STATE OF MICHIGAN
DEPARTMENT OF TREASURY
LANSING

RICK SNYDER
GOVERNOR

NICK A. KHOURI
STATE TREASURER

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SALES AND USE TAX – APPORTIONMENT OF THE INDUSTRIAL PROCESSING EXEMPTION FOR ELECTRIC AND GAS PROVIDERS

RAB 2018-4. This Revenue Administrative Bulletin (RAB) discusses a reasonable method of apportioning the industrial processing exemption for electric and gas providers.

BACKGROUND

The industrial processing exemption as authorized by the Michigan General Sales Tax Act[1] and Michigan Use Tax Act[2] generally exempts property to the extent that it is used or consumed within industrial processing activities. When property eligible for the exemption is used for exempt and non-exempt purposes, the Department is required to approve a reasonable method of apportionment to determine the exempt use of all property eligible for the exemption.[3] Although taxpayers may submit alternative methods of apportionment for approval, this RAB sets forth the Department's approved method of apportionment applicable to the industrial processing exemption claims of electricity and natural gas providers.

DISCUSSION

I. Establishing a Reasonable Apportionment Methodology for Providers

The Michigan General Sales Tax Act and Use Tax Act (the "Acts") exempt tangible personal property that is used or consumed within industrial processing activities.[4] "Industrial processing" is defined as:

[1] MCL 205.51, *et seq*.
[2] MCL 205.91, *et seq*.
[3] MCL 205.54t(2); 205.94o(2).
[4] MCL 205.54t; 205.94o.

> The activity of converting or conditioning tangible personal property by changing the form, composition, quality, combination, or character of the property for ultimate sale at retail or for use in the manufacturing of a product to be ultimately sold at retail. Industrial processing begins when tangible personal property begins movement from raw materials storage to begin industrial processing and ends when finished goods first come to rest in finished goods inventory storage.[5]

The industrial processing exemption was examined within the context of an electrical system in *Detroit Edison Co v Dep't of Treasury*.[6] As recognized by the Michigan Supreme Court in that case, altering the voltage of electricity constitutes an exempt activity because it "conditions" electricity for ultimate sale at retail. The Court also recognized that the movement of electricity between stations, substations, and the final consumer constitutes non-exempt distribution and shipping activities[7] such that exempt and non-exempt activities occur *simultaneously* and *throughout* the entire electrical system.[8]

The simultaneous exempt and non-exempt use of the electrical grid requires apportionment of the industrial processing exemption. The Acts' industrial processing exemption provisions state:

> The property [eligible for the industrial processing exemption] is exempt only to the extent that the property is used for the exempt purpose stated in this section. The exemption is limited to the percentage of exempt use to total use determined by a reasonable formula or method approved by the department.[9]

In determining the industrial processing exemption, the exempt use and total use of the property must be determined. Acknowledging the complexity of that task, the method of apportionment to be approved by the Department must only be reasonable.[10] That is, the apportionment method must simply provide "*some recognition* to both exempt and nonexempt activity" occurring within the entire utility system.[11] This RAB establishes the Department's approval of a reasonable means of apportionment applicable to all providers whose transmission and distribution systems simultaneously perform exempt and non-exempt activities.

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[5] MCL 205.54t(7)(a); 205.94o(7)(a).
[6] 498 Mich 28 (2015).
[7] *Id*. at 43.
[8] *Id.*
[9] MCL 205.54t(2); 205.94o(2).
[10] *Detroit Edison Co*, 498 Mich at 50.
[11] *Id.* (emphasis added).

A. Overview of Electricity Systems

In general terms, an electricity grid refers to the interconnection of three specialized electricity processes – generation, transmission, and distribution.[12] The transmission and distribution components of this grid generally make up the power delivery system that moves and delivers electricity to individual and business consumers.[13]

Specifically, the transmission system generally refers to the network of assets that supports the bulk transport of electricity at high voltages for the purpose of efficiently moving electricity across long distances throughout the electrical grid. The process of transmission generally begins when electricity voltage is "stepped up" to several thousand volts by transformers located at a generation plant.[14] This step up in voltage is necessary to efficiently move the electricity across transmission lines in order to connect the generation system with the distribution system. Once it reaches the distribution point, the electrical energy will pass through a local distribution substation that will reduce voltages to levels more appropriate for high-volume delivery over short distances. Thus, the transmission system generally includes transformers, high-voltage transmission lines, transmission towers and poles, and other related equipment that alters or moves electricity up to the point where electricity is converted to distribution voltages.[15]

The distribution system refers to the network of assets that supports the movement and delivery of electricity to individual and business consumers. The distribution system generally begins at local distribution substations where electricity is first "stepped down" from high-voltage transmission levels.[16] This stepped-down electricity may be delivered directly to certain consumers or it may pass through additional distribution transformers that further reduce voltage levels as necessary for consumer use. To ensure the reliability of this network, System Control and Data Acquisition (SCADA) equipment and other monitoring equipment collects data and provides for real time network monitoring to help prevent, diagnose, and minimize electrical disruptions to consumers. The distribution system therefore includes substations, transformers, distribution lines, and other assets that are responsible for the alteration and subsequent delivery of electricity at levels safe for consumer use. Regarding the electrical grid, *Detroit Edison Co* recognized that simultaneous exempt and non-exempt activities occur from "the time when electricity leaves the generation plant until it is finally distributed to the consumer."[17] *Detroit Edison Co* further acknowledged that the simultaneous exempt and non-exempt use occurred

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[12] https://www.eia.gov/Energyexplained/index.cfm?page=electricity_delivery (accessed March 30, 2017).
[13] Casazza, J. & Delea, F., *Understanding Electric Power Systems: An Overview of Technology, the Marketplace, and Government Regulation* (John Wiley & Sons, Inc., 2010), pp 20-21.
[14] Transmission voltages may vary based upon the grid they belong to, but generally vary in range between 69kV up to 765kV.
[15] Cf. 18 CFR Pt. 101 14(B) ("Stations which change electricity from transmission voltage to distribution voltage shall be classified as distribution stations.").
[16] Distribution voltages may vary, but may range from between to 2kV to 35kV until final delivery to the consumer.
[17] *Detroit Edison Co*, 498 Mich at 43.

throughout that system.[18] In effect, *Detroit Edison Co* acknowledged that exempt[19] and non-exempt activities occur throughout the movement and delivery of electricity over the entire electrical grid, including both the transmission and distribution systems. Consistent with that decision, a reasonable method of apportionment based upon the characteristics of each system is necessary.

As a threshold matter, the treatment of assets as part of either the transmission or distribution system may be determined in reference to regulatory requirements. Certain public electrical utilities are regulated by the Federal Energy Regulatory Commission (FERC). The FERC requires utilities to separately report production, transmission, and distribution assets.[20] Taxpayers should follow FERC-promulgated rules and guidance regarding the classification of assets as either distribution or transmission. Where FERC guidelines are not applicable, the relative location of assets and the voltage levels by which assets interact with electricity in the system may be determinative. For example, equipment that supports wires that carry electricity at transmission voltages will be considered part of the transmission system.

a. Electricity Transmission System

The electricity transmission system may be apportioned as 60% exempt. Apportionment on a system-wide basis is based upon the highly-interconnected, complex "mesh" design of modern transmission systems. These meshes include hundreds of varying points through which electricity can flow at varying loads based upon electrical demands throughout the entire transmission system. The total use of an asset within a transmission system is based on its use and overall location within this mesh. The complexity of these systems, as well as the dynamic nature of the movement of electricity within them, makes it particularly difficult to measure the use of an individual asset at any point within the transmission system itself.[21] Such a task requires, in effect, consideration *of the entire system*.[22] The act of transmission is generally maintaining voltage within a small range of tolerance. Since little stepping-down is done to move the electricity to a finished product, transmission generally involves a homogenous use such that a single system-wide percentage is justified. Because the total use of any asset likely requires

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[18] *Id.*

[19] Although the Court in *Detroit Edison Co* declined to hold that other exempt activities were occurring within the electrical network, the Court did note that a reasonable method of apportionment should include consideration of any such activities. *Detroit Edison Co*, 498 Mich at 50 n 16. Transmission and distribution networks may include equipment such as Supervisory Control and Data Acquisition (SCADA) equipment that provides for quality control and supervisory functions that constitute an exempt activity under 205.93o(3).

[20] 18 CFR Pt. 101.

[21] Alexandra von Meier, *Electric Power Systems – A Conceptual Introduction* (John Wiley & Sons, Inc., 2006), pp 195 (2006). Because of the "sheer size and complexity of a real power system – its elaborate topology with many nodes and links, and the large number of generators and loads – it turns out to be no mean feat to deduce what is happening in one part of the system from what is happening elsewhere. Even a small network defies our ability to write down formulas for the relationships among all the variables."

[22] *Id.* ("In order to find out what the voltage or current at any given point will be, we must in effect simulate the entire system.").

consideration of the system as a whole, the apportionment formula is therefore based on the exempt use of the transmission system as a whole.[23]

b. Electricity Distribution System

Distribution systems may be efficiently separated into functionally similar assets with the exempt use estimated based on the asset's general use within the distribution system. The Department will generally rely on parallel FERC regulations for classifying assets into any of the categories listed below. Assets within an electrical distribution system may be apportioned based upon the following categories:

1. Stations and Substations – 90% exempt

Assets within this class include the stations and substations that receive electricity at high-voltages from the transmission system.[24] Stations and substations reduce voltages to appropriate levels as necessary for the movement and delivery of electricity throughout the remainder of the distribution system. Examples of assets included in this category include bus compartments, condensers, switchboards, and other switching equipment at the station.[25]

2. Transformers and Related Components – 90% exempt

Assets within this class include transformers and other related components that increase or decrease electricity voltage within the distribution system.[26] These assets may generally be located in stations, in substations, or on utility poles.

3. Wires, Cabling, and Related Equipment – 25% exempt

Assets within this class include the electrical conductor wires and other cabling used to move electricity at various voltage levels directly to consumers or to other stations, substations, or transformers within the distribution system.[27] This class also includes other related equipment such as switches, circuit breakers, insulators, splices, and other line devices.

4. Poles and Pole Top Equipment – 25% exempt

Assets within this class include utility poles and other mounted equipment that generally support overhead distribution conductors, wires, and cabling used to move electricity throughout the system.[28] Examples of assets in this category include poles, towers, anchors, brackets, racks, guards, and railings. Also included is equipment

[23] See *Detroit Edison Co*, 498 Mich at 51 (considering exempt and total use based upon the total use of the *system* as a whole rather than individual assets within that system).
[24] 18 CFR Pt. 101 362.
[25] *Id.*
[26] 18 CFR Pt. 101 368.
[27] 18 CFR Pt. 101 365; 367.
[28] 18 CFR Pt. 101 364.

that supports the transformers that alter voltages within the distribution system. Where poles or towers support both transmission and distribution assets, the poles and related assets shall be classified as part of the transmission system.[29]

5. Distribution Tools & Supplies – 50% exempt

Assets within this class generally include tools and equipment related to the installation, repair, and maintenance of certain station and substation equipment, poles and pole top equipment, transformers, wires and cabling, and other distribution assets.[30]

6. Supervision, Quality Control, and Personal Safety Equipment – 50% exempt

Assets within this class include equipment to provide for systems control and dispatching, general monitoring functions, and personal safety.[31] Examples of assets in this class include Supervisory Control and Data Acquisition (SCADA) hardware and Emergency Management System (EMS) hardware. Personal safety equipment includes hardhats, gloves, glasses, harnesses, and other personal safety equipment used by personnel performing installation, repair, or maintenance work on distribution systems.

7. Customer Meters – 25% exempt

Assets within this class include customer meters or other related equipment that monitors total electricity consumption by the consumer.[32]

B. Overview of Natural Gas Systems

Delivery to the final point of use in a natural gas system requires the support of an extensive and elaborate delivery system comprised of both interstate and intrastate systems. Interstate systems refer to high-capacity regional and national pipeline networks that transport natural gas long distances across state lines and, in some cases, across the country. To efficiently and effectively move the natural gas throughout the entire system, the gas must be highly pressurized at regular intervals in compressor stations located throughout the system. These compressor stations help ensure the purity of the natural gas moving throughout the system by applying various processes such as filtration, scrubbing, and the removal of collected moisture from the gas.

The large pipes and highly pressurized nature of the interstate system makes it an unsuitable means of delivery to households and most businesses. To ensure delivery to customers, therefore, the interstate pipelines must generally connect with smaller-capacity intrastate pipes. The interchange between these two systems is termed the

[29] 18 CFR Pt. 101 14(C).
[30] 18 CFR Pt. 101 394.
[31] See 18 CFR Pt. 101 382.
[32] 18 CFR Pt. 101 370.

"citygate." Generally, at the citygate the natural gas will be depressurized, scrubbed, filtered and odorized in final preparation for consumer use.

Upon passing through the outlet valve at the citygate, the gas enters the intrastate system. Within this system, the natural gas is generally considered to be usable in form and will be moved at lower pressures through smaller-diameter distribution pipes. Regulator stations control the pressure of natural gas to optimize the distribution of the gas until final delivery to the customer service line.

Exempt industrial processing occurs at several stages within the natural gas delivery system.[33] For example, both scrubbing and filtering of natural gas ensures the integrity and purity of the gas within interstate lines and therefore "conditions" the gas for ultimate sale. Likewise, depressurization and odorization at the citygate further "conditions" natural gas because gas is not generally suitable for consumer use until after those processes occur. Like electrical systems, however, natural gas systems include a distribution and shipping function to the extent the system connects directly to consumer service lines. Because the entire system transports gas from initial production to the final consumer, it performs a simultaneous distribution and shipping function throughout the system. Thus, a reasonable means of apportionment for each phase of natural gas delivery is necessary.

a. Natural Gas Interstate Lines

Industrial processing equipment within interstate systems may be apportioned as 100% exempt. Indeed, exempt industrial processing activities occur throughout the interstate system. Scrubbing, filtration, pressurization, dehydration, and odorization processes are all exempt industrial processing activities that condition natural gas for consumer use. These activities occur within compressor stations that are located at regular intervals throughout the system. Because natural gas is not capable of distribution in most cases until after odorization,[34] natural gas effectively remains in a process of production until it passes through the citygate. That is, the natural gas is effectively not considered to be a finished good capable of delivery until it passes into the intrastate system.[35] Thus, the entire interstate system supports the exempt industrial processes necessary to ensure that the consumer receives a usable form of natural gas.

b. Natural Gas Intrastate Lines

The intrastate distribution system beyond the citygate may be apportioned as 50% exempt. After odorization at the citygate, the production process is effectively completed and the gas becomes capable of consumer use. In this regard, the outlet valve at the citygate serves as the approximate point at which production effectively ends and distribution of a finished good to the consumer begins. While distribution within a utility

[33] See *Detroit Edison Co*, 498 Mich at 40-41.
[34] 42 CFR 192.625(a); Mich Admin Code, R 460.20323.
[35] The citygate itself is treated as part of the interstate natural gas system up until the outlet valve of the citygate. 18 CFR Pt. 201 29(B).

system is a non-exempt industrial processing activity,[36] the distribution of natural gas is facilitated by the regulation of pressure throughout the distribution system. The regulation and monitoring of pressure levels of natural gas for consumer use is an exempt industrial processing activity.[37] Thus, the intrastate system beyond the citygate performs exempt and non-exempt activities *simultaneously* and *throughout* the system.[38] The apportionment factor therefore balances the intrastate distribution system's dual purpose of consumer delivery and general pressure regulation.

II. Other Reasonable Apportionment Formulas

The above apportionment formulas are designed to be reasonable as applicable to all natural gas and electric providers generally. Nonetheless, an apportionment calculation is a factual inquiry that may vary based upon the specific design characteristics and equipment used within a particular utility system.[39] A taxpayer may request to apportion the industrial processing exemption on other factual grounds, but must provide sufficient supporting documentation and evidence demonstrating that its calculation of exempt use is reasonable under the circumstances. The taxpayer bears the burden of proving the total exempt use of the property in any request to apportion the industrial processing exemption.[40] The Department will review any such evidence and may accept the taxpayer's method of apportionment if the Department concludes that the formula is reasonable based upon all information and documentation presented.

[36] *Detroit Edison Co*, 498 Mich at 43.
[37] *Id.* at 40-41.
[38] See *id*. at 43.
[39] *Id.* at 50.
[40] *General Motors Corp v Dep't of Treasury*, 290 Mich App 355, 369 (2010).