**Opinion Letter**

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| **Brief Description:** | **Wind farm's sales tax liabilities as a consumer.** |
| **Keywords:** |  |
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**Body:**

Office of Policy & Research  
  
  
October 18, 2011

XXXX  
XXXX  
XXXX

RE: Your letter dated October 4, 2011

Dear XXXX:  
  
Thank you for your recent letter. The department recently revised K.A.R. 92-19-59 to clarify private letter rulings should only be issued to retailers who ask about their sales tax collection duties. This is because retailers act as tax collectors for the State of Kansas and must be able rely on department advice about how to carry out those duties. Since this letter discusses a wind farm's sales tax liabilities as a consumer, it is being issued as an opinion letter. *See K.S.A. 79-3646; K.A.R. 92-19-59(d).*As with an attorney general's opinion, Kansas courts may find a department opinion letter is persuasive even though the courts are not bound to follow it.  
  
K.S.A. 79-3603(c) imposes sales tax on gross receipts from "the sale or furnishing of . . . electricity." K.S.A. 79-3602(pp) deems electricity to be "tangible personal property." (TPP). These provisions mean receipts from retail sales of electricity are taxable as sales of TPP and sales of enumerated services.  
  
A commercial wind farm is a group of wind turbines in the same location used to produce electricity for ultimate sale at retail. The farms are an assemblage of equipment and land improvements, which include the wind turbines, cables, transformers, control systems, access roads, and buildings. K.S.A. 79-3606(kk)(1)(D) lists "electric power generation" as an example of an "industrial manufacturing . . . operation" that utilizes an integrated production operation to produce items *(in this case, electricity, which is deemed to be TPP)* "for wholesale and retail distribution. . . ." Accordingly, the department treats a commercial wind farm as a "manufacturing . . . facility" where an "integrated production operation" is being conducted by a "manufacturing . . . business." *See definitions of "Integrated production operation" at K.S.A. 79-3606(kk)(2)(A); "manufacturing or processing plant or facility" at K.S.A. 79-3606(kk)(2)(C); and "manufacturing or processing business" at K.S.A. 79-3606(kk)(2)(D).*This exemption does not extend to wind turbines that are used by homes and businesses.  
  
K.S.A. 79-3606(kk) exempts some, but not all, sales to a wind farm. Taxable wind farm purchases include the goods and services listed in K.S.A. 79-3606(kk)(5) as well as a number of other purchases. This letter will discuss these taxable and exempt purchases in more depth.  
  
Large commercial wind farms in Kansas consist of as many as 170 individual wind turbines and may cover an extended area of dozens of square miles. *See Kansas Energy Information Network, Kansas Wind Projects, www.kansasenergy.org/wind\_projects.htm.*Wind farm operators enter into multiple lease agreements with private and public land owners to lease small pieces of land below and immediately surrounding each wind turbines, the substations, maintenance buildings, and management and control buildings. The wind farm also contracts for the right to install cables below or above ground and to build access roads where required.  
  
Wind turbines are installed in rows that are perpendicular to the prevailing wind direction whenever possible. To avoid losses caused by interference, turbines in each row are generally spaced at least 750-1000 feet apart, and the rows must be spaced several thousand feet apart. Accommodations required by local terrain may increase this spacing. Even a moderately-sized wind farm can be miles across.  
  
Electricity generated by wind farms is usually sold exclusively to electric utility companies for resale to customers. To establish the sale is for resale, the wind farm owner must secure a resale exemption certificate from the utility that buys the electricity. Commercial wind farms must supply electricity to the interconnection point between the wind farm and electric grid that is compatible with the grid. If the electricity is not compatible, the feed will be shut off in milliseconds. This indicates a wind farm's integrated production operation includes a wind farm's equipment that operates to assure the electricity being delivered is compatible with the grid being fed.  
  
**Basic components of a wind farm.**  
  
**1. Wind Turbine** - A conventional commercial wind turbine consists primarily of a tower, a nacelle, and three blades and a hub that make up a rotor. A fully assembled wind turbine can reach a height of over 300 feet and weigh more than a half million pounds. The term “nacelle” technically only refers to the fiberglass or steel shroud that encloses the wind turbine generator components. However, the term commonly is used to refer to the shroud plus the components it houses. These components include a generator, gear box, low speed rotor shaft, brake assembly, hydraulics, cooling systems, monitoring sensors, and control equipment. These components are bolted to a steel frame that can be rotated on a horizontal-axis atop a vertical support tower. This allows the nacelle to be turned into or away from the wind by use of a computer-controlled yaw motor and drive affixed to the support tower.  
  
Commercial rotor blades are constructed from composite materials, such as epoxy, fiberglass, and carbon fibers, with some use of aluminum and other metals. Commercial wind turbines typically have rotors with three blades. The hub contains a mechanical system used to control the pitch of the blades by turning them on their axis. The pitch-control mechanism, which is hydraulic or electric, is often spring loaded, so that the blades automatically furl in case of a systems failure. Modern three blade rotors may have a diameter of more than one-hundred meters. The rotor is bolted to the main drive shaft that protrudes from the front of the nacelle. A gear box between the main drive shaft and the generator steps up the low rotational speeds produced by the rotor to speeds that are suitable for generating electricity.  
  
In addition to the generating equipment, a nacelle often contains a fire safety system that is hardwired to the control and monitoring systems. The Federal Aviation Administration requires flashing warning lights to be placed on top of the nacelles. A commercial wind turbine is usually purchased as fully manufactured integrated unit directly from a manufacturer, along with the support tower.  
  
**2. Support Towers** - Most modern wind turbines are mounted on conical tubular steel towers. A tower typically is manufactured in three to five sections. Each section has a flange at either end that allows the sections to be bolted together. As part of the manufacturing process, each section is multi-coated for protection from the weather, pre-drilled, and fitted with ladders, mounting plates, and lights. The ladders are used to access the nacelle for servicing and maintenance. Normally, the base section is fitted with an access door and a mounting plate for control panels.  
  
Each section is hauled to the construction site on a flat bed truck. The base section is bolted to a concrete foundation engineered to support the tower. The next section is positioned on top of the base section and bolted in place. This process continues until the tower is complete.  
  
The tower diameter is largest at the base and smallest at the top. The base diameter can be 16 feet or more. The steel walls of the sections vary in thickness, with the bottom section having the thickest steel. Some base sections are built from concrete. Assembled towers may weigh more than 300,000 lbs.  
  
Commercial wind turbines and towers are usually purchased by the wind farm owner directly from the manufacturer as fully manufactured integrated units. Wind farm owners may purchase other wind farm components directly from the manufacturer or from a distributor. Contractors and subcontractors may also purchase wind farm components and materials. The owner will reimburses the contractor for the cost of its purchases.  
  
**3. Tower Foundations** - Tower foundations or "pads" are made of concrete, anchor bolts, rebar, and other reinforcing material. The anchor bolts are arranged in a circle to mate with the flange on the base section of the tower. The foundation design is determined by the soil characteristics at the installation site. Foundations may be anchored to bedrock, gravity based, or have multiple piles sunk to depths of forty feet or more. The size and design of tower foundations vary based on the soil characteristics.  
  
**4. Wind turbine transformers** - Each wind turbine is equipped with its own transformer. These transformers are classified as either: (1) "internal"; or (2) "external" or "pad mounted." The model of wind turbine determines the type of a transformer that is used.  
  
Internal transformers are located in the nacelle and are anchored to the nacelle's floor. External transformers are positioned at or near the base of the tower and may be bolted to the tower's concrete foundation. Both types of transformers received electricity generated by the wind turbine. Both types are wired to a tower mounted SCADA panels, which in turn are wired to the central SCADA management and control system. The different SCADA systems are discussed below.  
  
**5. Tower-mounted SCADA panels** - Each wind turbine is equipped with a supervisory control and data acquisition (SCADA) System panel located at the base of the tower. Typically, the panel is bolted to the inside wall of the tower and wired to the monitoring sensors and control equipment in the nacelle, as well as to the central SCADA management and control system. Commercial wind farms usually have a number of SCADA systems, including the ones on the wind turbines, the central SCADA system, and substation SCADAs. The grid owner may also have its own SCADA equipment, which along with DVAR equipment, allows the owner to monitor and control the electricity fed into the grid by the wind farm.  
  
**6. Intra-wind farm electrical collection system** - This system consists of electrical cables and junction boxes that transmit the electricity generated by the wind turbines to the substation that feeds the electricity into the utility grid. Most of these cables and junction boxes are buried underground, although part of a intra-farm system may consist of overhead transmission lines. Overhead transmission lines consist of wire conductors, insulators, wood or steel support structures, and concrete foundations. The "intra-wind farm" collection system does not include off-site power lines or buried cables that deliver electricity from the substation to interconnect point of the electrical grid.  
  
**7. Central SCADA management and control system** - Wind turbines are equipped with sensors that monitor its components, which include the generator, gear box, brakes, yaw controls, and pitch controls among other things. Data from these sensors is sent to the tower-mounted SCADA panel and on to a central SCADA management and control computer by wire or fiber optics. There, the data is converted for display on monitors that show the wind farm's operations in real time. The central SCADA system also receives and processes data from meteorological towers and from other SCADA systems used at the wind farm. This information allows the operator to make wind turbine efficiency and safety adjustments in real time via the electronic control system. The data is saved in a data repository. This allows it to be analyzed later for ways to improve the wind farm's efficiency.  
  
When the system detects an anomaly in the farm's operations, an alert is sent to the display panel that notifies the operators of the problem. An alert can also be sent to pagers issued to maintenance technicians. These alarms initiate a trouble shooting process to better identify the problem. The central SCADA system allows the plant operators to control the operation of each turbine from its remote location and to shut down a wind turbine to minimize damage caused by a malfunction.  
  
**8. Permanent Meteorological Towers** - Permanent meteorological towers are often equipped with thermometers, barometers, wind-direction vanes, and anemometers that measure wind speed and direction. This information is transmitted to each wind turbine's SCADA panel and to the central control facility.  
  
Temporary meteorological towers are set up to assess potential sites for a wind farm or to determine the optimum location for a wind turbine once a site is chosen. These towers are not used as part of a wind farm's integrated production operations and may not be purchased tax exempt.  
  
**9. Operations and Maintenance Building**- The operations and maintenance center is a conventional building constructed on the project site. The building normally houses the central SCADA management and control system, spare parts, and maintenance supplies. The building often functions as an office for the project operations and maintenance teams.  
  
**10. Access Roads** - Access roads allow contractors and suppliers to haul wind turbine nacelles, tower sections, transformers, concrete, rebar, and other equipment and materials to the construction sites for turbines and underground lines. Access roads are often constructed out of crushed limestone and gravel. Once construction is complete, the roads provide access to the wind towers and other equipment for service and repair. The land between the wind turbines, including the access roads, are generally open for use by the land owner for access to its property, livestock grazing, or other agricultural pursuits.  
  
As part of the permit process for construction of a wind farm, local governments may require wind farm developers to maintain and repair nearby public roads because of the damage to the roads the heavy construction activities will cause.  
  
**11. Wind Farm Substations** - Electricity produced by the wind turbines travels via the intra-wind farm electrical collection system to the project's substation or substations. Each substation consists of transformers, breakers, metering and relay equipment, high voltage bus work, steel support structures, and lightning-suppression equipment. Transformers step up the electricity to a voltage appropriate for delivery into the transmission grid. Because of the hazard, substations are fenced in and access is limited to trained personnel.  
  
The substation's dynamic reactive power compensation equipment (DVAR) stabilizes and regulates the electricity produced by the wind farm to meet utility interconnection requirements, which are concerned with the power factor, voltage output, and low-voltage ride-through requirements of the grid. DVARs typically have an ultra-fast response time measured in milliseconds that enhances system voltage stability. Substations may contain several DVARs to allow maintenance of one unit while others remain in operation. Individual wind turbines are sometimes fitted with DVARs. This equipment is treated in the same was as wind-turbine transformers and tower-mounted SCADA panels.  
  
**12. Tools and Construction Equipment** - Contractor are liable for payment of tax on their purchases or rentals of tools and construction equipment, including erection cranes, support cranes, scaffolding, bulldozers, motor vehicles and other equipment used during the construction phase of the wind farm. Contractors are also liable for sales tax on their purchases of hand tools, curing blankets, diamond blades, abrasive blades, drill bits, forms, liners, stakes, motor fuel, and similar items even though the items may be expensed for the job. Unlike a PEC, (kk) does not exempt a contractor's rental of construction equipment.  
  
A wind mill operator is liable for payment of tax on its purchases or rentals of tools and construction equipment in the same way as contractors. The integrated production exemption does not exempt a wind farm's purchases or rental of maintenance tools or equipment.  
  
**Exempt Purchases.**  
  
A wind farm owner that buys equipment to install at the wind farm may claim exemption on its purchases of wind turbines, support towers, wind turbine transformers, wiring and other materials used in the intra-wind farm electrical collection system, tower-mounted SCADA panels, central SCADA management and control system, permanent meteorological towers that send data to the SCADA panels, and transformers and other electric equipment and wiring used at the wind farm's substations. To claim exemption, the owner must complete a ST-201, *Integrated Production Machinery and Equipment Exemption Certificate,* and present a completed copy to the seller.  
  
Charges for labor services generally are taxable in Kansas. A wind farm owner that hires contractors to do construction work at the wind farm is required to provide a completed ST-201 to its general contractor or contractors. It should also provide a completed form to any subcontractor who requests it. While installation and application services are generally taxable, such services are exempt when performed to qualifying integrated production equipment under (kk).  
  
Contractors that buy construction materials for incorporation into the project, such as wiring, conduits, transformers, insulators, and so forth, may claim exemption on these purchases. To claim exemption, the contractor must complete an ST-201, *Integrated Production Machinery and Equipment Exemption Certificate,* and indicate the materials being purchased are to be incorporated into the wind farm under construction. The contractor must issue a completed ST-201 to each vendor that sells it exempt materials or equipment that will be incorporated into the project.  
  
After a wind farm is operational, the wind farm owner may claim exemption when it buys repair and replacement parts for exempt equipment. Labor services to install the parts are also exempt, as are charges for repairs or servicing. Equipment purchased to replace exempt equipment is also exempt.  
  
Because the wind turbines are sold as an integrated unit, equipment such as the FAA warning lights and fire safety system in the nacelle are exempt even though such equipment would be taxable if installed on a conventional building or other structure. *See e.g. K.S.A. 79-3606(kk)(5).*  
  
**TAXABLE PURCHASES.**  
  
As noted above, an operations and maintenance center is a conventional building constructed on site. As such, the materials sold to construct the building are subject to sales tax, as are the purchases of HVAC equipment, lighting equipment, and plumbing for the building. Chairs, desks, files and other equipment purchased to equip a building are also taxable. The SCADA equipment and the wiring for data feeds to the SCADA equipment are exempt under (kk). Labor services to build the building are exempt under K.S.A. 79-3603(p) as the first or initial construction of a building. Once construction is complete, later repairs are taxable as are the materials used to make the repair.  
  
A wind farm's purchases of crushed rock and gravel for access roads are taxable, as are such purchases for public roads. If a company is hired to spread the rock on access roads, charges for the application services are taxable. While rock and gravel used on public roads are taxable, the application and repair services are not taxable because of the definition of "original construction" in K.S.A. 79-3603(p). While taxing materials used on public roads may seem to be unusual to an out-of-state business, Kansas imposes sales tax on materials sold to contractors for use on State projects.  
  
If a wind farm is required to install a transmission line to the power grid after the electricity has left the property leased for the wind farm, charges to the wind farm for materials for the transmission line and for services to install it are taxable. Similarly, if an electric utility runs such lines, the charges to the utility for the material and labor are taxable. An electric utility's purchase of DVAR and SCADA equipment for use at the interconnection point is also taxable.  
  
While the equipment and wiring used at the wind farm's substation are exempt, any perimeter safety fencing and any rock or gravel used at the substation are taxable. Any buildings constructed at a substation are taxed in the same way as the construction of operations and maintenance buildings.  
  
While the sale and installation of permanent meteorological towers that feed date into the wind farm's SCADA equipment are exempt, the sale and installation of temporary meteorological towers that are used to locate potential wind farm sights are taxable. Similarly, any other equipment used to scout potential sites for wind farms are taxable.  
  
As noted above, a wind farm is required to pay sales tax on its purchases of tools and construction equipment used to repair and maintain equipment is a wind farm. However, a wind farm is allowed to claim exemption when it buys replacement parts for exempt (kk) equipment, such as blades, generators, transformers, and wiring. When outside contractors are hire to perform the repair services, the charges are exempt. This exemption does not extend to a wind farm's rental of equipment to use to do the repairs itself.  
  
I believe this discussion should be helpful to your client. If you have any additional substantive questions, please submit them in writing to the necessary research can be done before a response is issued.

Sincerely,  
  
  
  
Thomas E. Hatten  
Attorney/Policy & Research

**Date Composed: 10/20/2011 Date Modified: 10/20/2011**