

## TABLE OF CONTENTS

### TABLE OF AUTHORITIES

.....3

JURISDICTIONAL STATEMENT .....6

### STATEMENT OF FACTS

.....7

#### The Appellants

.....7

Basic Concepts of Electricity .....8

The Electric Energy Industry .....9

The Equipment at Issue .....13

### STANDARD OF REVIEW

.....16

### POINT RELIED ON

.....17

### ARGUMENT

.....18

#### I. The Equipment at Issue Is Used to Deliver,

Not Manufacture, Electric Power .....18

#### A. Transmission and Distribution of Electric Power

	Do Not Constitute Manufacturing .....	19
B.	Changing the Voltage of Electric Power to Facilitate Delivery Is Not Manufacturing .....	26
C.	Equipment Used to Maintain Standards During Delivery Is Not Manufacturing Equipment .....	32
II.	The Integrated Plant Doctrine Does Not Make Delivery Equipment Into Manufacturing Equipment .....	35
III.	Cases From Other Jurisdictions Do Not Make Delivery Equipment Into Manufacturing Equipment .....	40
CONCLUSION		
	.....	45
CERTIFICATE OF SERVICE		
	.....	46
CERTIFICATE REQUIRED BY RULE 84.06		
	.....	46

## TABLE OF AUTHORITIES

### Cases

<i>Concord Publishing House, Inc. v. Director of Revenue,</i> 916 S.W.2d 186 (Mo. banc 1996) .....	37, 38
<i>Curry v Alabama Power Co.,</i> 8 So. 2d 521 (Ala. 1942) .....	40,
	44
<i>DST Systems, Inc. v. Director of Revenue,</i> No. SC82797 (April 10, 2001) .....	35
<i>Empire District Electric Co. v. Director of Revenue,</i> No. RS-79-0249 (Mo. Admin. Hearing Comm'n 1983) .....	19, 20
<i>Floyd Charcoal Co. v. Director of Revenue,</i> 599 S.W.2d 173 (Mo. banc 1980) .....	17, 35, 36, 37, 38
<i>Forrester v. North Georgia Electric Membership Corp.,</i> 19 S.E.2d 158 (Ga. Ct. App. 1942) .....	21
<i>Galamet, Inc. v. Director of Revenue,</i> 915 S.W.2d 331 (Mo. banc 1996) .....	30, 43
<i>G.T.E Automatic Electric v. Director of Revenue,</i> 780 S.W.2d 49 (Mo. banc 1989) .....	16



<i>Heidelberg Central, Inc. v. Director of Revenue,</i>	
476 S.W.2d 502 (Mo. banc 1972) .....	44
<i>House of Lloyd v. Director of Revenue,</i>	
824 S.W.2d 914 (Mo. banc 1992) .....	17, 29, 30, 36, 43
<i>Jackson Excavating Co. v. Administrative Hearing Commission,</i>	
646 S.W.2d 48 (Mo. banc1983) .....	30, 44
<i>Kentucky Electric Co. v. Buechel,</i>	
146 Ky. 660, 143 S.W. 58, 62 (1912) .....	20
<i>L &amp; R Egg Co. v. Director of Revenue,</i>	
796 S.W.2d 624 (Mo. banc 1990) .....	16, 17, 32, 34, 40
<i>Lincoln Industrial, Inc. v. Director of Revenue,</i>	
No. SC83208 (Mo. banc June 26, 2001) .....	16
<i>Maine Yankee Atomic Power Co. v. State Tax Assessor,</i>	
690 A.2d 497 (Me. 1997) .....	40, 42, 43
<i>Niagara Mohawk Power Corp. v. Wanamaker,</i>	
286 A.D. 446, 144 N.Y.S.2d 458	
(N.Y App. Div. 1955) .....	17, 21, 25, 32, 37, 38, 42
<i>Noranda Aluminum v. Missouri Department of Revenue,</i>	
599 S.W.2d 1 (Mo. banc 1980) .....	35, 36, 38
<i>Northern States Power Co. v. Commissioner of Revenue,</i>	

571 N.W.2d 573 (Minn. 1997) .....	40, 41, 42
<i>People's Gas &amp; Electric Co. v. State Tax Commission,</i>	
238 Iowa 1369, 28 N.W.2d 799 (1947) .....	21, 22, 25
<i>Revenue Cabinet v. Kentucky-American Water Co.,</i>	
997 S.W.2d 2 (Ky. 1999)	
.....	21
<i>Unitog Rental Services v. Director of Revenue,</i>	
779 S.W.2d 568 (Mo. banc 1989) .....	30
<i>Utah Power &amp; Light Co. v. Pfost,</i>	
286 U.S. 165, 52 S. Ct. 548 (1932) .....	19, 21
<i>West Lake Quarry &amp; Material Co. v. Schaffner,</i>	
451 S.W.2d 140 (Mo. banc 1970) .....	30, 44
<i>Wetterau, Inc. v. Director of Revenue,</i>	
843 S.W.2d 365 (Mo. banc 1992) .....	34

**Constitution**

Mo. Const. art. V, section 3	
.....	6

**Statutes**

Me. Rev. Stat. Ann. tit. 36, section 1752(9-B) (1990) .....	42
Minn. Stat. Section 297A.01(16) (1992) .....	40

Minn. Stat. Section 297A.01(16) (Supp. 1993) .....41

Section 144.030.2(4), RSMo .....6

Section 144.030.2(5)

.....6

## **JURISDICTIONAL STATEMENT**

The Administrative Hearing Commission concluded on a stipulated record that equipment used in transmission and distribution of electric power is delivery equipment akin to a truck or railroad car used to transport tangible personal property. Appellants ask the Court to decide whether the Commission was correct when it held that such delivery equipment is *not* equipment "used directly in manufacturing," as that phrase is used in section 144.030.2(4) and (5).<sup>1</sup> That decision will necessarily involve the construction of the revenue laws of Missouri. The Court has exclusive jurisdiction over this issue pursuant to article V, section 3 of the Missouri Constitution.

---

<sup>1</sup> All references to Missouri statutes are to the Revised Statutes of Missouri of 1994.

## **STATEMENT OF FACTS**

The issue on this appeal is whether equipment used by Appellants to facilitate delivery of electric power after generation constitutes equipment used directly in manufacturing. To provide the factual context to decide the issue before the Court, the parties agreed in the Administrative Hearing Commission to an extensive stipulation of facts, which is contained in the legal file at pages 28-104. Appellants selectively paraphrase these stipulations in their Statement of Facts. To balance Appellants' selection, the Director includes the following stipulated facts.

### **The Appellants**

The Appellants are UtiliCorp United, Inc. (Utilicorp), NW Electric Power Cooperative, Inc. (NW), and Sho-Me Electric Cooperative, Inc. (Sho-Me). Each Appellant is a Missouri electric utility that sells electric energy to its customers. UtiliCorp is a for-profit corporation. NW and Sho-Me are electric cooperatives formed under Chapter 394, RSMo. (L.F. 28, ¶ 1) (This brief refers to Utilicorp, NW and Sho-Me collectively as "the Utilities.")

UtiliCorp has generating facilities where it produces electric power. It also buys some electric power from other utilities. Utilicorp serves only western Missouri and has 153 substations dispersed throughout its system. (L.F. 28-29, ¶ 2)

Sho-Me has a hydroelectric power generating facility. The majority of the electric energy it sells, however, it buys from Associated Electric Cooperative, Inc. (Associated). Associated is an electric cooperative that both generates and purchases the electric power that it sells. (L.F. 29, ¶ 3)

NW does not have any generating facilities. Rather, it purchases all of the electric power it sells from Associated. (L.F. 29, ¶ 4)

### **Basic Concepts of Electricity**

Power is the rate of doing work, usually measured in watts, kilowatts or megawatts. (L.F. 30, ¶ 9)

Energy is the total amount of work accomplished. Energy equals power times duration. In other words, if you apply two watts of power for one hour, you use the same amount of energy, and accomplish the same amount of work, as when you apply one watt of power for two hours.

Electric energy is usually measured in watt-hours, kilowatt-hours or megawatt-hours. (L.F. 30, ¶10)

An ampere is a unit of measurement of electric current. Current (amperage) is analogous to the flow of water in a pipe. When the tap is closed, or the electric switch is off, there is no current. The amount of current increases as the demand for power, called the load, increases. (L.F. 30, ¶ 11)

A volt is a unit of measurement of electric force. Voltage is analogous to water pressure in a pipe. The pressure is the same whether the tap, or the electric switch, is on or off. Voltage remains approximately the same regardless of the load. The load is the amount of electric energy required by the users of the electric power system and is sometimes referred to as demand. The differing voltages of the electric power do not change the load, or demand for electric energy, on the system. (L.F. 30, ¶ 12)

A basic formula used in understanding electric power is watts = volts x amperes (stated as  $W = VA$ , and therefore, sometimes called the West Virginia formula). (This formula omits a variable called the “power factor,” which is not necessary to a basic understanding of electricity. The power factor is a multiplier that determines the amount of usable power delivered by an electrical system.) (L.F. 30-31, ¶ 13)

### **The Electric Energy Industry**

The electric energy industry has long distinguished among three different stages in providing electric energy to consumers. These three stages are production, transmission and distribution. Production refers to the generation of power or the purchase of power generated by another.

Generation transforms some other form of energy into electrical energy.

Transmission involves the use of various devices and equipment, some of

which change the voltage, amperage, or power factor of the electricity, to transfer the electric power from generation sources (or production points, in the case of purchased electricity) to local distribution systems. Distribution involves the use of various devices and equipment, some of which change the voltage, amperage, or power factor of the electricity, to deliver electric power to the customers. (L.F. 31, ¶ 14)

Electric utilities generate or purchase electric power, which is measured in watts. The manufacturer sells electric energy (power x duration) and charges the customer for watt-hours, kilowatt-hours or megawatt-hours.

(L.F. 31, ¶15) The number of watts generated by the manufacturer is determined by the capacity of the generators or the load (demand), whichever is smaller. (L.F. 31, ¶ 16)

When the number of watts is a given, the only variables in the West Virginia formula are volts and amperes, both of which can be altered by the utility. As the amperage increases, so does the size of the transmission wire required to accommodate the amperage. In order to transmit electric power at very high amperage, the utilities would require wire sizes that are impractical, if not impossible. Moreover, it is more difficult and more expensive for the utility to transmit power over long distances at high amperage and low voltage. (L.F. 31, ¶ 17)

Therefore, before sending electric power over long distances, called transmission in the industry, a utility will step up the voltage of the electric power using a voltage step-up transformer. Step-up transformers are typically located near generation facilities. As the electric power passes various distribution points in the system, some of the power may be distributed to large customers at the stepped-up voltage and some of the power is stepped down for use by smaller customers. The voltage is not stepped-down until the transmission line is close to a customer or group of customers requesting lower voltages. The voltage step-down occurs close to the customers in order to achieve efficient delivery of power at the lower voltage. (L.F. 31, ¶ 18)

Power typically comes from generators at 12.5 kilovolts (kV)-22 kV. A transformer then steps it up to somewhere in the range of 345 kV-800 kV, depending on the utility, for transmission over long distances and for use by some customers demanding higher voltages. Some large users of electricity, such as large manufacturers, may want electricity delivered at relatively high voltages, in the 13.8 kV-138 kV range. A shopping mall may want bulk power delivered at 4.16 kV. Smaller commercial customers may want power delivered at 277/480 volts, while residential consumers typically receive power at 120/240 volts. Each voltage requires that a transformer step down

the power to deliver it at the voltage requested by the customer. These step-down transformers are typically located at power substations and on poles and pads located near the customers. (L.F. 32, ¶ 19)

Most customers subsequently step down the electric power further for at least some of their uses. This is true even for residential consumers. A simple example of a step down transformer can be seen in the black box that is attached to the power cord where it plugs into the outlet on many small electronic appliances, such as cordless phones and camcorders. (L.F. 32, ¶ 20)

The voltage at which electric power is delivered to a customer is not determined by the laws of physics, but by a combination of custom, regulation and agreement. (L.F. 32, ¶ 21)

Frequency is a technical concept necessary to understand the workings of the electric power system. Frequency is measured in cycles per second or Hertz (Hz). The standard nominal frequency for the North American electric power system is 60 Hz. The frequency is a measure of how much power is generated relative to the demand at any point in time. (L.F. 32, ¶ 22)

Frequency is critical because there is currently no way to efficiently store large amounts of electric power over time the way a manufacturer can

stockpile widgets in a warehouse. It is not possible for the electric power manufacturer to store excess power for times it is needed or to supplement power in times of high demand. Therefore, it is essential that the supply of electric power - generation - balance with the demand for electric power - load - at all times. If supply exceeds demand, the frequency increases. If demand exceeds supply, the frequency decreases. Supply and demand must be in balance to maintain the frequency at an approximately constant value.

(L.F. 32, ¶ 23)

To understand frequency and the effect of changes in frequency, it is useful to think of the electric power system as a merry-go-round. Frequency is the number of revolutions per second. A generator is analogous to the adults pushing the merry-go-round. The more they push, the faster it goes; the more power generated, the higher the frequency. The children on the merry-go-round dragging their heels on the ground are analogous to the load. The more they drag, the slower the merry-go-round turns; the more demand for power, the lower the frequency. In both cases, if supply equals demand the frequency will be constant. The corollary is also true: by maintaining the frequency, the balance of supply and demand can be assured. (L.F. 32-33, ¶ 24)

The electric power system is the ultimate just-in-time manufacturing

system. The manufacturers produce only the amount of power requested by their customers at a given moment in time, no more or less. (L.F. 33, ¶ 25)

### **The Equipment at Issue**

The Utilities claim refunds of tax paid on their purchases of power transformers, capacitors, current transformers and Supervisory Control and Data Acquisition ("SCADA") hardware. (L.F. 40-42, ¶¶ 61-72)

A step-up power transformer increases voltage while decreasing amperage. A step-down power transformer decreases voltage while increasing amperage. (L.F. 38, ¶ 49) All of the power transformers at issue in this case are step-down power transformers used to reduce the voltage and increase the amperage of the electric power. (L.F. 40, ¶ 61) Power transformers facilitate delivery of electric power.

Capacitors are used to reduce the reactive component and to make adjustments to voltage to meet system standards. (L.F. 38-39, ¶ 52) Capacitors are used during delivery to maintain applicable standards.

Although the Automated Generation Control (AGC) system is not at issue on this appeal, understanding the purpose of the AGC is necessary to understanding the purpose of some of the equipment for which the Utilities claim a refund. The AGC controls the electric power generator to maintain the frequency of the power. The AGC receives information about the system

loads and the power scheduled to be received from interconnected utilities.

The AGC uses this information to determine how much power each generator needs to produce to maintain the frequency. Equipment necessary to obtain this information includes current transformers and SCADA hardware. (L.F. 39-40, ¶¶ 55-57)

Current transformers and SCADA equipment help maintain standards during delivery. Current transformers are small transformers typically located in power substations to take measurements of the amperages and voltages at various locations in the system. They are different from power transformers because they do not change the voltage or amperage of the electric power being sold. (L.F. 40, ¶ 58) SCADA equipment collects data from multiple sources and passes the information to the AGC and elsewhere in the system. (L.F. 40, ¶ 59)

## **STANDARD OF REVIEW**

The Court "must affirm the decision of the Commission 'if supported by the law and competent and substantial evidence on the whole record, and . . . not clearly contrary to the reasonable expectations of the General Assembly.'" *L & R Egg Co. v. Director of Revenue*, 796 S.W.2d 624, 625 (Mo. banc 1990) (quoting *G.T.E. Automatic Electric v. Director of Revenue*, 780 S.W.2d 49, 50 (Mo. banc 1989)). Any ambiguity in the statute granting the exemption on which the Utilities rely must be construed against them. *Lincoln Industrial, Inc. v. Director of Revenue*, No. SC83208 (Mo. banc June 26, 2001).

**POINT RELIED ON**

**The Administrative Hearing Commission correctly denied the Utilities' refund claims, because the Utilities' claims do not satisfy the requirements of the exemptions from sales and use tax in sections 144.030.2(4) and (5), in that the equipment at issue is used to facilitate delivery of electric power and is not used directly in manufacturing electric power.**

*House of Lloyd v. Director of Revenue*, 824 S.W.2d 914 (Mo. banc1992)

*L&R Egg Co. v. Director of Revenue*, 796 S.W.2d 624 (Mo. banc 1990)

*Floyd Charcoal Co. v. Director of Revenue*, 599 S.W.2d 173 (Mo. banc 1980)

*Niagara Mohawk Power Corp. v. Wanamaker*, 286 A.D. 446, 144

N.Y.S.2d 458 (N.Y App. Div. 1955)

## ARGUMENT

The issue in this case is simple: Does equipment used in the transmission and distribution of electric power constitute equipment used directly in manufacturing? The answer is also simple: No. Therefore, the Utilities are not entitled to the refunds they claim and the decision of the Commission should be affirmed.

### **I. The Equipment at Issue Is Used to Deliver, Not Manufacture, Electric Power**

Both the industry (L.F. 31, ¶ 14) and the case law (*see infra*) have long acknowledged that the manufacture of electric power, i.e., generation, is distinct from the delivery of electric power, i.e., transmission and distribution. The Utilities admit that transmission and distribution are not the same as generation, even though some of the equipment used to transmit and distribute electric power may alter some of the characteristics of the power to facilitate delivery. (*See* L.F. 31, ¶14 & L.F. 44, Exhibit A). All of the equipment at issue in this case is used in transmission. (*See* L.F. 37-42, ¶¶ 48-72). Therefore, none of the equipment is used directly in manufacturing.

**A. Transmission and Distribution of Electric Power Do Not  
Constitute Manufacturing**

It is easy to lose sight of this case's simplicity in the complexity of the relevant physics and the electric energy system on the North American continent. However, it is important not to lose sight of the forest for the trees.

From the strictly scientific point of view, the subject is highly technical; but in considering the case, we must not lose sight of the fact that taxation is a practical matter, and that what constitutes commerce, manufacture, or production is to be determined upon practical considerations.

*Utah Power & Light Co. v. Pfost*, 286 U.S. 165, 179, 52 S. Ct. 548, 551 (1932) (holding that generation of electric power and transmission of electric power are separate and distinct).

This issue was first presented to the Administrative Hearing Commission almost twenty years ago. In *Empire District Electric Co. v. Director of Revenue*, No. RS-79-0249 (Mo. Admin. Hearing Comm'n 1983), the taxpayer argued that a transformer used to increase voltage for purposes of transmission was used in manufacturing. The Commission flatly rejected

this argument. It held that the transformer did not qualify as manufacturing machinery even under an integrated plant theory. Rather, the transformer was used in the transmission of electricity, which "is fundamentally different from the manufacture of electricity." *Id.* at 10.<sup>2</sup> Since that time, both the Director and the industry have understood that generation of electric power is manufacturing and transmission and distribution of electric power are not -- until now.

That understanding of Missouri law is consistent with the law in a number of other states. As early as 1912, the Supreme Court of Kentucky held that the means of distributing electricity

are not used in any way whatever in the manufacture of the electricity; but their use is to dispose of the manufactured product, just as the horses and wagons and drays of a box factory might be used in removing the boxes, when manufactured, from the factory to the warehouse or purchasers. While they may be necessary to make the business a success, still they are not necessary to manufacture the product . . . .

*Kentucky Electric Co. v. Buechel*, 146 Ky. 660, 143 S.W. 58, 62 (1912)

---

<sup>2</sup> The Commission found the exemption applicable on a different theory. which is inapplicable on the facts of this case. *Id.* at 10-11.

(followed in *Revenue Cabinet v. Kentucky-American Water Co.*, 997 S.W.2d 2 (Ky. 1999)); see *Niagara Mohawk Power Corp. v. Wanamaker*, 286 A.D. 446, 144 N.Y.S.2d 458 (N.Y. App. Div. 1955); *Forrester v. North Georgia Electric Membership Corp.*, 19 S.E.2d 158 (Ga. Ct. App. 1942).

Like the court in *Kentucky Electric*, a number of courts have drawn an analogy to the delivery of manufactured goods to explain the distinction between generation, on the one hand, and transmission and distribution, on the other. The United States Supreme Court in *Utah Power & Light Co.*, *supra*, for example, equated generation with the manufacture of goods to order and transmission with the shipment of such goods. 286 U.S. at 180-81, 52 S. Ct. at 551-52. Similarly, in *People's Gas & Electric Co. v. State Tax Commission*, 238 Iowa 1369, 28 N.W.2d 799 (1947), the Iowa Supreme Court explained:

[D]istribution [of electricity] may be compared to that of unpackaged commodities loaded upon trucks at the factory and delivered to customers. The transformer may be compared to the knife used to slice off the part of a load for customer use. One who hauls ice and cuts from a block is not a processor. He merely delivers the ice. His delivery may be termed a service to consumers but he does not service the ice. The ice is transported from the plant in large blocks, and the

electric power is transported at high voltages, not because large blocks or high voltages are usable by consumers, but because such methods of transportation are the most practical.

*Id.* at 1386, 28 N.W.2d at 809.

Another analogy may be helpful in comparing generators of electric power to manufacturers of tangible personal property, the usual situation in which the manufacturing exemption is applied.

Assume ABC Co. is a manufacturer of widgets. It has orders for 10,000 widgets from a number of customers. The largest order is for 1,000 widgets, the smallest are 1,000 orders for one widget each, and the remaining orders are for varying sizes in between. All of the widgets must be shipped at the same time.

When ABC is deciding how to ship these widgets, it has two basic options. It can ship each widget on a separate truck. If it did this, however, it would require a huge road to accommodate 10,000 trucks leaving at the same time. Furthermore, shipping the widgets this way would be very expensive and inefficient.

Alternatively, ABC can ship all of the widgets on one truck to a distribution point closer to the customers. From there, the large orders can be separated for delivery while the small orders continue on to another

distribution point, and another, until the widgets have arrived at a distribution point close enough to the customer to make it more efficient to deliver the single widget orders than to keep them consolidated for shipment. By shipping in this fashion, ABC not only saves on the cost of the trucks, but also only needs to use standard roads.

In this regard, generation of electrical power is like the manufacture of widgets. In both cases, the manufacturer takes raw materials and, through the use of machinery, labor and skill, creates something new that has a merchantable value and is in a form suitable for new uses. In the case of widgets, the manufacturer begins with tangible raw materials and fashions them into tangible products that can be sold and used.

In the case of electric utilities, the manufacturer generates electric power. The manufacturer begins with some other form of energy, such as mechanical or solar energy, and transforms that into electric power, which is measured in watts. The manufacturer sells electric energy (power x duration) and charges the customer for watt-hours, kilowatt-hours or megawatt-hours. (L.F. 31, ¶ 15) The voltage or amperage is irrelevant to what the manufacturer makes - electric power, measured in watts - or what it sells - electric energy, measured in watt hours.

To complete the analogy, assume ABC is now an electric utility. It has

orders for 10,000 watts (10 kilowatts) of power from a number of customers. The largest order is for 1,000 watts, the smallest are 1,000 orders for one watt each, and the remaining orders are for varying amounts in between. All of the watts must be shipped at the same time.

ABC is faced with the same decision as an electric utility as when it was a manufacturer of widgets. Instead of trucks and roads, however, it is faced with the laws of physics.

Remember the West Virginia formula: watts = volts x amperes. In this example, the amount of watts is a given. The same is true in real life: the amount of watts is determined by the capacity of the generators or the load (demand), whichever is smaller. (L.F. 31, ¶16) This is just like the widget manufacturer, which can only ship the number of widgets it can make or for which it has orders, whichever is smaller.

When the number of watts is a given, the only variables in the formula are volts and amperes, both of which can be manipulated by the utility. Therefore, ABC can ship the 10,000 watts two ways. The first option is to send it at one volt and 10,000 amperes ( $10,000 \text{ watts} = 1 \text{ volt} \times 10,000 \text{ amperes}$ ). Unfortunately, as the amperage increases, so does the size of the transmission wire. In order to transmit electric power at very high amperage, the utilities would require wire sizes that are impractical, if not impossible.

Moreover, it is more difficult and more expensive for the utility to transmit power over long distances at low voltage. (L.F. 31, ¶ 17) As with widgets, individualized shipping of power is less efficient, more expensive and limited by the size of the roads (wires) that are available and practical. *See People's Gas & Electric Co.*, 238 Iowa at 1383, 28 N.W.2d at 808.

Electric utilities, like many manufacturers of tangible personal property, have chosen the second option: bulk transmission. The 10,000 watts of power will be sent at 10,000 volts and one ampere. This way, the size of the wire is feasible and the utility saves the additional costs involved in shipping low voltage power. As the power passes various distribution points, some of the power may be delivered to large customers while the remainder continues at high voltage through additional distribution points until it is close enough to the smaller customers to be efficiently delivered at lower voltages. (L.F. 31, ¶18) *See Niagara Mohawk Power Corp*, 286 A.D. at 451, 144 N.Y.S.2d at 463 ("The reason for the increase involves economics of transmission and distribution. The voltage is radically increased, and then gradually decreased, simply to facilitate distribution."). Thus, the changes made during transmission and distribution merely facilitate delivery and do not constitute manufacturing.

## **B. Changing the Voltage of Electric Power to Facilitate**

## **Delivery Is Not Manufacturing**

The Utilities claim refunds on purchases of power transformers.

Power transformers are used to increase voltage and reduce amperage, or reduce voltage and increase amperage, in order to facilitate delivery of electric power. Therefore, power transformers are delivery, not manufacturing equipment.

The voltage at which power is delivered does not make the power a different product. The West Virginia formula is the key. The number of amperes is the limiting factor. A particular household appliance, for example, needs a certain amount of power (watts) to function. The appliance manufacturer knows this figure and also knows that electric utilities typically deliver residential power at 120/240 volts. When the manufacturer designs the appliance, it is designed to accept current at an amperage determined by application of the West Virginia formula. In other words, the appliance is not designed to operate at 120/240 volts because it must be, but because that is the voltage at which power is delivered by the utility.

In the real world, power typically comes from generators at 15-22 kilovolts. A transformer then steps it up to somewhere in the range of 345-800 kilovolts for transmission over long distances. Some large users of electricity, such as large manufacturers, may want electricity delivered at

relatively high voltages, in the 13.8-138 kilovolt range. A shopping mall may want bulk power delivered at 4160 volts. Smaller commercial customers may want power delivered at 277/480 volts, while residential consumers typically receive power at 120/240 volts. Each voltage requires that a transformer step down the power to deliver it at the voltage requested by the customer. (L.F. 32, ¶ 19)

The customer requests the voltage at a particular level not because it must, but because its system is designed to operate most efficiently with a certain voltage that is typically available from the electric utility. A widget wholesaler designs its system to deal with bulk orders because that is more efficient and is readily available from the widget manufacturer. If the widget manufacturer could only deliver widgets one at a time or if it was more efficient to receive widgets one at a time, as in just-in-time systems, the wholesaler would adapt its system accordingly. The wholesaler would still be getting widgets, just in different size packages. So, too, with electric power: the product - electric power - does not change, only the voltage and amperage at which it is delivered. After generation, the electric utility can freely change the voltage and amperage of the power to suit the utility's and its customer's needs, just as a widget manufacturer can deliver one widget in a box or one hundred. Neither changes the fundamental nature or function of

the product they are selling.

In fact, most customers subsequently step down the power further for at least some of their uses. This is true even for residential consumers. A simple example of a step down transformer can be seen in the large black box that is attached to the power cord where it plugs into the wall on many small electronic appliances, such as cordless phones and camcorders. (L.F. 32, ¶ 20)

As the analogy above demonstrates, the voltage at which the electric power is delivered to the various customers does not change the product they are receiving: power (watts) or energy (watt-hours). It is merely a difference in shipping and packaging. If a large manufacturer needs 1,000 widgets, it would be very inefficient for both the widget manufacturer and the buyer to deliver the widgets in individual packages, each on its own truck. Nor would it make sense for the widget manufacturer to put 1,000 widgets in a single box on a single truck for distribution of the widgets to 1,000 retail customers, each of which only wants a single widget.

The laws of physics do not dictate the voltage at which electric power is delivered. It is determined by a combination of custom, regulation and agreement. (L.F. 32, ¶ 21) This, too, is analogous to tangible personal property, where standard weights and measures are used in virtually every

industry. There is nothing in the nature of liquid products that requires them to be delivered in liters, gallons or barrels, but failure to do so could play havoc with a customer who is tooled to deal with those measures. The same is true for such measures as a bushel, peck or gross. Nevertheless, it would be patently absurd to claim that a manufacturer that ships milk in liter containers and in gallon containers manufactures two different products, even if the size of the container is required by the customer for a particular use. The claim that a change in voltage or amperage creates a different product is equally ludicrous.

*House of Lloyd v. Director of Revenue*, 824 S.W.2d 914 (Mo. banc 1992), presented an analogous situation. The taxpayer in that case received products in shipping cartons. Upon receipt, the taxpayer removed the products from the cartons and then inspected, repaired, sorted and repackaged the items for shipping to the taxpayer's customers. The Court held that the product was complete when delivered to the taxpayer and the processing that took place did not constitute manufacturing or fabricating. *Id.* at 919.

The similarities to *House of Lloyd* are highlighted by the fact that one of the Utilities, NW, does not generate any electricity (L.F. 29, ¶4) and another, Sho-Me, generates very little (L.F. 29, ¶ 3). Both of these Utilities

buy electric power from other generators, and then transmit, distribute and sell the electric power to their customers.

Like the taxpayer in *House of Lloyd*, the Utilities that purchase electric power from others merely repackaging a completed product. They do not create anything new or change the fundamental use of the product they purchase. They do change the product: first by increasing the voltage to facilitate their shipping and then by reducing the voltage to the level desired by a particular customer. This change is not manufacturing, however, any more than the repackaging performed by the taxpayers in *House of Lloyd*. See also *Unitog Rental Services v. Director of Revenue*, 779 S.W.2d 568, 570 (Mo. banc 1989) (Manufacturing produces "a new and different product, dissimilar to any previous condition of the processed article.").

The Utilities cite a trio of cases to bolster their argument: *West Lake Quarry & Material Co. v. Schaffner*, 451 S.W.2d 140 (Mo. banc1970); *Jackson Excavating Co. v. Administrative Hearing Commission*, 646 S.W.2d 48 (Mo. banc1983); and *Galamet, Inc. v. Director of Revenue*, 915 S.W.2d 331 (Mo. banc 1996). These cases differ from this case in a crucial respect. Each of the taxpayers in those cases changed the raw materials in some significant way in order to meet customer demands. The electric energy industry, however, actually make its product *less suitable* for its

customers' use in order to facilitate delivery of the product. But for the desire to deliver the power efficiently, most of the equipment at issue would be unnecessary.

Moreover, electric power manufacturers can freely alter their product to suit their needs without changing the fundamental nature or function of the product. The watts are determined at the point of generation. Voltage and amperage can be raised and lowered repeatedly in order to facilitate delivery without changing at all the amount of work the electric power will perform.

Contrast this with the taxpayers in the cases cited by the Utilities. A quarry is not free to reduce rock to a usable form, put it back together for ease of delivery, and then reduce it once again. A scrap metal reprocessor does not shred the metal only to reform it for delivery and then shred it once again. A water purification plant does not purify the water, pollute it for delivery and purify it again. They do not and cannot make these changes at will because they have changed the fundamental nature and function of the material. The electric power generator can and does change the voltage and amperage because these changes do not affect a change in the fundamental nature or function of the electric power.

As noted by the Court in *L & R Egg Co. v. Director of Revenue*, 796 S.W.2d 624, 627 (Mo. banc 1990): "While manufacturing implies a change,

not every change is manufacturing." None of the equipment at issue here, although doubtless essential to the efficient delivery of electric power to consumers, creates new power or changes the fundamental use for the power - to operate electric powered devices. *See id.* at 626 ("The fundamental 'use' for a batch of eggs when it arrives at appellant's plant and when it leaves is the same - consumption.").

A transformer does not and cannot increase the amount of electric power. The maximum amount of power has been produced when the current leaves the generator. Thereafter, there is a continuous loss of power. Transformers facilitate transmission by reducing the loss of electric energy and the amount of expensive copper wire required.

Production stops at the generator . . . .

*Niagara Mohawk Power Corp.*, 286 A.D. at 450-51, 144 N.Y.S.2d at 463.

**C. Equipment Used to Maintain Standards During Delivery Is Not Manufacturing Equipment**

The Utilities also claim refunds on capacitors, current transformers and SCADA equipment, which are used during delivery to maintain system standards. Maintenance of standards during delivery, however, is not manufacturing.

The electric power system is the ultimate just-in-time manufacturing

system. The manufacturers produce only the amount of power requested by the customer at a given moment in time, no more or less. (L.F. 33, ¶ 25) As noted above, the balance between supply and demand is reflected in the frequency of the power. The frequency does not change the product manufactured: electric power. It is merely a measure of how much power is generated relative to the demand at any point in time. Equipment used to maintain a constant frequency has nothing to do with the product manufactured, but instead is analogous to an order entry and inventory control system that might be used by a just-in-time widget manufacturer to control the amount of product produced.

The fact that some of the equipment used to perform transmission or distribution functions is necessary to maintain applicable standards does not mean it is manufacturing equipment. If ABC manufactures a perishable food product, its own quality standards and FDA regulations might require the product to be maintained below 40 degrees Fahrenheit following manufacturing. This does not make the refrigerated warehouse and delivery trucks manufacturing equipment. *See Wetterau, Inc. v. Director of Revenue*, 843 S.W.2d 365 (Mo. banc 1992). Maintenance of standards after manufacture does not fit within any accepted definition of manufacturing, even if law or regulation mandates the condition.

This Court's decision in *L & R Egg Co, supra*, supports this conclusion. In *L & R Egg Co.*, the taxpayer argued that machinery and equipment used to clean, oil, inspect, weigh, grade, pack and mark chicken eggs were used in manufacturing. The taxpayer emphasized that the processing was required to meet regulatory standards, and that the machinery and equipment thus made the eggs suitable for new applications. While noting the superficial appeal of this argument, the Court held that the crux of the manufacturing determination "must be the nature of the enterprise itself, not the attendant regulations. That the egg industry regulations are in place, in large part, for the protection of public health and safety, does not change the result." 796 S.W.2d at 627 (citations omitted). Similarly, while maintaining standards is crucial to the safe and efficient delivery of electric power, it does not constitute manufacturing.

## **II. The Integrated Plant Doctrine Does Not Make Delivery**

### **Equipment Into Manufacturing Equipment**

In their attempts to drag the delivery process into the manufacturing plant for purposes of exempting machinery and equipment never intended by the General Assembly to be exempt, the Utilities put great emphasis on the integrated plant doctrine. They cite two leading Missouri cases: *Floyd Charcoal Co. v. Director of Revenue*, 599 S.W.2d 173 (Mo. banc 1980); and *Noranda Aluminum v. Missouri Department of Revenue*, 599 S.W.2d 1 (Mo. banc 1980).

NW and Sho-Me cannot rely on the integrated plant doctrine. NW does not generate any power and Sho-Me does not generate most of the power it sells. (L.F. 29, ¶¶ 3 & 4) The doctrine has been extended to allow separate corporate entities to integrate their operations - when they are under common ownership. *DST Systems, Inc. v. Director of Revenue*, No. SC82797 (April 10, 2001). This Court has never extended the doctrine to include separate entities that are not under common ownership.

Moreover, none of the Utilities can use this doctrine to justify their claims because this Court has never used the integrated plant doctrine to transform delivery functions into manufacturing, as the Utilities attempt to do

in this case. The doctrine only applies to production equipment, not delivery equipment.

For example, the *Noranda Aluminum* Court held that lab equipment used during production to monitor the purity of processed aluminum and to determine for which finished product the molten aluminum would be used qualified as equipment used directly in manufacturing. 599 S.W.2d at 4. Capacitors, current transformers and SCADA equipment, however, are used to control the amount of the electric power produced, not its purity, and to maintain certain standards during delivery, not during production. As discussed above, neither function is manufacturing.

In *Floyd Charcoal*, the Court held that equipment used in the taxpayer's plant to package charcoal briquettes as part of a continuous process leading from raw materials to packaged product were used directly in manufacturing under the integrated plant doctrine. 599 S.W.2d at 178. The Court also denied the exemption to film bags used to protect the charcoal during shipping because this was not part of manufacturing. *Id.* at 179. If the taxpayer in *Floyd Charcoal* had produced bulk charcoal that it sold to a third party, which in turn packaged the charcoal for sale to consumers, the third party could not claim it was manufacturing because it would merely be repackaging a completed product. *See House of Lloyd, supra.* This is

exactly what Sho-Me and NW do with electric power.

The Court in *Floyd Charcoal* identified the case of *Niagara Mohawk Power Co., supra*, as the source of the integrated plant theory. 599 S.W.2d at 177. The New York court stated the test under the doctrine:

The basic questions are the following: (1) Is the disputed item necessary to *production*? (2) How close, physically and causally, is the disputed item to the finished product? (3) Does the disputed item operate harmoniously with the admittedly exempt machinery to make an integrated and synchronized system?

286 A.D. at 449, 144 N.Y.S.2d at 461 (emphasis added; *quoted in Floyd Charcoal*, 599 S.W.2d at 177). The court held in that case that the first question controlled, as it does in this case. Because all equipment after the generation plant was used in transmission and distribution, not production, the equipment was not exempt as manufacturing equipment. *Id.* at 450-51, 144 N.Y.S.2d at 462-63.

This is consistent with another Missouri integrated plant case not discussed by the Utilities. In *Concord Publishing House, Inc. v. Director of Revenue*, 916 S.W.2d 186 (Mo. banc 1996), the Court held that laptop computers used by reporters for a newspaper publisher were manufacturing equipment because they extended editing of the product, a production

function, to locations where news events occurred and were therefore an integral part of publishing the newspaper. *Id.* at 193. Like the *Niagara Mohawk Power Co.* court, the *Concord Publishing* Court extended the exemption only to equipment used during the production process.

The Utilities ask this Court to go much further than *Noranda Aluminum*, *Floyd Charcoal Co.* or *Concord Publishing*. They want the exemption to leave the manufacturing plant and extend to all equipment used to deliver the product to the customer. The rationale underlying the integrated plant doctrine does not support this expansion. The Court has justified the doctrine on the basis that the legislature, in passing this exemption, was seeking to encourage the location and expansion of industry in Missouri. *Floyd Charcoal Co.*, 599 S.W.2d at 177. In allowing the exemption for equipment used in an integrated production process by a manufacturer located in Missouri, the integrated plant cases have furthered this goal. Extending the exemption to delivery functions, however, will not promote industry in Missouri.

The equipment for which the Utilities claim the exemption must be located in Missouri because it is the only means of selling and delivering the product to Missouri residents. Both Missouri and non-Missouri manufacturers (generators) alike will locate this equipment in Missouri with or

without the exemption in order to sell to Missouri customers. The legislative purpose will not be fostered by extending the exemption in this case because it would benefit manufacturers which locate in other states as much as manufacturers which locate in Missouri. Indeed, the consequences of adopting the Utilities' position would be devastating to the state and would betray the reasonable expectations of the legislature.

Picture Missouri. Whether traveling on one of the major interstates or along a two-lane county road, in a major urban center or a small rural town, in an industrial park or a residential suburb, you will seldom lose sight of the ubiquitous utility pole supporting electric power lines. When you do, it is likely only because the power lines are buried. The Utilities argue that the entire expanse of this delivery network is part of their integrated plant.

Utilicorp alone has 153 substations connected by this network and it only serves western Missouri. (L.F. 28-29, ¶ 2) If this entire network is part of the electric power industry's integrated plant - and all of the equipment in that "plant" is exempt from sales and use tax - the refunds and loss of future tax revenue will be enormous. Location of the transmission and distribution "plants" in Missouri will not bring new "manufacturing" jobs or other economic benefit to offset these losses. When the legislature granted an exemption for machinery and equipment "used directly in manufacturing," it

could not reasonably have expected such an expansive - and expensive - interpretation.

### **III. Cases From Other Jurisdictions Do Not Make Delivery**

#### **Equipment Into Manufacturing Equipment**

Finally, the Utilities rely on three cases from other states to support their strained reading of the term manufacturing: *Northern States Power Co. v. Commissioner of Revenue*, 571 N.W.2d 573 (Minn. 1997); *Maine Yankee Atomic Power Co. v. State Tax Assessor*, 690 A.2d 497 (Me. 1997); and *Curry v Alabama Power Co.*, 8 So. 2d 521 (Ala. 1942). As discussed above, however, the courts in a number of jurisdictions have concluded that transmission and distribution are not manufacturing.

The courts on which the Utilities rely apparently became too distracted by the trees and lost sight of the forest. Focusing solely on the fact that the equipment caused a change in the electric power by increasing or decreasing voltage and amperage, these courts held that the equipment must manufacture something. But as this Court has noted, while all manufacturing involves change, not all change involves manufacturing. *L & R Egg Co.*, 796 S.W.2d at 627.

The analysis in *Northern States*, which involved various transformers used in transmission and distribution, is unusual. In 1992, Minnesota law

exempted "equipment used for 'manufacturing . . . a product to be sold at retail.'" 571 N.W.2d at 574 (quoting Minn. Stat. section 297A.01(16) (1992)). In 1993, the Minnesota legislature amended the statute to exempt "equipment used for 'manufacturing . . . tangible personal property, or for the generation of electricity or steam, to be sold at retail.'" *Id.* (quoting Minn. Stat. section 297A.01(16) (Supp. 1993)). The clear intent of this language is to exempt only the equipment used to generate, not to transmit or distribute, electricity. Because the parties and the court agreed that the amendment was intended merely to clarify, not to change, the exemption, *id.* at 576, the logical conclusion would be that transformers used in transmission and distribution would not be exempt under either version of the statute.

The Minnesota Supreme Court, however, turned logic on its head. Rather than following the legislative intent clearly expressed in the amendment, the court decided that under the old statute transformers were involved in manufacturing because the parties stipulated that the power was not usable by the utility's customers without the transformers. Based on that conclusion, the court ignored the express language of the amendment and held that the transformers were exempt manufacturing equipment under both the old and new statutes.

The Minnesota court's flawed analysis is sufficient reason for this

Court to refuse to follow the *Northern States* decision. Additionally, the factual record in this case is different in a critical respect from the record before the Minnesota court. The parties in this case have not stipulated that the power is unusable by customers as it leaves the generator - because such a stipulation would not be true. Rather, the voltage at which power is delivered is determined by custom, regulation and agreement. (L.F. 32, ¶ 21) While these factors result in power of particular voltages being more commercially acceptable to particular customers, the power is usable for its intended purpose without the reduction in voltage by the utility. (L.F. 32, ¶ 20; 36, ¶ 40) *See Niagara Mohawk Power Co., supra*, 286 A.D.2d at 450, 144 N.Y.S.2d at 462 (although industrial customers purchased power at high voltages, the customers reduced the voltage for use).

The decision in *Maine Yankee Atomic Power* lacks any analysis of the electric energy system and is based on a stipulation not present in the record in this case. That case involved a step-up transformer used to increase the voltage for transmission. The state tax assessor agreed that the transformer changed the "form, character or composition" of the power. The statute exempted equipment "which transforms or converts personal property . . . into a different form, composition or character from that in which it originally existed." Me. Rev. Stat. Ann. tit. 36, section 1752(9-B) (1990). Based on

the assessors' concession, the court held without analysis that the exemption applied. 690 A.2d at 500.

In this case, the record establishes that the equipment does not change the "form, composition or character" of the power. Electric utilities manufacture power, measured in watts, and sell energy, measured in watt hours. (L.F. 31, ¶ 15) While voltage and amperage may change numerous times during transmission and distribution, the "form, composition and character" of the product produced and sold by the Utilities does not change.

Moreover, the definition of manufacturing used by the Maine court is arguably easier to meet than any definition accepted by this Court. The Maine standard only requires a change in the form, composition or character of the product, while this Court has always required that the product manufactured have a new and different use. *See, e.g., Galamet, Inc. v. Director of Revenue*, 915 S.W.2d 331 (Mo. banc 1996) (manufacturing produces an article with a use, identity, and value different from the use, identity, and value of the original); *House of Lloyd, Inc. v. Director of Revenue*, 824 S.W.2d 914 (Mo. banc 1992) (manufacturing creates a new and distinctive item, with a value and identity completely different from the original); *Jackson Excavating Co. v. AHC*, 646 S.W.2d 48 (Mo banc 1983)

(manufacturing causes a substantial transformation in quality and adaptability and creates an end product quite different from the original); *Heidelberg Central, Inc. v. Director of Revenue*, 476 S.W.2d 502 (Mo. banc 1972) (manufacturing produces new and different articles suitable for new applications); *West Lake Quarry & Material Co. v. Schaffner*, 451 S.W.2d 140 (Mo. banc 1970) (manufacturing changes and adapts something practically unsuitable for any common use into something suitable for common use).

In the remaining case, *Curry*, the court was not presented with the issue whether transmission and distribution were manufacturing and did not address that issue. Rather, the court was only concerned with whether the generation of electricity was the manufacture of tangible personal property. 8 So. 2d at 525-26. Amazingly, the court found as fact that transformers generate electricity. *Id.* at 523. This is directly contrary to the facts in this case - and to the laws of physics. (L.F. 38 & 40, ¶¶ 49 & 58)

**CONCLUSION**

For the reasons stated above, the Court should affirm the decision of the Administrative Hearing Commission.

Respectfully submitted,

JEREMIAH W. (JAY) NIXON  
Attorney General

---

H. Todd Iveson, #37650  
Special Assistant Attorney General  
P.O. Box 475  
Jefferson City, MO 65105-0475  
Telephone: (573) 751-4413  
Facsimile: (573) 751-7151  
Attorneys for Respondent

**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing was mailed, postage prepaid, on July 27, 2000, to Edward F. Downey, 221 Bolivar Street, Suite 101, Jefferson City, MO 65101-1574.

-----

H. Todd Iveson

**CERTIFICATE REQUIRED BY RULE 84.06**

I hereby certify that this brief includes the information required by Supreme Court Rule 55.03 and complies with the limitations of Supreme Court Rule 84.06(c). This brief contains 8,483 words.

I also certify that the disk filed with this brief has been scanned for viruses and is virus-free.

-----

H. Todd Iveson

