

Sales and Use Tax Exemption for Fuel and Electricity Consumed in Manufacturing

Fact Sheet 2111

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This fact sheet explains the Wisconsin sales and use tax treatment of fuel and electricity consumed in manufacturing. It describes the manufacturing exemptions, exemption requirements, procedures for claiming exemption, documenting the exemption, and what to expect in an audit of the claimed exemption. Additional information about manufacturing sales and use tax exemptions is in [Publication 203](#), *Sales and Use Tax Information for Manufacturers*.

Exemptions

Fuel and electricity are taxable when sold, stored, used, or consumed in Wisconsin, unless an exemption applies. Fuel includes natural gas, propane, coal, wood, and similar fuels.

Two fuel and electricity exemptions apply specifically to manufacturers:

- Fuel or electricity consumed in manufacturing tangible personal property in Wisconsin. Section [77.54\(30\)\(a\)6.](#), Wis. Stats.
- Fuel and electricity consumed, destroyed, or losing its identity in the manufacture of shopper's guides, newspapers or periodicals. Section [77.54\(2m\)](#), Wis. Stats.

What Is Manufacturing?

Manufacturing is defined in sec. [77.51\(7h\)\(a\)](#), Wis. Stats. to mean the production by machinery of a new article of tangible personal property with a different form, use, and name from existing materials, by a process popularly regarded as manufacturing. Manufacturing begins with conveying raw materials and supplies from plant inventory to the place where work is performed in the same plant and ends with conveying finished units of tangible personal property to the point of first storage in the same plant.

Manufacturing includes:

- Conveying work in progress directly from one manufacturing process to another in the same plant
- Testing or inspecting work in progress
- Storing work in progress in the same facility where the manufacturing occurs
- Assembling finished units
- Packaging finished units if the manufacturer, or another person on the manufacturer's behalf, performs the packaging and the packaging becomes part of the unit as it is customarily offered for sale by the manufacturer

Manufacturing does not include (sec. [77.51\(7h\)\(b\)](#), Wis. Stats.):

- Storing raw materials or finished units
- Research or development
- Delivery to or from the manufacturing facility

- Repairing and maintaining manufacturing facilities

Plant is defined in sec. [77.51\(10b\)](#), Wis. Stats., to mean a parcel of property or adjoining parcels of property, including parcels that are separated only by a public road, and the buildings, machinery, and equipment that are located on the parcel, that are owned by or leased to the manufacturer.

Fuel and Electricity Consumed in Manufacturing

Fuel and electricity are only consumed in manufacturing when they are used to operate machines and equipment used directly in the step-by-step manufacturing process.

Examples of fuel and electricity consumed in manufacturing:

- Melting aluminum at a foundry
- Operating a printing press by a newspaper company
- Running a forklift when transporting work in progress between steps of the manufacturing process
- Operating ovens in a bakery
- Aging cheese in a cheese manufacturer's refrigerated warehouse
- Drying wood at a sawmill
- Running a blast freezer in a frozen food manufacturing plant
- Running a compressor that provides air to manufacturing equipment
- Operating a boiler that manufactures steam at a manufacturing facility, regardless of whether the steam from the boiler is used primarily to heat the facility or in the step-by-step production process

Fuel and Electricity Not Consumed in Manufacturing

Section [Tax 11.41\(4\)\(a\)](#), Wis. Admin. Code, provides that fuel and electricity are not consumed in manufacturing when used to operate machines and equipment that are not used directly in the step-by-step manufacturing process, such as:

- Providing plant heating, cooling, air conditioning (**Note:** A waste treatment exemption applies under sec. [77.54\(26\)](#), Wis. Stats., for fuel and electricity used by air makeup units that remove contaminants from manufacturing areas and replace with clean air.)
- Communications
- Lighting, safety and fire prevention
- Storing raw materials or finished units
- Research and product development (**Note:** A different exemption applies to fuel and electricity used exclusively and directly in qualified research by specified entities under sec. [77.54\(57d\)\(b\)2](#), Wis. Stats.)
- Delivery to or from the plant
- Repairing or maintaining plant facilities
- Shipping, advertising, distribution, sales, or administrative department activities

Examples of Fuel and Electricity Not Consumed in Manufacturing:

- Operating a boiler that manufactures steam for residential facilities
- Monitoring equipment used in pollution abatement

- Operating coolers that maintain the temperature of frozen raw materials and finished food products before and after manufacturing
- Operating a water softener that provides water to restrooms, kitchenettes, and janitor closets and for similar non-manufacturing activities
- Operating cleaning equipment at a manufacturing facility
- Operating garbage and waste disposal equipment

How Do I Claim the Exemption?

Provide the seller (e.g., utility) with a fully completed exemption certificate (Form [S-211](#) or [S-211E](#)) and enter the percentage of the fuel or electricity that is exempt because it is consumed in manufacturing.

Factors to Consider When Determining Exempt Percentage

- Identification of all utility meters and the equipment each meter supplies
 - Document any changes to utility meters and any effect on the equipment
- Function of each machine or equipment (i.e., manufacturing and non-manufacturing)
- Consumption by each manufacturing machine or equipment, including calculations that consider:
 - Facility production/operation days and hours, number of shifts, shutdowns, and holidays
 - Changes in operations, equipment, and machinery
 - Seasonal factors (e.g., more electricity is used to cool the facility in the summer)
- Other available information that reflects exempt fuel or electricity usage

Methods Used to Determine Exempt Percentage

A taxpayer must keep records to show that a particular sale or purchase qualifies for an exemption. Although a utility study is not required to claim an exempt percentage of fuel and electricity consumed in manufacturing, the manufacturer must provide documentation to prove the exemption. A utility study provides evidence to support the claimed exempt percentage. Below are some factors to consider when selecting a utility study.

A. Recommended: Comprehensive utility study

A utility study is the best determination for calculating the exempt percentage of fuel and electricity consumed in manufacturing. A comprehensive utility study determines electricity consumption based on the total usage by each meter, including all buildings and manufacturing and nonmanufacturing equipment that each meter supplies. A comprehensive study identifies upgrades completed for more efficient lighting, new and retired machinery and equipment, plant expansions or downsizing, and other changes that impact fuel and electricity consumption. Using the information gathered, the study should calculate the electricity and each fuel type consumed in both manufacturing and non-manufacturing on a per meter basis, and then determine the overall percentage of electricity or fuel consumed in manufacturing.

A comprehensive utility study also helps identify if the estimated consumption is more or less than actual consumption. This may be an indication that factors have been missed.

B. Not Recommended

1. Partial or indirect utility study

Some utility studies only analyze fuel or electricity consumed in manufacturing machinery and equipment. Other studies look only at fuel or electricity used for non-manufacturing purposes to indirectly calculate the amount consumed in manufacturing. This type of study is often called a "one-sided utility study" and may or may not be calculated on a per meter basis.

2. Square-footage

This method uses the percentage of square footage for manufacturing areas to the total square footage of the facility. This method is expedient, but inaccurate. It fails to account for non-manufacturing use in manufacturing areas, including facility lighting and ventilation, maintenance, etc. This method also doesn't consider manufacturing machinery and equipment operating hours or consumption differences.

3. Educated guess

A manufacturing percentage claimed without documentation is usually inaccurate and may result in large audit adjustments. While the factors described above may contribute to the estimated percentage, no reasonable method is used.

What to Expect in an Audit of Fuel and Electricity Exemption

The auditor generally requests the following for each Wisconsin facility. After completing the review of information, the auditor may determine that adjustments should be made to the exempt percentage which result in additional tax due or a refund. The auditor will share the adjustment calculation and provide details to support their findings.

Copies of utility studies or surveys and all supporting detail

The department does not require a manufacturer to get an independent, third-party utility study to claim the exemption for fuel and electricity consumed in manufacturing. A manufacturer may conduct its own detailed analysis/study of the fuel and electricity consumed in manufacturing. Regardless of how the exempt percentage is determined, the method used and resulting calculations must be supported with written documentation.

Studies should include as many of the factors described above to accurately reflect the fuel and electricity consumed in manufacturing and non-manufacturing activities. An incomplete study will require additional review and verification and could result in an audit adjustment.

Copies of exemption certificates provided to fuel and electricity sellers

Auditors review exemption certificates given by manufacturers to their utility providers to understand the tax charged on the invoices. Exemption certificates indicate the exempt percentage of fuel or electricity claimed by the manufacturer and whether the exemption is for single or continuous use. If single use, the seller only exempts the transaction for which the certificate is given. If continuous use, a seller exempts all future transactions as identified on the certificate. Sellers who accept a fully completed exemption certificate claiming a continuous manufacturing exemption are relieved from collecting sales or use tax on the items identified on the certificate. Any liability for tax not collected is with the manufacturer.

Continuous exemption certificates do not expire or require renewal at prescribed intervals. However, manufacturers should review their consumption of fuel and electricity at reasonable intervals and provide an updated exemption certificate to their utility provider if there are changes in operations or machinery and equipment that affect the exempt percentage of fuel or electricity. Exemption certificates should also be renewed for name, entity, or registration number changes and provided to sellers as appropriate.

Copies of fuel and electricity purchase invoices and reports for the audit period

The auditor reviews monthly utility invoices and reports for the following information:

- Electricity kilowatt-hours and natural gas therms used by the facility
- Meter information
- Quantities purchased
- Percentage of invoice taxed and paid
- Seasonal variations
- Other fees and charges

Facility map or process layout

If the facility has more than one meter for fuel or electricity, each meter's location and a list of equipment that operates off each meter is requested. The map or layout is generally requested before a facility tour to determine the scope of the tour (e.g., the start of the manufacturing process in raw materials to the end at finished goods storage).

Facility tour

The person giving the tour should have extensive knowledge of the facility and the processes performed. In combination with the facility map or process layout review, the auditor asks questions about activities performed in certain areas and equipment located in the facility, including:

- Areas and equipment used for both manufacturing and non-manufacturing activities
- Identity of equipment that uses the majority of specific electricity and fuel types (e.g., natural gas, propane, electricity)
- Lighting
- Process heating and cooling and fuel type
- Number, purpose, and location of energy meters
- Operation information, including hours, shifts, shut-downs, and holidays

Machinery and equipment list that identifies energy type used

The list should include:

- Cross-references to complete asset listing or depreciation schedules
- If a boiler is used to produce steam, a description of the use of the steam
- Whether the equipment is used in manufacturing, non-manufacturing, or both
- Power rating derived from the machine manufacturer's nameplate information (voltage and amperage). This is the electrical power the machine uses at full load and is measured in watts.
- Load factor. The power rating derived from the machine manufacturer's nameplate rating is typically for full load operation. Many machines do not always operate at "full load." For example, a motor rated to produce 10 horsepower at full load may only operate in the plant at an average output of seven horsepower and requires proportionately less electrical power than a full load.
- Utilization. It is unlikely the machine runs 100% of the time. It will be inactive for set-up, maintenance, and cleaning. It is not uncommon to see machine utilization as low as 50%. It is reasonable to assume hours worked by employees are closely related to hours that a machine is used. This information should be incorporated into any utility study or survey.

The auditor reviews the information above and compares to prior audit fuel and electricity information, if applicable, to determine if the exempt percentage is reasonable or an adjustment should be made. Specifically, the auditor calculates total annual kilowatt hours of electricity used (machine utilization hours × power consumption in watts × load factor) and answers the following questions.

- Is the calculated use higher than the actual?
- Are the operating hours of each machine properly determined?
- Are the power rating and load factors properly computed?

Once the manufacturing kilowatt-hours are determined, those hours are divided by the total kilowatt-hours used in the plant to determine a reasonable percentage of electricity consumed in operating manufacturing equipment.

While the above detail applies to electricity, similar audit methods are used for natural gas, propane, and fuel oils.

Additional Information or Comments

- Visit the department's website at revenue.wi.gov
- Email your questions or comments to DORSalesandUse@wisconsin.gov
- Call our Customer Service Bureau at (608) 266-2776

Applicable Laws and Rules

This document provides statements or interpretations of subch. III of ch. 77, [Wis. Stats.](#), and ch. Tax 11, [Wis. Adm. Code](#), enacted as of January 31, 2022.

Laws enacted and in effect after this date, new administrative rules, and court decisions may change the interpretations in this document. Guidance issued prior to this date, that is contrary to the information in this document is superseded by this document, according to sec. 73.16(2)(a), Wis. Stats.

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