.52)\% / 1.5$	
6	5.76%			Undepreciated balance

Now consider the calculation for a **mid-quarter asset placed in service in the 4th quarter** for a taxpayer with no short first tax year. Notice in the table below that the factor for the first year has been adjusted to reflect half of one quarter instead of half of a year and is now 1/8 instead of 1/2.

Year	%	Double-declining balance	Straight-line	Comments
1	5.00%	$2 \times 100\% / 5 \times \frac{1}{8}$	$> 100\% / 5 \times \frac{1}{8}$	Mid-quarter convention
2	38.00%	$2 \times (100 - 5)\% / 5$	$> (100 - 5)\% / 4.875$	Remaining life is 4.875 years
3	22.80%	$2 \times (95 - 38)\% / 5$	$> (95 - 38)\% / 3.875$	
4	13.68%	$2 \times (57 - 22.8)\% / 5$	$> (57 - 22.8)\% / 2.875$	
5	10.944%	$2 \times (34.2 - 13.68)\% / 5$	$< (34.2 - 13.68)\% / 1.875$	
6	9.576%			Undepreciated balance



The calculation for a taxpayer with a **short first tax year**, but not subject to mid-quarter convention, is similar to the ones shown above, but the depreciation factor for the first year is adjusted. A taxpayer with a short first tax year starting March 15th is allowed ten twelfths of the normal first-year allocation and the formula for Year 1 becomes $(2 \times 100\% / 5 \times \frac{1}{2}) \times (10/12) = 16.6667\%$.

Year	%	Double-declining balance	Straight-line	Comments
1	16.67%	$2 \times 100\% / 5 \times \frac{1}{2} \times 10/12$	$> 100\% / 5 \times \frac{1}{2} \times 10/12$	Short tax year starting 3/15
2	33.33%	$2 \times (100 - 16.67)\% / 5$	$> (100 - 16.67)\% / 4.583$	Remaining life is 4.583 years
3	20.00%	$2 \times (83.33 - 33.33)\% / 5$	$> (83.33 - 33.33)\% / 3.583$	
4	12.00%	$2 \times (50.0 - 20.0)\% / 5$	$> (50.0 - 20.0)\% / 2.583$	
5	11.37%	$2 \times (30.0 - 12.0)\% / 5$	$< (30.0 - 12.0)\% / 1.583$	
6	6.63%			Undepreciated balance

For a taxpayer with **both a short first tax year and mid-quarter convention** the first-year depreciation factor is calculated using the following four steps.¹ The calculation of the depreciation factors for years two through six follows the normal double-declining balance switching to straight-line rules.

1. Determine the midpoint of each quarter using a 365-day year in the following way. Divide the number of days in the short year by 4 to get the number of days in each quarter and divide the number of days in each quarter by 2 to determine the midpoint of each quarter. For a taxpayer with a short first year starting on March 15th, there are 292 days in the first year, 73 days in each quarter, and the midpoint of each quarter is the 37th day of the quarter.
2. Determine the deemed in-service date. If the calculated midpoint of a quarter is on a day other than the first day or midpoint of the month, treat the property as being placed in service on the nearest preceding first or midpoint of that month.
3. Count the number of whole and half months from the deemed in-service date until the end of the tax year. The proration factor for the first year is this number divided by 12.
4. Multiply the proration factor from step 3 by a full first-year's depreciation to determine the first-year allocation. For a 200%/SL half-year asset with a 5-year life, a full first-year allocation is $2 \times 100\% / 5 = 40\%$.

Qtr.	Qtr. Dates	Midpoint	Deemed in-service date	Months in service	Calculation for first-year depreciation	First-year depreciation
1	3/15 - 5/26	4/20	4/15	8.5	$40\% \times (8.5/12)$	28.3333%
2	5/27 - 8/07	7/02	7/01	6.0	$40\% \times (6.0/12)$	20.0000%
3	8/08 - 10/19	9/13	9/01	4.0	$40\% \times (4.0/12)$	13.3333%
4	10/20-12/31	11/25	11/15	1.5	$40\% \times (1.5/12)$	5.0000%

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¹ IRS Publication 946 presents this example on pages 43 to 44.
<https://taxmap.irs.gov/taxmap/pubs/p946-026.htm#TXMP0fd333da>