IN THE GEORGIA TAX TRIBUNAL
STATE OF GEORGIA

JAN 05 2015

Yvonne Bouras
Yvonne Bouras
Tax Tribunal Administrator

GEORGIA POWER COMPANY,	*	
	*	
	*	
Petitioner,	*	
	*	**TAX TRIBUNAL DOCKET**
v.	*	**NO.: TAX - S&UT - 1403540**
	*	
DOUGLAS J. MACGINNITIE, In his Official Capacity as Revenue Commissioner of the State of Georgia,	*	
	*	
	*	
Respondent.	*	
	*	

DECISION

2015-1 Ga. Tax Tribunal, January 5, 2015

I. Introduction

This is a refund action brought by Petitioner Georgia Power Company ("Petitioner") against the Commissioner of the Georgia Department of Revenue ("Respondent") to recover sales and use taxes for the tax periods January 1, 2009 through December 31, 2009, and January 1, 2010 through December 31, 2010. Petitioner timely filed refund claims with the Georgia Department of Revenue ("Department") and initiated this action after those claims were denied by the Department.

Petitioner's case turns upon whether Petitioner's purchases of machinery and equipment that were incorporated into Petitioner's transmission and distribution system ("Transmission and Distribution System") during tax years 2009 and 2010 are exempt from Georgia sales and use tax based upon the exemption for machinery and equipment necessary and integral to the manufacture of tangible personal property. See O.C.G.A. § 48-8-3(34) (2009).

For the reasons discussed below, we conclude that Petitioner's purchases of such property do not qualify for exemption from Georgia sales and use tax under then section O.C.G.A. § 48-8-3(34) (2009). Accordingly, judgment must be entered for Respondent and against Petitioner in this action.

II. Findings of Fact

The trial in this matter was held on November 4, 5, and 6, 2014. The evidence presented consists of a joint stipulation of facts with attached joint exhibits and testimony and exhibits received at trial. At the direction of this Tribunal, the parties submitted post-trial briefs with proposed findings of fact and conclusions of law on December 2, 2014 and reply briefs on December 16, 2014.

This is an important case involving significant sums and raising important issues about the scope of the statutory exemption contained in O.C.G.A. § 48-8-3(34) (2009) during the period in question.[1]

The parties have done an admirable job of developing the record and presenting their respective factual and legal positions clearly and forcefully. Both expert witnesses who testified at trial were knowledgeable, articulate, informative and persuasive. So it is reassuring that the testimony of the experts was in broad agreement as to the facts to which they testified in this case. Well it should be given that the scientific evidence in this case is based on laws of physics that were formulated in the Nineteenth Century and have remained the basis for the modern technological society in which we live today. Fortunately for the present task, the facts are clear and have been fully developed.

[1] This exemption has been recodified and now appears at O.C.G.A. §§ 48-8-3.2(a)(3), -3.2(a)(7), - 3.2(a)(15), - 3.2(b).

Specifically, based on the entire evidence in this case and the preponderance of the credible testimony, we find the following specific facts:

1. Petitioner is a Georgia corporation with its principal place of business at 241 Ralph McGill Boulevard, N.E., Atlanta, Fulton County, Georgia 30308. (Stip. ¶ 1.)

2. Petitioner was incorporated under the laws of the state of Georgia on June 26, 1930. (Stip. ¶ 2.)

3. Petitioner is a wholly-owned subsidiary of The Southern Company, which is a publicly traded company. (Stip. ¶ 3.)

4. Petitioner is an electric public utility company that is regulated by the Georgia Public Service Commission, the Federal Energy Regulatory Commission ("FERC"), and the Nuclear Regulatory Commission. (Stip. ¶ 4.)

5. Petitioner is a rate regulated, investor owned electric utility that generates electrical energy it sells to retail customers in the state of Georgia and to wholesale customers in Georgia and elsewhere. Petitioner also sells electrical energy that Petitioner did not generate to retail customers in Georgia and to wholesale customers. Petioner currently serves approximately 2.4 million customers. (Stip. ¶ 5.)

6. Petitioner's transmission system connects Petitioner's electric generating plants with Petitioner's local distribution substations. (Stip. ¶ 6.)

7. Petitioner's distribution system connects Petitioner's transmission system to its customers. Petitioner has over 1700 substations in the state of Georgia. (Stip. ¶ 7; Joint Exhibit 1.)

8. In 2009, Petitioner owned 12,557 miles of transmission lines and 70,877 miles of distribution lines. In 2010, Petitioner owned 12,583 miles of transmission lines and 72,071 miles

of distribution lines. (Stip. ¶ 8.)

9. Petitioner currently owns, either solely or jointly, thirty-six electric generating facilities located in the state of Georgia using a variety of fuel sources, including nuclear fuel, coal, oil, natural gas, and hydro power. Petitioner's electric generating facilities and their geographic locations are as follows:

Nuclear Fuel Generating Facilities:

Plant Hatch, Appling County, near Waynesboro, Ga.
Plant Vogtle, Burke County, near Baxley, Ga.

Coal and Natural Gas Generating Facilities:

Plant Boulevard, Chatham County, near Savannah, Ga.
Plant Bowen, Bartow County, near Cartersville, Ga.
Plant Branch, Putnam County, near Milledgeville, Ga.
Plant Hammond, Floyd County, Rome, Ga.
Plant Intercession City, Intercession City, Fl.
Plant Kraft, Chatham County, near Port Wentworth, Ga.
Plant McDonough, Cobb County, near Atlanta, Ga.
Plant McIntosh, Effingham County, near Rincon, Ga.
Plant McManus, Glynn County, near Brunswick, Ga.
Plant Mitchell, Dougherty County, near Albany, Ga.
Plant Robins, Houston County, near Warner Robins, Ga.
Plant Scherer, Monroe County, near Macon, Ga.
Plant Wansley, Heard County, near Carrolton, Ga.
Plant Wilson, Burke County, near Hephzibah, Ga.
Plant Yates, Coweta County, near Newnan, Ga.

Hydroelectric Generating Facilities:

Bartletts Ferry Dam, Lee County, Al, near Columbus, Ga.
Burton Dam, Rabun County, near Clayton, Ga.
Estatoah Dam, Rabun County, near Clayton, Ga.
Flint River Dam, Dougherty County, near Albany, Ga.
Goat Rock, Lee County, Al, near Columbus, Ga.
Langdale Dam, Chambers County, Al., near Langdale, Al.
Lloyd Shoals Dam, Jasper County, near Jackson, Ga.
Morgan Falls Dam, Fulton County, near Atlanta, Ga.
Nacoochee Dam, Rabun County, near Clayton, Ga.
North Highlands, Muscogee County, near Columbus, Ga.
Oliver Dam, Muscogee County, near Columbus, Ga.

Riverview Dam, Harris County, near Columbus, Ga.
Rocky Mountain Pumped Storage, Floyd County, near Rome, Ga.
Sinclair Dam, Baldwin County, near Milledgeville, Ga.
Tallulah Falls, Habersham County, near Clayton, Ga.
Terrora Dam, Rabun County, near Clayton, Ga.
Tugalo Dam, Habersham County, near Clayton, Ga.
Wallace Dam, Hancock County, near Eatonton, Ga.
Yonah Dam, Stephens County, near Clayton, Ga.

(Stip. ¶ 9; Joint Exhibit 2.)

10. Petitioner's owns transformers located throughout the state of Georgia, with over 670,000 transformers in Petitioner's distribution system. (Stip. ¶ 10.)

11. During the years 2009 and 2010 Petitioner's Transmission and Distribution system was located in all but four of Georgia's 159 counties. (Stip. ¶ 11.)

12. Petitioner's wholesale customers during the years 2009 and 2010 who were located in this state included:

Oglethorpe Power Corporation
The City of Hampton, GA
The City of Dalton, GA
Altamaha EMC
Canoochee EMC
Carroll EMC
Central Georgia EMC
Coastal EMC
Cobb EMC
Coweta-Fayette EMC
Excelsior EMC
Flint Energies (formerly Flint EMC)
GreyStone Power Corporation
Habersham EMC
Hart EMC
Irwin EMC
Jefferson Energy Cooperative
Southern Rivers Energy (formerly Lamar-Southern EMC)
Little Ocmulgee EMC
Middle Georgia EMC
Mitchell EMC
Oconee EMC
Ocmulgee EMC

Okefenoke EMC
Planters EMC
Rayle EMC
Sawnee EMC
Snapping Shoals EMC
Sumter EMC
Tri-County EMC
Diverse Power (formerly Troup EMC)
Upson EMC
Washington EMC
Municipal Electric Authority of Georgia ("MEAG")
Piedmont Municipal Power Agency

(Stip. ¶ 12.)

13. For the most part, Georgia's electric membership corporations ("EMCs") do not own any electric generation units and purchase their energy requirements from others, including Oglethorpe Power, Southern Power, and Petitioner. (Robinson, Tr. 144-145.)

14. Petitioner's Transmission and Distribution System is part of a larger network of interconnected transmission systems owned by other utilities throughout the eastern half of North America, which is known as the Eastern Interconnection. Companies that are part of the Eastern Interconnection (including EMCs in Georgia and other utility companies in the eastern half of the United States) are interconnected through interties that allow for interchanges of electrical energy. (Stip. ¶ 13.)

15. Petitioner is required by FERC to provide for a fee "open access transmission service" to other companies, whereby Petitioner provides an electrical connection for electrical energy that Petioner did not generate and does not own through the use of its interconnected transmission system, thereby allowing those other companies to sell electrical energy to their customers outside of the seller's electrical system. In those situations Petitioner's transmission lines are used to transmit electrical energy that Petitioner did not generate, does not own, and will not sell. Petitioner also is able to use "open access transmission service" sold to it by other

companies, thereby allowing Petitioner to sell electrical energy that it generates in this state to wholesale customers, generally other electric utilities, located in other states, using the interconnected transmission systems owned by such other companies. (Stip. ¶ 14; Fuchs, Tr. 271-72.)

16. Petitioner does not generate all of the electrical energy that Petitioner sells. Petitioner purchases some of this electrical energy from other electrical energy generators, such as governmental agencies that own electric generating facilities like the Tennessee Valley Authority and the Army Corps of Engineers, other electric utilities, and to a much smaller degree, other sources, such as rooftop photovoltaic solar generating units. (Stip. ¶ 15.)

17. Petitioner sold the following kilowatt-hours of electrical energy to the following categories of customers in 2009:

	KWH (in billions)	Number of Customers
Residential	26.3	2,043,661
Commercial	32.6	295,375
Industrial	21.8	8,202
Other	0.7	6,578
Total Retail	81.4	2,353,816
Wholesale		
Non-affiliates	5.2	99
Affiliates	2.5	4
Total Wholesale	7.7	104
Total Energy Sales	89.1	

Petitioner's affiliate wholesale customers were Alabama Power Company, Gulf Power Company, Mississippi Power Company, and Southern Power Company. (Stip. ¶ 16.)

18. Petitioner sold the following kilowatt-hours of electrical energy to the following categories of customers in 2010:

	KWH (in billions)	Number of Customers
Residential	29.4	2,049,770
Commercial	33.9	296,140

Industrial	23.2	8,136
Other	0.7	7,307
Total Retail	87.2	2,361,353
Wholesale		
Non-affiliates	4.6	87
Affiliates	1.0	4
Total Wholesale	5.6	93
Total Energy Sales	92.8	

Petitioner's affiliate wholesale customers were Alabama Power Company, Gulf Power Company, Mississippi Power Company, and Southern Power Company. (Stip. ¶ 17.)

19. For each of the years 2009 and 2010, the generator output voltage (in kilovolts, or kV) for the following Georgia Power generating units at Petitioner's facilities was as shown below:

	Output Voltage (kV)
Plant Bowen Unit	
1	25.0
2	25.0
3	18.0
4	18.0
6	13.8
Plant Branch Unit	
1	20
2	22
3	22
4	18
Plant Hammond Unit	
1	13.8
2	13.8
3	13.8
4	20.0
Plant McDonough Unit	
1	20.0
2	20.0
3A & 3B	13.8

Plant McManus Unit	
1	13.8
2	13.8
3A-3C	13.8
4A-4F	13.8
Diesel	2,400.0
Plant Mitchell Unit	
3	15.0
4A-4C	13.8
Plant Scherer – Joint Ownership Unit	
1	25.0
2	25.0
3	25.0
Plant Wansley – Joint Ownership Unit	
1	18.0
2	18.0
SA CT	13.8
Plant Yates Unit	
1	13.8
2	13.8
3	13.8
4	18.0
5	18.0
6	22.0
7	22.0
Plant Kraft Unit	
1	14
2	14
3	14
4	14
CT1	14
Plant McIntosh Unit	
Steam 1	18.0
CT1	13.8
CT2	13.8
CT3	13.8

CT4	13.8
CT5	13.8
CT6	13.8
CT7	13.8
CT8	13.8
CT10	57.0
CC11	57.0
Plant Hatch – Joint Ownership Unit	
1	24.0
2	24.0
Plant Vogtle – Joint Ownership Unit	
1	25.0
2	25.0
Plant Wilson Unit	
1A	13.8
1B	13.8
1C	13.8
1D	13.8
1E	13.8
1F	13.8
Robins Unit	
1	13.8
2	13.8
Plant Boulevard Unit	
1	13.8
2	13.8
3	13.8
Plant Langdale Unit	
5	0.6
6	0.6
Plant Riverdale Unit	
1	2.3
2	2.3
Plant Bartletts Ferry Unit	
1	12.0
2	12.0

3	12.0
4	6.9
5	13.8
6	13.8

Plant Goat Rock Unit

3	12.0
4	12.0
5	4.0
6	4.0

Plant Oliver Unit

1	7.6
2	7.6
3	7.6
4	7.6

Plant North Highlands Unit

1	4.2
2	4.2
3	4.2
4	4.2

Plant Barnett Shoals (Leased) Unit*

1	11.0
2	11.0
3	11.0
4	11.0

*Lease expired 05/2010

Lloyd Shoals Unit

1	2.3
2	2.3
3	2.3
4	2.3
5	2.3
6	2.3

Plant Sinclair Unit

1	6.9
2	6.9

Plant Wallace Unit	
1	14.4
2	14.4
3	14.4
4	14.4
5	14.4
6	14.4
Plant Flint River Unit	
1	2.3
2	2.3
3	2.3
Plant Morgan Falls Unit	
1	4.0
2	4.0
3	4.0
4	4.0
5	4.0
6	4.0
7	4.0
Plant Rocky Mountain – Joint Ownership Unit	
1	20.0
2	20.0
3	20.0
Plant Burton Unit	
1	6.6
2	6.6
Plant Nacoochee Unit	
1	6.6
2	6.6
Plant Terrora Unit	
1	6.6
2	6.6
Plant Tallulah Unit	
1	6.6
2	6.6
3	6.6
4	6.6

5	6.6
6	6.6
Plant Tugalo Unit	
1	6.6
2	6.6
3	6.6
4	6.6
Plant Yonah Unit	
1	6.6
2	6.6
3	6.6
Plant Estotoah Unit	
1	2.3

(Stip. ¶ 18; Joint Exhibit 3.)

20. For the years 2009 and 2010, Petitioner's residential retail customers purchased electrical energy from Petitioner that was delivered to them at voltages ranging from 120V to 240V. Petitioner's commercial customers purchased electrical energy from Petitioner that was delivered to them at voltages ranging from 120V to 480V, although in some circumstances voltage was above that range (but not exceeding 25kV). Petitioner's industrial customers purchased electrical energy from Petitioner that was delivered to them at voltage ranging from 120V to 25kV, but some industrial customers purchased electrical energy directly from Petitioner's transmission system that was delivered to them at voltages ranging from 46kV to 115kV. Non-affiliate wholesale customers of Petitioner purchased electrical energy from Petitioner that was delivered to them at voltages typically ranging from 7.2kV to 500kV. Petitioner's affiliate wholesale customers (Alabama Power Company, Gulf Power Company, Mississippi Power Company and Southern Power Company) purchased electrical energy from Petitioner through its interconnected transmission lines that was delivered to them at voltages ranging from 115kV to 500kV. All such voltages were AC voltages. (Stip. ¶ 19; Robinson, Tr.

140.)

21. Portions of Petitioner's transmission or distribution lines are located on, over, or under land where Petitioner has an easement, right-of-way, or permit to use a public right-of-way, instead of possessing a fee simple interest in the land. A portion of the refund claims at issue in this case is attributable to items that were located or eventually located on, over, or under property where Petitioner had an easement, right-of-way, or permit to use a public right-of-way, as opposed to possessing a fee simple interest in the land. (Stip. ¶ 20.)

22. A portion of the refund claims at issue is attributable to conductors and other items that were installed or eventually installed between the meter of a residential customer and the last Petitioner step-down transformer before the customer's meter. (Stip. ¶ 46.) A conductor is a type of material that will allow the flow of electrical current. (Aucoin, Tr. 343.)

23. Michael B. Robinson is currently employed by Petitioner, where he has worked for 15 ½ years. (Robinson, Tr. 49.) He currently works as general manager of transmission and planning and operations for Petitioner. Mr. Robinson is responsible for all system operations activities of Petitioner's transmission system throughout Petitioner's 155-county area in Georgia. He is also responsible for the transmission planning for other transmission owners, including the Georgia Transmission Corporation, MEAG, and the City of Dalton. (Robinson, Tr. 51.) Mr. Robinson testified regarding items depicted in Petitioner's Exhibits 1, 3, 4, 5, 8, 9, 10, 14, 15, 16, 17, 18, 21, 22, 23, 24, and 25. Mr. Robinson was not offered as an expert witness by Petitioner or qualified by the Tax Tribunal to testify as an expert. (Tr. 54-55.)

24. Petitioner's Exhibit 1 is a high-level, simplified depiction of an electric power system from the fuel source to the end user, including the electric utility's transmission and distribution system and high voltage transmission lines, circuit breakers, step-down transformers,

substations, switches, subtransmission lines, capacitor banks, distribution lines, and pole transformers which would be part of such a system. This depiction includes an electric generator and a generator step-up ("GSU") transformer located at the terminals of the electric generator. (Robinson, Tr. 61, 68; Aucoin, Tr. 355-356.)

25. Petitioner's Exhibit 3 shows a GSU transformer. (Robinson, Tr. 67-68.) The refund claims at issue in this case do not include any step-up transformers. (Stip. ¶ 64.)

26. Petitioner's Exhibit 4 shows a transformer that would be located at a transmission substation to reduce voltage from 230kV to 115kV, for example. (Robinson, Tr. 82-83.)

27. Petitioner's Exhibit 5 shows an oil-filled bushing. These devices function to insulate the lead of the winding of a transformer from the connection to the Transmission and Distribution system. Bushings also are shown sitting on top of the transformer in Petitioner's Exhibit 4. (Robinson, Tr. 83-84.)

28. Petitioner's Exhibit 8 shows a pad-mounted transformer of the type that would be used in a utility's distribution system. (Robinson, Tr. 84-85.)

29. Petitioner's Exhibit 9 shows a pole-mounted transformer where voltage would be reduced to the 120-240 volt range for residential customers. (Robinson, Tr. 86.)

30. Petitioner's Exhibit 10 shows a disconnect switch, a lightning arrester, a clamp, and an insulator located at a pole-mounted transformer. (Robinson, Tr. 87-88.) The disconnect switch (which is fused) protects against faults downstream. (Robinson, Tr. 87.) A fault is a short circuit occurring somewhere on the transmission and distribution system, which can happen for various reasons such as a tree falling on a line, animals, or lightning. (Robinson, Tr. 71-72.) For example, if a tranformer fails the fuse blows and opens the switch, and the disconnect de-energizes the transformer. The disconnect switch also allows an open air gap for

line crews to work on a transformer that has been de-energized. (Robinson, Tr. 72.)

31. The lightning arrester shown in Petitioner's Exhibit 10 is a device that suppresses lightning surges to ground, *i.e.*, it allows a path to ground for such a surge. (Robinson, Tr. 87-88.) The clamp shown in that exhibit connects the wire leading to the transformer to its primary side. The insulator is the connection point to the pole, providing insulation for the distribution level voltage. (Robinson, Tr. 87-88.)

32. Petitioner's Exhibit 14 shows white side post insulators that connect transmission lines to a pole. Exhibit 14 also shows lightning arresters that suppress lightning surges by providing a path to ground for the surge. Petitioner's Exhibit 15 shows a metal oxide varistor, which also functions as a lightning arrester. (Robinson, Tr. 88-89.)

33. Petitioner's Exhibit 16 shows a substation class arrester. This device is a lightning arrester installed at the transmission voltage range, or 115kV, and it acts to suppress lightning surges by diverting them to ground. (Robinson, Tr. 90.)

34. Petitioner's Exhibit 17 shows a bank of capacitors installed in series and in parallel at a transmission substation. Petitioner's Exhibit 18 shows a bank of capacitors installed on a utility's distribution system. Such capacitors can either be automated or adjusted by operators. Capacitors will momentarily store a charge and then very quickly discharge it. The function of a capacitor is to minimize energy losses in the transmission and distribution system that are attributable to reactive power. A capacitor thus acts so that electrical energy generated at the plant will be used by consumers or other utilities rather than being lost in the transmission and distribution system. (Robinson, Tr. 91, 92, 128, 129; Aucoin, Tr. 387-389.)

35. Petitioner's Exhibits 21 and 22 show reclosers, which are designed to sense faults in a utility's transmission and distribution system. For example, if a tree falls on a line and

causes a short circuit to ground, the recloser senses the resulting increase in current and is programmed to open the circuit, de-energize it, and then close the circuit back to see if the fault is still there. If the fault is still there, the recloser opens back up and tests the system again, all of which is done automatically. The box shown to the right of the recloser in Petitioner's Exhibit 22 is the recloser's controller, which would be programmed to sense current and open and close the recloser to test for faults. Petitioner's Exhibit 21 shows what appears to be a recloser that was installed on an EMC's power system. (Robinson, Tr. 92-93.)

36. Petitioner's Exhibit 23 shows a transmission voltage circuit breaker (also known as a single pole circuit breaker), which serves as a protection device in Petitioner's Transmission and Distribution system. When a relay on that system senses a fault on the line the relay will open the breaker to de-energize the line. These circuit breakers also are used to de-energize a line for maintenance purposes. (Robinson, Tr. 95.)

37. Petitioner's Exhibit 24 shows a transmission circuit switcher. Such devices are installed on a transformer to de-energize it in the event of a fault inside the transformer; they also can be used elsewhere in the transmission system as a line switch. (Robinson, Tr. 96.)

38. Petitioner's Exhibit 25 shows a line trap, which is a device connected to a transmission line that will carry a signal between two circuit breakers, thus allowing those breakers to communicate with each other. (Robinson, Tr. 97-98.)

39. Mr. Robinson testified that the items shown in Petitioner's Exhibits 4, 5, 8, 9, 10, 14, 15, 16, 17, 18, 21, 22, 23, 24, and 25 "are energized, they carry current, they are part of delivering energy to, through the transmission distribution system ultimately to our customers," and that the source of that electrical energy is the generator. (Robinson, Tr. 99, 120.) He also testified that these items are used in safely, efficiently, and reliably providing electrical energy to

Petitioner's customers or other utilities. (Robinson Tr. 120-121.)

40. For purposes of this case, items of tangible personal property used by Petitioner in its Transmission and Distribution System can be categorized into the following seven general groups: "Transformers"; "Transmission and Distribution Equipment"; "Substation Equipment and Parts"; "Telemetry, Process and Quality Control"; "Maintenance Equipment"; "Conductors"; and "Safety." (Stip. ¶ 40.) Petitioner's Exhibit 35 shows the categories into which Petitioner has placed the various items on which the refund claims in this case are based. (Robinson, Tr. 77-78.)

41. The items included in the "Transformer" category shown on Petitioner's Exhibit 35 either are transformers or parts or accessories used with transformers. Transformers function to safely, efficiently, and reliably deliver electrical energy to Petitioner's customers or other utilities. (Robinson, Tr. 123-124, 127-128.)

42. Capacitors are included in the "Transmission and Distribution Equipment" category shown on Petitioner's Exhibit 35. Capacitors function to ensure the safe, efficient, and reliable delivery of electrical energy to consumers. (Robinson, Tr. 128-129; Aucoin, Tr. 387-389.)

43. Fiber optic transceiver systems are included in the "Transmission and Distribution Equipment" category shown on Petitioner's Exhibit 35. Petitioner included these items in Petitioner's refund claims because of the function they perform in protecting the transmission system. Specifically, these items provide a communications path for protection system relays that ensure a line is de-energized and isolated if there is a fault detected in the system, which can disrupt the delivery of energy to Petitioner's customers or cause Petitioner to lose the use of a particular line. These items thus function to ensure the safe, efficient, and reliable delivery of

electrical energy. (Robinson, Tr. 129-132.)

44. Voltage regulators are included in the "Transmission and Distribution Equipment" category shown on Petitioner's Exhibit 35. Petitioner has a voltage reduction plan under which Petitioner can reduce voltage on its Transmission and Distribution system in a way that allows Petitioner to function more economically but does not affect the operation of its customers' electrical systems. Voltage regulators play a role in that plan and in the safe, efficient, and reliable delivery of electrical energy. (Robinson, Tr. 132-33.)

45. Besides capacitors, fiber optic transceiver systems, and voltage regulators, the other items included in the "Transmission and Distribution Equipment" category shown on Petitioner's Exhibit 35 serve to safely, efficiently, and reliably deliver electrical energy to consumers. (Robinson, Tr. 133.)

46. The "Substation Equipment and Parts" category shown on Petitioner's Exhibit 35 includes relays that provide information about whether a circuit breaker might need to be replaced ahead of a failure. Those relays thus function to ensure the safe, efficient, and reliable delivery of electrical energy, as do all the other items shown in this category. (Robinson, Tr. 124-127.)

47. Most of the items included in the "Telemetry, Process, and Quality Control" category shown on Petitioner's Exhibit 35 have dual uses, but Petitioner included each of the items in this category in the refund claims at issue because of the functions they perform in the safe, efficient, and reliable delivery of electrical energy. (Robinson, Tr. 133-134, 143.)

48. The items included in the "Conductor" category shown on Petitioner's Exhibit 35 are used in safely, efficiently, and reliably delivering electrical energy. (Robinson, Tr. 134-135.)

49. The items in the "Maintenance Equipment" and "Safety" categories shown on

Petitioner's Exhibit 35 were included by Petitioner in the refund claims because those items are used in connection with items included in the "Transformer," "Transmission and Distribution Equipment," "Substation Equipment and Parts," and "Conductors" categories, such as bucket trucks or lineman's gloves used by Petitioner personnel in order to safely maintain transmission lines or transformers. (Robinson, Tr. 135.)

50. The configuration of Petitioner's Transmission and Distribution System is essentially the same as other utilities. Petitioner's Exhibit 1 therefore could be used to describe the transmission and distribution systems of other utilities, like Florida Power & Light or Detroit Edison. The types of items that Petitioner uses in its Transmission and Distribution System and that are depicted in Petitioner's exhibits would also be used by other utility companies; there is nothing unusual about those items to Petitioner's Transmission and Distribution System. (Robinson, Tr. 137-139; Fuchs, Tr. 293-295.) In fact, Mr. Robinson testified that the recloser shown in Petitioner's Exhibit 21 was not Petitioner's but appeared instead to be installed on an EMC's system. (Robinson, Tr. 92, 138.)

51. Mr. Robinson testified that when he used the term "endowed electron" he was referring to an electron that was moving as part of an electric current and did not mean anything else. (Robinson, Tr. 108-109.) Mr. Robinson further testified that the only thing distinguishing an electron moving in a current and an electron that was part of the courtroom's podium was that the former is moving as part of a current and the latter is not. (Robinson, Tr. 110.)

52. On direct examination Mr. Robinson testified that electrical energy was in "its final usable form" when it passed through the customer's meter. (Robinson, Tr. 76.) On cross-examination he testified that the electrical energy at the last pole transformer located outside a customer's residence could be used by the customer, at least if he had the necessary breakers.

Mr. Robinson stated that his test for determining whether electrical energy was usable to a particular customer was the voltage level. (Robinson, Tr. 111-113.)

53. Mr. Robinson testified that Petitioner's "production process" in the Transmission and Distribution System is "the movement of electrons as part of electric current." He also testified that this same "production process" takes place when a customer turns on a switch and continues until current "gets to the load"—like a light bulb—at the customer's home or business. (Robinson, Tr. 115-117.)

54. Mr. Robinson testified on cross-examination that Petitioner's entire Transmission and Distribution System is used to provide electrical energy to the consumer and other utilities in a manner that is safe, efficient, reliable, and economical. He also acknowledged that the source of that energy would be an electric generator located at a plant. (Robinson, Tr. 117-120, 123-124, 132-133.)

55. The Petitioner called Dr. Ewald Fuchs to testify. Dr. Fuchs received the equivalent of a master's degree of electrical engineering from the University of Stuttgart in Germany and holds a Ph.D in electrical engineering from the University of Colorado. Dr. Fuchs taught undergraduate and graduate courses at the University of Colorado in Boulder from 1977 until 2011 and is currently a professor emeritus of electric, computer and energy engineering at the University of Colorado. (Fuchs, Tr. 156-157.) The Tax Tribunal recognized Dr. Fuchs as an expert in the generation, transmission and distribution system for electrical energy and on the general principles related to electrical energy. (Tr. 163.)

56. Dr. Fuchs has provided expert testimony on behalf of utility companies and against state taxing authorities in four other tax cases. (Fuchs, Tr. 293.)

57. Dr. Fuchs testified in direct examination that the production of electric energy by

a utility starts at the power plant and ends at the customer's meter. (Fuchs, Tr. 172, 195.)

58. Dr. Fuchs testified in direct examination that an electric utility "is processing the electrons in the conductors and transformers" (Fuchs, Tr. 172); "in the course of manufacturing and production of electricity" a utility company changes the "character" of the electrons from "free electrons to endowed electrons" (Fuchs, Tr. 174, 198); and "the conductor is actively participating in the processing of endowed electrons." (Fuchs, Tr. 182.)

59. According to Dr. Fuchs, electrons are "endowed with voltage" or potential to do work in the generator at a power plant. (Fuchs, Tr. 165, 167, 169.)

60. Dr. Fuchs stated that when he used the term "processed" with respect to the transmission and distribution system he was referring to the movement of electrons in the conductors in response to voltage created at the generator. (Fuchs, Tr. 212.)

61. Under cross-examination Dr. Fuchs said that there is no scientific or engineering difference between Petitioner's Transmission and Distribution System and the transmission and distribution system of the utility company in Colorado for which he had previously testified. (Fuchs, Tr. 240, 241-242.) Dr. Fuchs stated that all of the equipment in the United States comes from the same sources. (Fuchs, Tr. 241-242.)

62. Under cross-examination Dr. Fuchs acknowledged that he had previously testified on behalf of the utility in Colorado that its product was usable by its residential customers at the last step-down pole transformer before the customers' meter. (Fuchs, Tr. 236, 237.)

63. Dr. Fuchs acknowledged that the movement as a current of the electrons in a transmission and distribution system is how electrical energy generated at the plant gets to the customer. (Fuchs, Tr. 214.) The generator is the source of all of the electrical energy at any point in a transmission and distribution system. (Fuchs, Tr. 214, 215.) Dr. Fuchs also

acknowledged that what he described as the "processing" occurring in Petitioner's Transmission and Distribution System also happens in the wiring of a residence, factory, or location of any of Petitioner's customers using electrical energy. (Fuchs, Tr. 230, 231.)

64. In Dr. Fuchs' view there is a constant "processing" of electrical energy from the generation plant, through the utility's transmission lines and other conductors, through the distribution system, to the last pole transformer outside a customer's house, into the customer's house, and to the light bulb of a lamp the customer has switched on. (Fuchs, Tr. 236, 234.) Dr. Fuchs also testified that "processing" of electrical energy was occurring in the courtroom when the lights were on. (Fuchs, Tr. 233-234.)

65. Dr. Fuchs testified that the utility's transformers, substations, and "all those components combined represent a big manufacturing machine" so that energy can be used by the customer. (Fuchs, Tr. 195.)

66. When Dr. Fuchs was asked on cross-examination whether he considered everything that happens in a transmission and distribution system to constitute energy conversion he responded, "Yes, indeed." (Fuchs, Tr. 277.) Shortly thereafter, when he was asked whether it was his view that energy conversion takes place in the utility's transmission lines, he responded, "Well, not really." (Fuchs, Tr. 279.)

67. Dr. Fuchs testified that if one raises a pen above the tabletop on which the pen rests the character of the pen has been changed, because the pen can now deliver kinetic energy to the tabletop if the pen is dropped. He also testified that driving a car onto an expressway and accelerating up to 60 miles per hour changes the character of the car because of the kinetic energy the car can then deliver to anything the car might hit. (Fuchs, Tr. 216-218.)

68. Dr. Michael Aucoin was called to testify by the Commissioner. Dr. Aucoin holds

a bachelor of science degree in engineering from the University of New Orleans, a master's of engineering degree from Texas A&M, and a doctor of engineering degree from Texas A&M. The difference between a doctor of engineering degree and a Ph.D is the orientation and types of courses taken. The doctor of engineering degree is intended as a practice-oriented degree; that is, it is an advanced degree for individuals who are more oriented to practice engineering. The Ph.D is oriented towards individuals who want to teach or are interested in tenure-track faculty positions. The research Dr. Aucoin completed to acquire his doctor of engineering degree from Texas A&M also would have satisfied the university's Ph.D degree requirements, but Dr. Aucoin was interested in the practice side of engineering. (Aucoin, Tr. 304-305.)

69. There are specialties within the field of electrical engineering, such as broadcast technology, electronic circuits, and digital circuits. When Dr. Aucoin received his engineering degrees he specialized in electric power engineering. (Aucoin, Tr. 305-306.) Electric power engineering includes the conversion of other forms of energy into electrical energy; the transmission and distribution of energy, or "power delivery"; and the utilization of electrical energy by customers. (Aucoin, Tr. 306.) Dr. Aucoin's undergraduate, graduate work and postgraduate work included the science of electric power, such as the electromechanical conversion of various forms of energy into electrical energy, the science of electrons, and how and why electrons move in conductors. (Aucoin, Tr. 306-307.) Dr. Aucoin also is trained in the physics that underlies electrical engineering. (Aucoin, Tr. 307.)

70. Dr. Aucoin has been registered as a professional engineer in the state of Texas since 1987. (Aucoin, Tr. 308-310.) He is a co-inventor of technologies leading to five United States patents; he also has one European German patent, one Australian patent, and one Canadian patent. (Aucoin, Tr. 310.) Dr. Aucoin's patents involve technologies for the detection

of high impedance and downed conductor faults on power systems. (Aucoin, Tr. 314.) Dr. Aucoin also is published on topics involving power engineering, including peer-reviewed articles appearing in refereed publications. (Aucoin, Tr. 310-311.) He is a Senior Member of the Institute of Electrical and Electronics Engineers ("IEEE") and has been active in the Institute's various societies, technical working groups, and task forces. (Aucoin, Tr. 313-314.) Dr. Aucoin was the recipient in 2000 of a Third Millenium Medal from IEEE for his long-standing contributions to the profession of electrical engineering. (Aucoin, Tr. 314.) He also is on the editorial advisory panel of Electric Power Systems Research Journal, and he is presently the associate editor of the Engineering Management Review. (Aucoin, Tr. 315.)

71. Dr. Aucoin started practicing as a consultant in 1992, providing forensic engineering services (which involve trying to identify the cause of something that has gone wrong in a power system) and litigation consulting services. (Aucoin, Tr. 316-317.) His clients include electric utilities like Wisconsin Public Service, Houston Lighting and Power, and Detroit Edison. (Aucoin, Tr. 321.) Dr. Aucoin also has worked on research projects involving power systems funded by the National Science Foundation, the Department of Energy, and the United States Navy, (Aucoin, Tr. 317), and he was an electrical engineering consultant on a board created to evaluate for NASA the reason for an electrical mishap at the Johnson Space Center. (Aucoin, Tr. 318.)

72. Dr. Aucoin has been engaged over 150 times to provide expert engineering services in connection with court cases. (Aucoin, Tr. 318-319.) He has been deposed over 40 times and testified as an expert at trial approximately 10 times; in those instances (which were in both state and federal courts) he was accepted by the court as an expert in electrical engineering. (Aucoin, Tr. 319.)

73. Dr. Aucoin was recognized by the Tax Tribunal as an expert on the science of generating electrical energy and providing that energy to consumers, including the concepts, principles, and equations in the field of electrical engineering (including specifically power engineering) and physics. (Aucoin, Tr. 323, 329.)

74. In the power engineering field, a utility's transmission and distribution system is often referred to as a power delivery system. (Aucoin, Tr. 355-356.)

75. Electric current is the movement of electrons in a closed electrical circuit in response to voltage across that circuit. Electric current is measured in amperes. (Robinson, Tr. 109; Fuchs, Tr. 170, 209, 214; Aucoin, Tr. 332.)

76. Electric power is the rate at which electrical energy is being used. Electric power can be calculated using the equation $P = VI$, where P is power in watts, V is voltage in volts, and I is current in amperes. (Fuchs, Tr. 169, 209; Aucoin, Tr. 334-335; Respondent's Exhibit 4.) One volt times one ampere equals one watt of power. The power in a transmission line with 120 volts and 8,333 amperes of current will be 1 million watts (or one megawatt), but there will also be one megawatt of power if there are 8.333 amps of current flowing in an electrical circuit with 120,000 volts. (Fuchs, Tr. 222-228; Aucoin, Tr. 335.) This relationship between power, voltage and current is important when considering the voltage levels to be used in transmitting electrical energy. (Fuchs, Tr. 227-228; Aucoin, Tr. 335.)

77. Ohm's Law is expressed by the equation $V = IR$, where V is voltage in volts, I is current in amperes, and R is resistance in ohms (Ω). (Aucoin, Tr. 333; Respondent's Exhibit 4.) Under Ohm's Law, if voltage is increased in an electrical circuit offering a fixed resistance the current will increase in the same proportion. (Aucoin, Tr. 334.) In other words, if the voltage doubles the current also doubles. (Aucoin, Tr. 334.)

78. Electrical energy can be calculated using the equation $E = Pt$, where E is energy in joules, P is power in watts, and t is time in seconds. (Fuchs, Tr. 209; Aucoin, Tr. 334; Respondent's Exhibit 4.) If t is expressed in hours E will be measured in watt-hours. A kilowatt-hour of electrical energy is not necessarily the amount of energy a consumer will use in an hour's time; a kilowatt-hour of electrical energy could actually be used within a couple of minutes or over several hours. (Aucoin, Tr. 334.)

79. The equation $P = I^2R$, where P is power in watts, I is current in amperes, and R is resistance in ohms, is used to calculate power losses in a conductor. For example, if a transmission line offers resistance of 0.01 ohms to a current of 8,333 amps moving in response to 120 volts, the power loss will equal $(8,333)^2 \times 0.01$, or 694,389 watts, which is almost 70% of the power starting out. (Fuchs, Tr. 222-226; Aucoin, Tr. 335; Respondent's Exhibit 4.)

80. At an electric generating plant different forms of energy are converted into electrical energy. For example, a fuel like coal (which is a source of chemical energy) is burned in a boiler, which causes water in the boiler to turn to steam. The steam is directed toward a steam turbine, where the kinetic energy of the steam turns the turbine. The turbine shaft turns a magnetized rotor in the generator, which creates a changing magnetic field that induces voltage in the windings of the generator's stator and results in electrical energy at the stator terminals. At each point where there is a conversion of energy from one form to the other at the generating plant the amount of energy remains the same, except for unwanted losses. (Aucoin, Tr. 337-339, 341-342; Respondent's Exhibit 7.)

81. The terms voltage and electromotive force ("emf") often are used interchangeably. (Aucoin, Tr. 341-342.)

82. Under the laws of thermodynamics, energy cannot be created or destroyed.[2] Beyond the generation plant "there is no more additional electrical energy created elsewhere in the transmission and distribution system." (Fuchs, Tr. 256-257; Aucoin, Tr. 220, 337-342.)

83. All electrons have the same mass and charge. (Fuchs, Tr. 257; Aucoin, Tr. 370.)

84. Electrons in a conductor will respond to voltage across a closed circuit by moving as an electric current. (Fuchs, Tr. 267-268; Aucoin, Tr. 344-345.) The free electrons in the conductors act in response to the external force placed upon them by voltage produced at the terminals of a generator; they do not take on a different character. Dr. Aucoin explained that this was similar to lifting a pen above the tabletop on which the pen had rested. The character of the pen does not change when it is moved from one position to another. Voltage is the work needed to move a charge from one location to another, and there is nothing about that concept that says the electron changes character – it has just changed position. Dropping the pen changes its position because it is under the influence of an external force, in that case gravity. Likewise, an electron will move in response to an external force, in that case voltage. (Aucoin, Tr. 380-381.)

85. With alternating current ("AC") the electric current moves first in one direction and then back in the other direction. (Robinson, Tr. 56; Fuchs, Tr. 173-174; Aucoin, Tr. 345-346.) AC current is transmitted in the United States at 60 hertz or as close to that as possible, which means the current will switch direction 120 times per second. (Robinson, Tr. 56-57, 136-137; Fuchs, Tr. 175; Aucoin, Tr. 346.)

86. An electron that is moving as part of an electric current in one direction will not necessarily be one of the electrons that moves in the opposite direction when the current direction changes. The electrons that move forward as part of an electric current do not have to

[2] Einstein's famous equation $e=mc^2$ is not to the contrary. This establishes the fundamental equivalence of energy and mass and describes the consequences of conversion of matter into energy.

be the same electrons that move backward, but the same number of electrons will move in one direction as move in the opposite direction; otherwise, energy will have been created, which is impossible. (Fuchs, Tr. 181, 215, 275-276; Aucoin, Tr. 220, 346-347.)

87. The movement of electrons as an electric current in response to voltage is how electrical energy is conveyed from one point to another in an electrical circuit. The source of that electrical energy is the electric generator, and the energy always flows in one direction – from the source to the load. The "load" is the source that uses the electrical energy. (Fuchs, Tr. 172; Aucoin, Tr. 347.)

88. In a step-down transformer, the electric current going through the coils on the primary side will cause a magnetic field that induces a voltage in the coils on the transformer's secondary side, and that voltage causes current to flow on the secondary side. The voltage on the secondary side will be less than the voltage on the primary side, but the current on the secondary side will be correspondingly greater than the current on the primary side, such that the amount of electrical energy is the same on both sides (except for any unwanted losses). (Fuchs, Tr. 218-220; Aucoin, Tr. 352-353.)

89. A step-up transformer functions in the same way as a step-down transformer, except that in a step-up transformer voltage on the secondary side is higher and the current is correspondingly lower than on the primary side. (Fuchs, Tr. 218-220; Aucoin, Tr. 352-353.)

90. When a transformer's primary and secondary sides are not physically connected there is "electrical isolation," which means electrons from the primary side do not travel over to the secondary side. All that is transmitted is electrical energy. (Fuchs, Tr. 221.)

91. In an electric power system, large amounts of electrical energy often need to be conveyed from the utility's generating plants to customers over long distances. (Fuchs, Tr. 226-

227; Aucoin, Tr. 353.) When electrical energy is transmitted at higher voltages (and correspondingly lower current) there is less energy lost during transmission (as losses are proportional to the square of the current), which makes delivery more efficient and economical for the utility. (Fuchs, Tr. 227-228; Aucoin, Tr. 353-354.) When current is lower the diameter of conductor cables also can be smaller. (Fuchs, Tr. 228; Aucoin, Tr. 354.)

92. Faraday's Law applies at transformers and at electric generators in that at both places a changing magnetic field induces voltage. But there is no energy conversion taking place at a transformer; electrical energy goes into the transformer's primary side and electrical energy in the same amount comes out the secondary side (neglecting any unwanted losses). At a generating plant different forms of energy are converted eventually to mechanical energy and then to electrical energy; such energy conversion does not occur at a transformer. (Aucoin, Tr. 354-355, 379-380.)

93. Although it is advantageous to a utility to transmit electric energy over distances at higher voltages, reducing voltage to subtransmission levels lets a utility avoid having to place large transmission towers in or around communities. It also makes sense to have subtransmission circuits closer to communities because the load (energy demand) may be lower in those areas. (Aucoin, Tr. 357-358.)

94. Electrical energy is delivered to customers at different voltages because some customers need to use electrical energy more quickly than others. For example, a car manufacturer, a chemical plant, or a steel mill will have a greater need for electrical energy than a residential customer and could receive their electrical energy at 115kV, whereas Petitioner's residential customers typically receive energy at 120 to 240 volts. (Fuchs, Tr. 188; Aucoin, Tr. 358-359, 368; Stip. ¶ 19.)

95. The voltage level in an electrical circuit determines how much electrical energy is conveyed by each ampere of current per unit of time, as reflected by the equation $V = E/(It)$, where V is voltage in volts, E is energy in joules, I is current in amperes and t is time in seconds. This same formula can be used when E is expressed in watt-hours and t is expressed in hours. (Fuchs, Tr. 262; Aucoin, Tr. 336; Respondent's Exhibit 4.)

96. Voltage levels do not represent a difference in the kind of energy that is delivered to a customer. A kilowatt-hour is a kilowatt-hour, without regard to voltage. (Robinson, Tr. 113-114, 139, 153-154; Fuchs, Tr. 260-261; Aucoin, Tr. 360.)

97. Voltage levels do not represent a difference in the amount of work a kilowatt-hour of electrical energy will perform. A kilowatt-hour of electrical energy generated at a plant will perform the same amount of work whether that energy is consumed by a residential customer running a fan as opposed to an industrial customer who may be running a large lathe. A kilowatt-hour of electrical energy delivered to a customer at 120 volts is identical to a kilowatt-hour of electrical energy delivered to an industrial customer at 25 kilovolts. Voltage simply determines how much energy is delivered over a given amount of time per ampere of current. (Robinson, Tr. 113-114, 139, 153-154; Fuchs, Tr. 261; Aucoin, Tr. 336.)

98. A difference in voltage does not determine how a kilowatt-hour of energy performs work. (Aucoin, Tr. 368-369.)

99. A kilowatt-hour of electrical energy is equally useful to anyone who has a need for electrical energy. (Aucoin, Tr. 360-361.)

100. Some electric utility customers can receive electrical energy delivered to them at voltages that are equal to a generating plant's output voltage. (Fuchs, Tr. 249-250; Aucoin, Tr. 367; Stip. ¶¶ 18, 19, Joint Exhibit 3.) There also are electric utility customers who can receive

electrical energy delivered to them at transmission level voltages. (Fuchs, Tr. 252; Aucoin, Tr. 367.)

101. An electron does not have to find its way through a utility's transmission and distribution system to a customer's load (like a lamp) in order for electrical energy to reach that load. There are plenty of electrons in the wiring of a customer's home and in the lamp that will respond to voltage across the closed circuit to deliver the electrical energy from the customer's meter to the light bulb in the same way the electrons in Petitioner's system respond to voltage to deliver the electrical energy to the meter. (Fuchs, Tr. 213-215, 231, 235-236; Aucoin, Tr. 370-371.)

102. At the electrical connecting point between a utility's system and a customer's home or business, electrons moving as current can cross over from the utility's side to the customer's side, but only for a very short distance and only momentarily. When that occurs an electron from the customer's side of the circuit must move to the utility's side, because there has to be a balance of electrons on aggregate crossing that boundary. When the current direction changes the movement of electrons is in the opposite direction. (Fuchs, Tr. 274-277; Aucoin, Tr. 371-372.)

103. Residential consumers of electrical energy have transformers in their homes that reduce voltage in the same way as a utility's step-down transformers. For example, the consumer may have a transformer to charge up a laptop computer or a phone; his doorbell may have a transformer; and other electronic equipment may have plug transformers that reduce voltage from 120 volts to 5, 12, or 24 volts. Industrial customers have transformers of their own that step-down voltage in the same way as the step-down transformers Petitioner has in its Transmission and Distribution System. (Robinson, Tr. 140-142; Fuchs, Tr. 285; Aucoin, 372-

373.)

104. In the case of a utility that does not generate any electrical energy but merely transmits and distributes electrical energy that it purchases from someone else, what occurs in the utility's transmission and distribution system is in no relevant way different from what occurs in Petitioner's transmission and distribution system. (Fuchs, Tr. 270-271; Aucoin, Tr. 373.)

105. What occurs in a transmission and distribution system like Petitioner's does not depend on whether the electrical energy being transmitted and distributed was generated by the utility itself or was instead purchased from a third-party like the TVA. (Fuchs, Tr. 271-272; Aucoin, Tr. 373-374.)

106. Nothing that happens in a utility's transmission and distribution system does or can change the amount of electrical energy generated at a plant. (Fuchs, Tr. 256-257; Aucoin, Tr. 374.)

107. The items reflected in Petitioner's Exhibits 3, 4, 5, 8, 9, 10, 12, 14, 15, 16, 17, 18, 21, 22, 23, 24, and 25 that Michael Robinson discussed are used to safely, efficiently, and reliably provide electrical energy to end users. The functions performed by those items in a utility's transmission and distribution system do not result in electrical energy that has a different character from the electrical energy as it starts out at the generating plant. The fundamental nature of the electrical energy is not changed. (Aucoin, Tr. 376.)

108. The items appearing in the categories labeled "Transformers," "Transmission and Distribution Equipment," "Substation Equipment and Parts," and "Conductors" on Petitioner's Exhibit 35 are not used in a utility's transmission and distribution system in a way that results in electrical energy that has a different form, utility, or character from the electrical energy as it starts out at the generating plant. (Aucoin, Tr. 377.)

109. The production of electrical energy begins and ends at the generating plant. What happens "downstream" in the transmission and distribution system is delivery until the electrical energy reaches the customer's load – like a lamp – where the electrical energy is used. (Aucoin, Tr. 378.)

110. Free electrons responding to voltage by moving as an electric current do not thereby acquire a new character. (Aucoin, Tr. 380-81.)

111. A utility's transmission and distribution system functions to safely, efficiently, reliably, and economically deliver electrical energy generated at a plant to end users. (Aucoin, Tr. 391.)

112. Nothing that happens in a utility's transmission and distribution system results in electrical energy that has a different character from when the energy started out at a generating plant. (Aucoin, Tr. 391.)

113. Although there have been innovations in technology and equipment since 1965, the scientific and engineering principles underlying electric energy generation, energy conversion, voltage, electric current, and electrons have not changed since 1965. (Aucoin, Tr. 391-92.)

114. The amount of electrical energy a public utility generates and the amount of electrical energy that is consumed will be exactly equal at any point in time except for unwanted losses in the system. (Robinson, Tr. 145-148; Aucoin, Tr. 361.)

115. "Electricity" is a layman's term that sometimes is used to refer to electric current, electric power, or electric energy. (Fuchs, Tr. 169-170, 208.)

116. The North American Industry Classification System ("NAICS") is the standard used by federal statistical agencies in classifying business establishments for the purpose of

collecting, analyzing, and publishing statistical data related to the U.S. business economy. NAICS was developed under the auspices of the U.S. Office of Management and Budget, and adopted in 1997 to replace the Standard Industrial Classification system. It was developed jointly by the U.S. Economic Classification Policy Committee ("ECPC"), Statistics Canada, and Mexico's Instituto Nacional de Estadistrica y Geografia to allow for a high level of comparability in business statistics among the North American countries. (Stip. ¶ 21; Respondent's Exhibit 10.)

117. During the years 2009 and 2010, the following 2007 NAICS Codes were assigned to companies in the following industries:

NAICS Code Number	Industry
22111	Electric Power Generation
221111	Hydroelectric Power Generation
221112	Fossil Fuel Electric Power Generation
221113	Nuclear Electric Power Generation
221119	Other Electric Power Generation
22112	Electric Power Transmission, Control, and Distribution
221121	Electric Bulk Power Transmission and Control
221122	Electric Power Distribution

(Stip. ¶ 22; Respondent's Exhibit 10).

118. During the years 2009 and 2010, the 2007 NAICS Code 22111 provided as follows:

> This industry comprises establishments primarily engaged in operating electric power generation facilities. These facilities convert other forms of energy, such as water power (i.e., hydroelectric), fossil fuels, nuclear power, and solar power, into electrical energy. The establishments in this industry produce electric energy and provide electricity to transmission systems or to electric power distribution systems.

(Stip. ¶ 23; Respondent's Exhibit 10.)

119. During the years 2009 and 2010, the 2007 NAICS Code 22112 provided as

follows:

> This industry comprises establishments primarily engaged in operating electric power transmission systems, controlling (i.e., regulating voltages) the transmission of electricity, and/or distributing electricity. The transmission system includes lines and transformer stations. These establishments arrange, facilitate, or coordinate the transmission of electricity from the generating source to the distribution centers, other electric utilities, or final consumers. The distribution system consists of lines, poles, meters, and wiring that deliver the electricity to final consumers.

(Stip. ¶ 24; Respondent's Exhibit 10.)

120. On August 19, 1965, after discussions with Petitioner, the Commissioner of the Georgia Department of Revenue sent a "Memorandum of Determination Concerning Exemption from Sales and Use Tax of Machinery used in Fossil Fuel Fired Steam Electric Generating Plants" to Petitioner, setting forth the Commissioner's decision as to how the exemption provided by Ga. L. 1963 p. 13 applied to Petitioner's operations. (Stip. ¶ 25; Joint Exhibit 4.) The Commissioner concluded that "electricity" constituted "tangible personal property" and the "generation of electricity" constituted "manufacturing" for purposes of the exemption. The Commissioner also determined that "[a]ll transforming, switching, and transmission equipment and structures are taxable."

121. On April 23, 2009, the Department issued Notice Number ST-2009-1 proposing to repeal Rule 560-12-2-.62 entitled "Manufacturing, Machinery. Amended" in its entirety and adopting in its place new Rule 560-12-2-.62 entitled "Manufacturing Machinery and Equipment." The proposed regulation provided, in part, as follows:

> "Manufacturer" means a person or business, or a location of a person or business that is engaged in the manufacture of tangible personal property for sale or further manufacturing. 1) To be considered a manufacturer, the person or business, or the location of a person or business, must be: (1) Classified as a manufacturer under the 2007 North American Industrial Classification System Sectors 21, 31, 32, or 33; or (2) Generally regarded by the public as being a manufacturer.

(Stip. ¶ 26; Joint Exhibit 5, p. 12.)

122. On May 20, 2009, Robert B. Morris, Assistant Comptroller and Assistant Corporate Secretary of Petitioner, sent a letter to the State Revenue Commissioner commenting on the Revenue Department's Notice Number ST-2009-1. In its letter Petitioner stated that it was submitting comments "[b]ecause the Proposed Regulations do not specifically identify electric power generation as a manufacturing operation for purposes of the exemptions." Petitioner further stated that:

> The proposed Regulations provide the following two definitions of the term manufacturer: "(1) [a person or business] [c]lassified as a manufacturer under the 2007 North American Industrial Classification System Sectors 21, 31, 32, or 33; or (2) [a person or business] generally regarded by the public as being a manufacturer." NAICS Sector 21 includes mining, quarrying, and oil and gas extraction. Sectors 31, 32 and 33 include manufacturers of various items of goods, such as textiles, food products, wood products, chemicals, plastics, automotive parts, and so forth. Electric power generation is not included in Sectors 21, 31, 32, or 33, but rather is included in Sector 22111, Electric Power Generation. Sector 22111, Electric Power Generation, is defined in the NAICS as follows: 'This industry comprises establishments primarily engaged in operating electric power generation facilities. These facilities convert other forms of energy, such as water power (i.e., hydroelectric), fossil fuels, nuclear power, and solar power, into electrical energy. The establishments in this industry produce electric energy and provide electricity to transmission systems or to electric power distribution systems.'
>
> Georgia Power believes the Revenue Department has taken the position that electric power generation falls within the Proposed Regulations' second, "catch-all," definition of the term manufacturer, i.e., one generally recognized as such by the public. While we would agree that anyone familiar with the complex process of converting the heat energy in coal or uranium into electrical energy is "manufacturing," given the significance of the issue, the company believes it is important to specifically identify electric power generation as manufacturing in the final Regulation. This can easily be accomplished by adding NAICS Sector 22111 to the other NAICS Sectors listed in the first definition of the term.

(Stip. ¶ 27; Joint Exhibit 6).

123. After the Revenue Department received Petitioner's comment on Notice Number ST-2009-1 and comments from other interested parties, the Department made changes to the

proposed regulation. On July 8, 2009, the Department issued Notice Number ST-2009-2, which added North American Industrial Classification Code 22111 to the definition of "manufacturer," as Petitioner had requested in its comment letter dated May 20, 2009. (Stip. ¶ 28, Joint Exhibit 7, p. 4.)

124. On November 19, 2009, the Revenue Department promulgated Ga. Comp. R. & Regs. 560-12-2-.62 effective for transactions occurring on or after January 1, 2009 and for all transactions during the periods covered by the refund claims at issue in this case. Ga. Comp. R. & Regs. 560-12-2-.62 states, in part, as follows:

> To be considered a manufacturer, the person or business, or the location of a person or business, must be: (i) Classified as a manufacturer under the 2007 North American Industrial Classification System Sectors 21, 31, 32, or 33; or specific North American Industrial Classification Systems codes 22111, or 511110; or (ii) Generally regarded as being a manufacturer.

(Stip. ¶ 30; Joint Exhibit 9.)

125. Petitioner filed monthly sales and use tax returns with the Revenue Department during the years 2009 and 2010 with respect to purchases or uses by Petitioner of, among other items, items of tangible personal property used or to be used in the construction, maintenance, and operation of Petitioner's transmission and distribution system. (Stip. ¶ 31.)

126. On December 26, 2012, Petitioner timely filed with the Revenue Department a claim for refund of sales and use taxes paid for the tax period January 1, 2009 through December 31, 2009 in the amount of $8,176,424. (Stip.¶ 33; Joint Exhibit 10.)

127. On February 20, 2013, Petitioner timely filed with the Revenue Department a claim for refund of sales and use taxes paid for the tax period January 1, 2010 through December 31, 2010 in the amount of $10,269,678. (Stip.¶ 34; Joint Exhibit 11.)

128. The Revenue Department denied Petitioner's refund claims on June 27, 2013 and

July 2, 2013. (Stip.¶ 38.)

129. Petitioner filed this refund action on July 26, 2013. (Stip.¶ 39.)

130. Petitioner has agreed to reduce its 2009 refund claim by the amount of $356,735 to reflect the removal of certain items mistakenly included in the original claim and concedes that portion of the refund claim. Petitioner also has agreed to reduce its 2010 refund claim by the amount of $359,909 to reflect the removal of certain items mistakenly included in the original claim and concedes that portion of the refund claim. (Stip. ¶¶ 71 and 72.)

III. Conclusions of Law

This Tribunal finds that Petitioner's refund claim must be denied for two reasons. First, Petitioner's Transmission and Distribution System, which is where Petitioner employs the items that are included in Petitioner's claims for refund, is not used for "manufacturing" Petitioner's product for sale, *i.e.*, electrical energy, within the meaning of O.C.G.A. §§ 48-8-3(34), 48-8-3(34.3). Second, Petitioner's generating facilities and Transmission and Distribution System do not constitute a single "manufacturing plant" within the meaning of O.C.G.A. §§ 48-8-3(34), 48-8-3(34.3).

A. Historical background of the manufacturing exemption

The first "manufacturing machinery" exemption was enacted by the General Assembly in 1963 and applied to "machinery . . . used directly in the manufacture of tangible personal property [in a manufacturing plant in this state]." Ga. L. 1963 p. 13. In 1965, after discussions with Petitioner, the State Revenue Commissioner concluded that "electricity" constituted "tangible personal property" and the "generation of electricity" constituted "manufacturing" for purposes of the exemption.[3] (Stip. ¶ 25, Joint Exhibit 4.) However, the State Revenue

[3] The State Revenue Commissioner's original determination letter referred to Georgia Power's product as "electricity." "Electricity" is not a precisely defined term and is commonly used by laypersons when referring to

Commissioner also determined that "[a]ll transforming, switching, and transmission equipment and structures are taxable."

Over the years the statutory requirements that machinery be "used directly in the manufacture of tangible personal property" were a source of constant dispute between the Department and taxpayers and required the courts to make some exceedingly fine distinctions to determine what qualified under the statute. For example, the courts concluded that one test for *indirect* use in manufacturing was whether there was an "intervening agency." In Blackmon v. Screven Cnty. Indus. Dev. Auth., 131 Ga. App. 265 (1974), the Georgia Court of Appeals rejected the taxpayer's claim that certain climate control equipment for the taxpayer's synthetic

---

electric current, electric power, or electric energy, all of which are related but different concepts. Cf. Utilicorp United, Inc. v. Missouri Pub. Serv. Co., 75 S.W.3d 725, 726 n. 2 (Mo. 2001) ("In everyday usage, one may speak of 'electricity,' 'electric power,' and 'electric energy' interchangeably. Technically, 'power' and 'energy' are distinct concepts. Power is measured in kilowatts; energy is measured in kilowatt-hours.") See also Fuchs, Tr. 207.

The underlying challenge in this case arises from the fact that electricity does not fit neatly into the concept of "tangible personal property," although it has now been defined by statute to be just that. See O.C.G.A. § 48-8-2(37). What we refer to as electricity, or more precisely, electric energy, is the ability to use the electromagnetic force (which is one of the four fundamental forces of the universe) to do work. When one purchases electric energy, one is paying for the ability to use electric energy for heating, lighting, running mechanical applicances, operating computers, etc.—the entire myriad of things upon which we are so utterly dependent for purposes of our modern existence. Petitioner transmits that electric energy that is produced at its generating facilities to its end user customers over its Transmission and Distribution System. The mechanism for that transfer is through the motion of electrons within that system. But the end user customer does not "buy" or "rent" the electrons. In the case of the alternating current generated by Petitioner, those electrons are constantly moving back and forth through the Transmission and Distribution Strystem. It is the electrical energy transmitted by that movement of electrons that the end user is buying. The end user purchases the energy, not the electrons that deliver that energy.

But even if, strictly speaking, it may not be metaphysically correct to categorize electricity as "tangible personal property," (compare Dep't of Revenue v. Pub. Serv. Co., 330 P.3d 385 (Colo. 2014)[electricity is not "tangible personal property" for purposes of the Colorado sales and use tax]), it makes perfect sense to treat electricity as "tangible personal property" for purposes of imposing sales and use tax. This is because as an economic matter electricity competes with other sources of energy (e.g. coal, oil and natural gas) to provide consumers with heat, light and mechanical energy that very much ARE tangible personal property. Because electricity and these other energy sources are alternatives to one another for many economic purposes, it makes perfect sense that they should all be taxed similarly. So although it may be a bit intellectually challenging to shoe-horn electric energy into the heading of "tangible personal property," from the perspective of imposition of sales and use tax, it makes perfect sense.

That being said, it is helpful to remember that Petitioner's production of electric energy really is different from what one would typically think of as traditional manufacturing when we are called upon to explore how such electric energy is "manufactured," where such "manufacturing" ends and what kind of "plant" is used in the "manufacturing" of electric energy.

yarn manufacturing plant was exempt. The equipment consisted of duct systems inside the plant, chilling equipment, and an outside cooling tower. It was undisputed that the climate control equipment prevented certain fibers from frizzing, curling, or becoming wet during the manufacturing process, and that the equipment was not installed for employee comfort. The equipment failed the "intervening agency" test, however, because "[i]t has nothing to do with the materials in manufacture; it operates solely on the air which then, as an intervening agency, circulates around the carpet yarn." Id. at 267.

To eliminate some of these very fine lines and frustrating distinctions, in 2008 the General Assembly amended this exemption, effective January 1, 2009, to eliminate the "used directly" requirement and, hence, the need for the type of highly metaphysical line-drawing that had created difficulties in the past.[4] In amending the exemption, the General Assembly

---

[4] The 2009 version of the Statute provided that the following are exempt from sales and use tax:

> **(34)** The sale of the following types of manufacturing machinery:
>
> **(A)** Machinery or equipment which is necessary and integral to the manufacture of tangible personal property when the machinery or equipment is bought to replace or upgrade machinery or equipment in a manufacturing plant presently existing in this state and machinery or equipment components which are purchased to upgrade machinery or equipment which is necessary and integral to the manufacture of tangible personal property in a manufacturing plant;
>
> **(B)** Machinery or equipment which is necessary and integral to the manufacture of tangible personal property when the machinery or equipment is used for the first time in a new manufacturing plant located in this state;
>
> **(C)** Machinery or equipment which is necessary and integral to the manufacture of tangible personal property when the machinery or equipment is used as additional machinery or equipment for the first time in a manufacturing plant presently existing in this state. . . .
>
> **(34.3)**
>
> **(A)** The sale or use of repair or replacement parts, machinery clothing or replacement machinery clothing, molds or replacement molds, dies or replacement dies, waxes, and tooling or replacement tooling for machinery which is necessary and integral to the manufacture of tangible personal property in a manufacturing plant presently existing in this state. . . .
>
> O.C.G.A. §§ 48-8-3(34) and 48-8-3(34.3) (2009).

broadened the exemption to require only that the machinery and equipment be "necessary and integral" to the manufacture of tangible personal property. See O.C.G.A § 48-8-3(34) (2009). As in effect during these tax periods, O.C.G.A. § 48-8-3(34) exempted "machinery or equipment which is necessary and integral to the manufacture of tangible personal property [in a Georgia manufacturing plant]." Similarly, O.C.G.A. § 48-8-3(34.3) exempted "repair or replacement parts . . . for machinery which is necessary and integral to the manufacture of tangible personal property in a manufacturing plant presently existing in this state."

So under the revised statute, the "used directly" test has been replaced with a new "necessary and integral" test. This change has broadened the scope of the former exemption considerably to pick up items of machinery and equipment that are not "used directly" but which are "necessary and integral" to such manufacturring. So, for instance, the climate control system that was the subject of Blackmon would now qualify for the exemption. But the revised statute still requires that an item claimed to be exempt must be used in "manufacturing," that the item be used after "manufacturing" begins and before it ends, and that the "manufacturing" must occur in a "manufacturing plant."

B. Petitioner must demonstrate by a preponderance of the credible evidence that Petitioner is entitled to the refunds it seeks

A suit for a tax refund is one for money had and received, and in such an action "the burden of proof is on the taxpayer to produce evidence that the defendant holds money which in equity and good conscience he has no right to retain." Hawes v. Bigbie, 123 Ga. App. 122, 123 (1970). In a civil matter like this the Petitioner has the burden of proving its case by a preponderance of the evidence. Tax Tribunal Rule 11(b), (c). The term "preponderance" means "the greater weight of evidence upon the issues involved." See Courson v. Pearson, 132 Ga. 698, 699-700 (1909). The weight of evidence need not be enough to completely free the mind

from a reasonable doubt, but the evidence must be sufficient to incline a reasonable and impartial mind to one side of the issue rather than to the other. Superior Paving, Inc. v. Citadel Cement Corp., 145 Ga. App. 6, 7-8 (1978). The fact-finder is not required to accept the testimony of any witness, whether expert or otherwise; rather, that testimony is to be given only such weight and credit as the fact-finder believes it to be entitled. O.C.G.A. § 24-14-4; McCoy v. State, 237 Ga. 118, 119 (1976).

Although there was some quibbling among the experts in this case at the subatomic level on some very fine points, we do not find those quibbles to be of importance to the decision of this case. They were in broad agreement on the relevant facts and the essential facts in this case are not in dispute. The disputes in this case turn almost exclusively upon the application of the law to those facts.

C. Because Petitioner is seeking a refund based on tax exemptions, Petitioner has the burden of demonstrating that the statutes "clearly and distinctly" provide for the exemptions claimed

"It is well settled that . . . a claim of exemption must be construed strictly against the taxpayer and in favor of the taxing authority." Blackmon v. Cobb Cnty.-Marietta Water Auth., 126 Ga. App. 459, 461 (1972). "An exemption from taxation will not be held to be conferred unless the terms under which it is granted clearly and distinctly show that such was the intention of the legislature." Church of God of the Union Assembly, Inc. v. City of Dalton, 213 Ga. 76, 78 (1957). Accord Georgia Dep't of Revenue v. Georgia Chemistry Council, Inc., 270 Ga. App. 615, 618 (2004). All doubtful meanings must be resolved in favor of the taxing authority and against the claimed exemption. Thompson v. Atlantic Coast Line R.R. Co., 200 Ga. 856, 864 (1946). Accord Lowry v. McDuffie, 269 Ga. 202, 204 (1998).

It is also true that where a statute is ambiguous, the interpretation of a statute by an

administrative agency which has the duty of enforcing such statute is to be given great weight and deference. Hicks v. The Florida State Bd. of Admin., 265 Ga. App. 545, 547 (2004) ("Where statutory provisions are ambiguous, courts should give great weight to the interpretation adopted by the administrative agency charged with enforcing the statute." (quoting Schrenko v. DeKalb Cnty. Sch. Dist., 276 Ga. 786, 791 (2003))). Accord Comm'r of Ins. v. Stryker, 218 Ga. App. 716, 718 (1995); see generally Albany Surgical, P.C. v. Dep't of Cmty. Health, 257 Ga. App. 636, 638 (2002).

By the same token, when a tax statute is unambiguous, regardless of whether it imposes a tax or provides an exemption or credit, its plain meaning must be enforced as written with no strict construction against either party. See, e.g., Lowry v. McDuffie, 269 Ga. 202, 204 (1998) ("When a statute is plain and susceptible of but one natural and reasonable construction, the court has no authority to place a different construction upon it, but must construe it according to its terms."); Richmond Cnty. Bd. of Tax Assessors v. Ga. R.R. Bank & Trust Co., 242 Ga. 23, 24 (1978) (same); Chatham Cnty. Bd. of Tax Assessors v. Bock, 299 Ga. App. 257, 259 (2009) ("If the language is plain and does not lead to any absurd or impractical consequences, the court simply construes it according to its terms and conducts no further inquiry.").

When an exemption or credit lacks clarity and thus has a doubtful meaning, the general rule is that it should be construed for the taxing authority and against the taxpayer. See, e.g., Ga. Dep't of Revenue v. Owens Corning, 283 Ga. 489, 489 (2008); Ga. Dep't of Revenue v. Ga. Chemistry Council, Inc., 270 Ga. App. 615, 618 (2004); GMAC v. Jackson, 247 Ga. App. 141, 145 (2000). However, Georgia law requires that any interpretation that a court undertakes must look to the intention of the legislature, "keeping in view at all times the old law, the evil, and the remedy." O.C.G.A. § 1-3-1(a). As a result, even though tax exemptions are strictly construed

against the taxpayer, that construction "should not impinge on the other rule that a statute is to be construed in accordance with its real intent and meaning and not so strictly as to defeat the legislative purpose." Blank v. Collins, 260 Ga. 70, 71 (1990) (citing Amoena Corp. v. Strickland, 248 Ga. 496, 500 (1981)).

Indeed, even if there is some doubt as to the statute's meaning, that doubt is not resolved against the taxpayer *per se*.

> When it is said that exemptions must be strictly construed in favor of the taxing power, this does not mean that if there is a possibility of a doubt it is to be at once resolved against the exemption. It simply means that if, after the application of all rules of interpretation for the purpose of ascertaining the intention of the legislature, a well-founded doubt exists, then an ambiguity occurs which may be settled by the strict rule of construction. The rule of strict construction does not relieve the court of the duty of interpreting the exemption by the ordinary rules of construction in order to carry out the intention of the legislature . . . . A fair and reasonable construction of the statute must always be adopted, giving the language used its ordinary meaning, and taking into consideration the purpose and spirit of the exemption as well as the public policy entertained at the time and the history of the times when the statute was passed.

Turner v. Bd. of Cnty. Tax Assessors, 71 Ga. App. 374, 376-77 (1944) (quoting 2 *Cooley on Taxation* § 674 (4th ed.)).

D. The Department's regulation is controlling on any issue as to which the exemption statutes are silent or ambiguous

Both parties have appropriately treated the Department's regulation as controlling on any issues as to which the exemption statutes are silent or ambiguous. Schwartz v. Black, 200 Ga. App. 735, 736 (1991) ("Where an agency or commission is granted the authority and power to adopt . . . rules and regulations within the scope of the legislative enactment, such rules and regulations have the same force and effect as that of a statute." (quoting Panfel v. Boyd, 187 Ga. App. 639, 643 (1988))); First Union Nat'l Bank of Ga. v. Collins, 221 Ga. App. 442 (1996) ("The rules of statutory construction . . . are also applicable to regulations . . . .").

E. Petitioner's Transmission and Distribution System is not used for "manufacturing" Petitioner's product for sale

As in effect during these tax periods, O.C.G.A. § 48-8-3(34) exempted "machinery or equipment which is necessary and integral to the manufacture of tangible personal property [in a Georgia manufacturing plant]," and O.C.G.A. § 48-8-3(34.3) exempted "repair or replacement parts . . . for machinery which is necessary and integral to the manufacture of tangible personal property in a manufacturing plant presently existing in this state."[5] As previously noted, these code sections require that an item claimed to be exempt be used in "manufacturing," that the item be used after "manufacturing" begins and before it ends, and that the "manufacturing" occur in a "manufacturing plant."[6] See Ga. Comp. R. & Regs. 560-12-2-.62(3)(a) ("In order to qualify for the manufacturing machinery and equipment exemption . . . the property purchased . . . must . . . [b]e used in a manufacturing plant."); 560-12-2-.62(2)(g) (defining "manufacturing plant" as "any facility, site, or other area where a manufacturer engages in the manufacture of tangible personal property").

1. Petitioner's Transmission and Distribution System delivers electrical energy that has been fully "manufactured" at a generating plant

When reduced to its most basic terms, this case is really quite straightforward. The production of electrical energy, which is the only "manufacturing" that is going on in this case, begins and ends at Petitioner's generating plants. A utility's transmission and distribution system functions to safely, efficiently, and reliably deliver the electrical energy generated at the

[5] The current version of these exemptions appears in O.C.G.A. §§ 48-8-3.2(a)(3), -3.2(a)(7), -3.2(a)(15), -3.2(b).

[6] If more than one manufacturing plant is involved in making the product for sale, "[m]achinery or equipment used to convey or transport industrial materials, work in process, consumable supplies, or packaging materials . . . among [those] manufacturing plants" also can qualify for the exemption. Ga. Comp. R. & Regs. 560-12-2-. 62(4)(b).

generating facility to end users. (Aucoin, Tr. 378, 391).[7] What happens in a utility's transmission and distribution system does not result in the "manufacture" of a different electric energy from when the electric energy produced at a generating plant. (Aucoin, Tr. 391.) See Ga. Comp. R. & Regs. 560-12-2-.62(2)(h) (defining "manufacturing" as "[an operation] to change, process, transform, or convert industrial materials by physical or chemical means, into articles of tangible personal property for sale or further manufacturing [by the taxpayer] that have a different form, configuration, utility, composition, or character").

Stated a bit differently, although the undisputed evidence shows that Petitioner's Transmission and Distribution System is tightly integrated with Petitioner's generating facilities and is integral to the delivery of electric energy, it is not integral and necessary to the production, *i.e.* "manufacturing" of that electric energy. The fact is Petitioner's production and Transmission and Distribution System are tightly integrated into the entire Eastern Interconnection as well. But integration is not the issue. It is whether Petitioner's Transmission and Distribution System is necessary for the production of electric energy. And it is not.

Petitioner generates electrical energy that it sells to retail and wholesale customers. (Stip. ¶¶ 5, 17). Petitioner also sells electrical energy that Petitioner did not generate but instead purchased from third-parties like the TVA. (Stip. ¶¶ 5, 16). At an electric generating plant different forms of energy are converted into electrical energy. For example, a fuel like coal (which is a source of chemical energy) is burned in a boiler, which causes water in the boiler to turn to steam. The steam is directed toward a steam turbine, where the kinetic energy of the steam turns the turbine. The turbine shaft turns a magnetized rotor in the generator, which

[7] Indeed, in the field of power engineering (which is the electrical engineering specialty concerning the conversion of other forms of energy into electrical energy, the transmission and distribution of energy, and the utilization of electrical energy by customers), a utility's transmission and distribution system is often referred to as a power delivery system. (Aucoin, Tr. 304, 355-356).

creates a changing magnetic field that induces voltage in the windings of the generator's stator and results in electrical energy at the stator terminals. At each point where there is a conversion of energy from one form to another at the generating plant the amount of energy remains the same, except for unwanted losses. (Aucoin, Tr. 337-339, 341-342; Respondent's Exhibit 7).

So, again, going back to the starting point, the parties are in agreement that the production of electrical energy constitutes "manufacturing" for purposes of the statute and there is no dispute that Petitioner is engaged in manufacture of electric energy. It is undisputed that all of the electric energy is produced, *i.e.* "manufactured," in the generating facility. The parties are also in agreement that nothing that happens in a utility's transmission and distribution system does or can change the amount of electrical energy generated at the generating facility. (Fuchs, Tr. 256-257; Aucoin, Tr. 374). So, *a fortiori*, the "manufacturing" which the statute contemplates is completed at the generating facility.

To follow this through in detail, free electrons in the various conductors that connect the utility's plant to its customers react to the voltage produced at the generating plant by moving as an electrical current (measured in amperes), which conveys the electrical energy generated at the plant (measured in kilowatt-hours, kWh, or megawatt-hours, MWh) to the customer. (Fuchs, Tr. 214-215; Aucoin, Tr. 347). Furthermore, the amount of electrical energy a public utility generates and the amount of electrical energy that is consumed will be exactly equal, except for unwanted losses. (Robinson, Tr. 145-148; Aucoin, Tr. 361). The energy always flows in one direction – from its source at the electric generator to the load.[8] (Robinson, Tr. 70-71; Fuchs, Tr. 172; Aucoin, Tr. 347). Although the voltage levels at which electrical energy is delivered to different customers can vary, see Stip. ¶ 19, voltage does not represent a difference in the amount

[8] The "load" is the source that uses the electrical energy. (Fuchs, Tr. 172; Aucoin, Tr. 347).

of work a kilowatt-hour of electrical energy will perform. A kilowatt-hour of electrical energy generated at a plant will perform the same amount of work whether that energy is consumed by a residential customer running a fan as opposed to an industrial customer who may be running a large lathe, and it will perform that work in the same way. (Robinson, Tr. 113-114, 139, 153-154; Fuchs, Tr. 261, Aucoin, Tr. 336, 368-369). In other words, a kilowatt-hour of electrical energy produced at a generating facility is both the source of and identical to a kilowatt-hour of electrical energy consumed by a utility's customer.[9] As Mr. Robinson testified at trial during cross-examination:

> Q: So, for example, a kilowatt-hour of electrical energy delivered to me at my house at 120 volts, is identical to a kilowatt-hour of electrical energy delivered to an industrial customer at 25 kilovolts?
>
> A. A kilowatt-hour is a kilowatt-hour.
>
> Q. So a kilowatt-hour is a kilowatt-hour regardless of the voltage.
>
> A. Correct.

(Robinson, Tr. 113).[10] Electrical energy has been fully "manufactured" at the generating plant, and what happens afterwards is a matter of delivery.[11] (Aucoin, Tr. 378).

For example, in an electric power system, large amounts of electrical energy often need to be conveyed from the utility's generating plants to customers over long distances. (Fuchs, Tr. 226-227; Aucoin, Tr. 353). When electrical energy is transmitted at higher voltages there is less energy lost during transmission, which makes delivery more efficient and economical for the

---

[9] Because Petitioner purchases some of the electrical energy that it sells from third-parties, like the TVA, the source of the energy may be another utility's generating plant. See Stip. ¶ 15.

[10] During his deposition in this case Dr. Fuchs also testified that "[o]nce you formulate the energy, it is independent of voltage. You have, say, two kilowatt-hours. I don't say at what voltage it is going to be delivered. It could be one volt, ten volts, a hundred volts, any voltage. Two kilowatt-hours, two kilowatt-hours." (Fuchs, Tr. 260.)

[11] In fact, the record reflects that some customers can receive electrical energy delivered to them at voltages that are equal to a generating plant's output voltage. (Fuchs, Tr. 249-250; Aucoin, Tr. 367; Stip. ¶¶ 18, 19, Joint Exhibit 3).

utility. (Fuchs, Tr. 227-228; Aucoin, Tr. 353-354).[12] When current is lower the diameter of conductor cables also can be smaller. (Fuchs, Tr. 228; Aucoin, Tr. 354). For these reasons a utility will use a step-up transformer to increase the voltage at which electrical energy is delivered over Petitioner's transmission lines. Electric current going through the coils on the transformer's primary side will cause a magnetic field that induces a voltage in the coils on the transformer's secondary side, and that voltage causes current to flow on the secondary side. The voltage on the secondary side will be greater than the voltage on the primary side, but the current on the secondary side will be less than the current on the primary side, such that the amount of electrical energy is the same on both sides (except for any unwanted losses).[13] (Fuchs, Tr. 218-220; Aucoin, Tr. 352-353).[14] The step-up transformer functions entirely to deliver the electrical energy generated at the plant in a more efficient and economical fashion, not to "manufacture" electrical energy.[15]

Mr. Michael Robinson, Petitioner's general manager of transmission and planning and

---

[12] The equation $P = I^2R$, where P is power in watts, I is current in amperes, and R is resistance in ohms, is used to calculate power losses in a conductor. For example, if a transmission line offers resistance of 0.01 ohms to a current of 8,333 amps moving in response to 120 volts, the power loss will equal $(8,333)^2 \times 0.01$, or 694,389 watts, which is almost 70% of the power starting out. (Fuchs, Tr. 222-226; Aucoin, Tr. 335; Respondent's Exhibit 4).

[13] When a transformer's primary and secondary sides are not physically connected there is "electrical isolation," which means electrons from the primary side do not travel over to the secondary side; all that is transmitted is electrical energy. (Fuchs, Tr. 221).

[14] Electric power can be calculated using the equation $P = VI$, where P is power in watts, V is volts, and I is current in amperes. (Fuchs, Tr. 169, 209; Aucoin, Tr. 334-335; Respondent's Exhibit 4). Accordingly, the power in a transmission line with 120 volts and 8,333 amperes of current will be 1 million watts (or one megawatt), but there will also be one megawatt of power if there are 8.333 amps of current flowing in an electrical circuit with 120,000 volts. (Fuchs, Tr. 222-228; Aucoin, Tr. 335). As electrical energy is calculated using the equation $E = Pt$, where E is energy, P is power, and t is time, (Fuchs, Tr. 209; Aucoin, Tr. 334; Respondent's Exhibit 4), power losses over a given period of time will translate directly into energy losses.

[15] Dr. Fuchs analogized what happens at a transformer to a relay race, where a runner passes a baton to another runner who then carries the baton forward. At the transformer, electric current ("the runner") conveying electrical energy ("the baton") flows in the primary side and induces an electric current ("the other runner") that conveys the same amount of electrical energy forward. (Fuchs, Tr. 228-230).

operations, testified at length regarding the specific functions performed by transformers, bushings, switches, lightning arresters, insulators, capacitors, reclosers, circuit breakers, line traps, and other items in Petitioner's Transmission and Distribution System. He also testified about the various categories into which Petitioner placed the various items included in the refunds at issue and why. On cross-examination, however, Mr. Robinson acknowledged that every one of the refund items Petitioner included in the "Transformers," "Transmission and Distribution Equipment," "Substation Equipment and Parts," "Telemetry, Process, and Quality Control," and "Conductors" categories, see Petitioner's Exhibit 35, was used to safely, efficiently, and reliably provide electrical energy produced at a generating plant to the end user, and that the items in the "Maintenance Equipment" and "Safety" categories were included because they were used in connection with items included in the other categories, such as bucket trucks or lineman's gloves used by Petitioner's personnel in order to safely maintain transmission lines or transformers. (Robinson, Tr. 135).[16]

Lastly, Petitioner is required by FERC to provide "open access transmission service" to other companies, whereby Petitioner provides an electrical connection for electrical energy that Petitioner did not generate and does not own through the use of its interconnected transmission system, thereby allowing those other companies to sell electrical energy to their customers outside of the seller's electrical system. In those situations Petitioner's transmission lines are used to transmit electrical energy that Petitioner did not generate, does not own, and will not sell. (Stip. ¶ 14; Fuchs, Tr. 271-72.) This fact alone shows conclusively that the Transmission and Distribution System is *not* necessary to the manufacturing of electrical energy. It is rather, just what its name indicates, a system for the distribution and delivery to the end-user customers of

[16] Mr. Robinson stated that some items also were used to provide electrical energy more economically.

the electrical energy that is manufactured at a generating facility.

Stated a bit differently, in order for Petitioner to prevail, Petitioner must show that the manufacturing of electric energy continues in the Transmission and Distribution System. Petitioner attempts to do this by contending that electric energy delivered to a customer at 120 volts is a different kind of electrical energy delivered to another customer at 25 kVs, such that step-down transformers in Petitioner's Transmission and Distribution System "process" the electric energy for different consumers. Petitioner also argues that Petitioner "processes" electrons throughout its Transmission and Distribution System.[17] We do not find Petitioner's arguments persuasive on either score.

2. Petitioner does not sell "different kinds" of electrical energy depending on the voltage level at which such energy is delivered to the customer

As noted above, much of the challenge in the case arises from the difficulty in applying traditional concepts of "manufacturing of tangible personal property" to the production of electric energy. Petitioner's claim that electrical energy that Petitioner produces at its generating plants that delivered to a customer at 120 volts is a different product than electrical energy delivered to another customer at 25 kVs is simply incorrect and is not supported by the evidence. Although the voltage levels at which electrical energy is delivered to different customers can and do vary, voltage does not represent a difference in the amount of work a kilowatt-hour of electrical energy will perform – a kilowatt-hour of electrical energy generated at a plant will perform the same amount of work whether that energy is consumed by a residential customer running a fan as opposed to an industrial customer who may be running a large lathe, and it will do that work in the same way in either instance. (Robinson, Tr. 113-114, 139, 153-154; Fuchs,

[17] Dr. Fuchs initially testified that everything happening in a transmission and distribution system constituted "energy conversion" but quickly abandoned that position when pressed. (Fuchs, Tr. 277, 279).

Tr. 261, Aucoin, Tr. 336, 368-369). As Mr. Robinson himself testified, "a kilowatt-hour is a kilowatt-hour." (Robinson, Tr. 113). Dr. Aucoin testified that a kilowatt-hour of electrical energy is equally useful to anyone who has a need for electrical energy. (Aucoin, Tr. 361.)

Electric energy is delivered to different customers at different voltages. What the voltage level determines is how much electrical energy generated at the generating facility is delivered every second to a particular customer by each ampere of electrical current.[18] (Robinson, Tr. 113; Fuchs, Tr. 262-263; Aucoin, Tr. 336). An appropriate voltage level thus is extremely important in order for the customer's electrical appliances, etc., to function properly and safely. For example, the typical 60 watt light bulb will work as designed when electrical energy is delivered to the bulb at 120 volts, but if the voltage were increased to 480 volts the amount of electrical energy going into the filament during any time period would be 16 times normal and burn out the filament. (Robinson, Tr. 113-115; Aucoin, Tr. 359-360). But differences in voltage do not represent a difference in the *kind* of energy delivered, the amount of work a kWh of that energy will perform, or how that work is performed. A rose is a rose is a rose,[19] and a kilowatt-hour is a kilowatt-hour is a kilowatt-hour.

A "water pipe" analogy is one way to understand how voltage and current work in an electrical circuit.[20] Pressure exerted on water in a line attached to a garden hose would cause the

---

[18] That relationship is reflected in the formula V = E/It, where V represents voltage, E represents energy (measured in kilowatt-hours or megawatt-hours) , I represents electric current (measured in amperes) and t represents time. (Respondent's Exhibit 4).

[19] Gertrude Stein, "Sacred Emily."

[20] Although Petitioner took great exception at trial to this analogy, it has given other litigants considerably less pause. See, e.g., Utilicorp United, Inc. v. Dir. Of Revenue, 75 S.W.3d 725, 728 (Mo. 2001) ("[S]ince electricity is invisible . . . , discussions of electricity tend to involve the use of analogies and figures of speech. We speak of 'currents' and 'flows' in the same way we describe water."); id. at 728 n.7 ("The parties' stipulation of facts . . . uses the water analogy: Current or 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. Voltage is analogous to water pressure in a pipe.") Analogies are never perfect, but they can be helpful.

water to move, come out of a garden hose, and convey kinetic energy to, for example, a kite that was being washed, thereby performing work. The greater the pressure, the more energy that would be conveyed to the kite by the water coming out of the hose. Too much water pressure could cause the kite to tear. (Aucoin, Tr. 349; Fuchs, Tr. 266-267). Similarly, voltage across a closed electric circuit will cause electrons to move as a current, which conveys electric energy. Increasing voltage across a circuit with a fixed resistance will increase the current and the amount of energy delivered over a period of time. Too high a voltage level can cause a customer's electrical devices to be damaged or even worse problems. Voltage thus determines how the electric energy is delivered to the customer, not a question of what "kind" of electric energy the customer receives.

Another illustration from the testimony is helpful to understand the concept of voltage. Suppose one had ordered a book from Amazon. Two different drivers might deliver the book quite differently. One driver might bring the book to the door, ring the bell, and hand over the package. But the other - being a former college quarterback – might instead hurl the package toward the house, causing it to crash through a plate glass window, careening into the dining room, and smashing all the dishes in the china cabinet. In either instance the person ordering the book would have gotten the same book, but the delivery in the second situation—the "high voltage" scenario—would have been unacceptable. (Aucoin, Tr. 410-411).

Petitioner argues forcefully and quite correctly that the voltage at which electric energy is delivered to its customers is extremely important. Petitioner also correctly points out that the transformers in Petitioner's Transmission and Distribution System step up and step down the electric energy in accordance with Faraday's law just as Faraday's law applies to the generation of electric energy. But while Faraday's Law applies at transformers and at electric generators in

that at both places a changing magnetic field induces voltage, what happens at transformers and at a generating plant are fundamentally different. No energy conversion takes place at a transformer. Electric energy goes into the transformer's primary side and electric energy in the same amount comes out the secondary side (neglecting any unwanted losses). At a generating plant different forms of energy are converted first to mechanical energy and then to electric energy. So while transformers are extremely important to enable Petitioner to deliver electric energy to different customers at different voltages, transformers are not necessary to produce, i.e. to "manufacture," electric energy.

One of the biggest difficulties with Petitioner's assertion that its transformers are engaged in "manufacturing" electric energy within the meaning of the statute is that it is at odds with the common understanding of the term "manufacturing." Residential consumers of electric energy have transformers in their homes that reduce voltage in the same way as a utility's step-down transformers. For example, the consumer may have a transformer to charge up a laptop computer or a phone; his doorbell may have a transformer; and other electronic equipment may have plug transformers that reduce voltage from 120 volts to 5, 12, or 24 volts. Industrial customers also have transformers of their own that step-down voltage in the same way as the step-down transformers Petitioner has in its transmission and distribution system. (Robinson, Tr. 140-142; Fuchs, Tr. 285; Aucoin, 372-373). "While a consumer's small appliance transformers are performing the same function as the step-down transformers used by the utility company outside the home, it would be difficult to contend that a consumer using such transformers is 'manufacturing' electricity." Utilicorp United, Inc. v. Dir. of Revenue, 75 S.W.3d 725, 730 (Mo. 2001). But that is exactly what Petitioner is contending here.[21]

In sum, the evidence at trial established that "a kilowatt-hour is a kilowatt-hour"

[21] By contrast, lay persons readily understand that a home generator produces, *i.e.* manufactures, electricity.

irrespective of voltage, and that voltage simply determines how much energy is conveyed to a customer by each ampere of current every second. Electric energy is electric energy irrespective of the voltage at which it is delivered. Petitioner does not sell one product to customers whose electrical energy is delivered at 120 volts and a different product to customers whose energy is delivered at 25kV. Petitioner sells one product to all its customers—electrical energy—which it delivers according to its customers' needs.[22] See Petition, ¶ 7 ("Georgia Power is . . . engaged in the business of producing electrical energy for sale . . . ."); Stip. ¶ 5 ("Georgia Power . . . generates electrical energy it sells . . . . The company also sells electrical energy that Georgia Power did not generate . . . ."); (Fuchs, Tr. 188, referring to Petitioner's Exhibit 1: "So that's the power plant, and then we go through the transformer here. We have [a] switch gear, a circuit breaker. And then we go to the high voltage line, 230 kilovolts and here we do have a transmission customer. This customer wants to use the energy at a high voltage because he needs a lot of power, like a car manufacturer or a chemical plant, they need a lot of power.").

3. Petitioner does not "process" electrons in its transmission and distribution system for sale to its customers

Petitioner spent a significant amount of time at trial eliciting testimony that electrons are "processed" in all the conductors throughout the Petitioner's Transmission and Distribution System so as to acquire a new "character" – the ability to do work. Consolidated Pre-Trial Order, ¶ (5). See Ga. Comp. R. & Regs. 560-12-2-.62(2)(h) ("manufacturing" includes "[an operation] to . . . process . . . industrial materials by physical or chemical means, into articles of tangible personal property for sale or further manufacturing [by the taxpayer] that have a

[22] Although it is advantageous to a utility to transmit electric energy over distances at higher voltages, reducing voltage to subtransmission levels also lets a utility avoid having to place large transmission towers in or around communities, as well as putting the subtransmission circuits closer to areas where the energy demand may be lower. (Aucoin, Tr. 357-358).

different . . . character"). Although this testimony was most interesting from a scientific perspective, it is not relevant to the decision in this case. We concur with Petitioner's statement that certain " ... philosophical disagreements regarding phenomena that cannot be physically observed have no bearing on Petitioner's entitlement to the Refund Claims at issue in this case."[23]

The terms "processing" and "character" may not be stretched so far as to render them unrecognizable. See Graham v. Hanna, 297 Ga. App. 542, 545 (2009) ("[S]tatutes should be read according to the natural and most obvious import of the language, without resorting to subtle and forced constructions, for the purpose of either limiting or extending their operation."

---

[23] Both experts agreed that the electrons within the conductors in a utility customer's home or business are exactly the same as the electrons in the utility's delivery system, and they will react to voltage the same way the electrons in the utility's system react to convey electrical energy once a circuit is completed between the generating plant and the customer's electrical equipment, e.g., by flipping a light switch. (Fuchs, Tr. 213-215, 231, 235-236; Aucoin, Tr. 370-371). Consequently, while the customer wants the electrical energy conveyed by the electrons flowing in Petitioner's electrical current, both experts agreed that an electron does not have to find its way through a utility's transmission and distribution system to a customer's load (like a lamp) in order for electrical energy to reach that load. (Fuchs, Tr. 213-215, 231, 235-236; Aucoin, Tr. 370-371). In fact, at the electrical connecting point between a utility's system and a customer's home or business, electrons moving as current can cross over from the utility's side to the customer's side, but only for a very short distance and only momentarily. When that occurs an electron from the customer's side of the circuit must move to the utility's side, because there has to be a balance of electrons on aggregate crossing that boundary. When the AC current direction changes the movement of electrons is in the opposite direction. (Fuchs, Tr. 274-277; Aucoin, Tr. 371-372). Petitioner is not selling electrons—Petitioner is selling the energy that is transmitted by the motion of those electrons.

Dr. Fuchs testified that electrons are being "processed" in a utility's transmission and distribution system because when they are subjected to voltage across a closed electrical circuit they acquire a new "character." But Dr. Fuchs also stated that if one raises a pen above the tabletop on which it rests the character of the pen has been changed, because the pen can now deliver kinetic energy to the tabletop if the pen is dropped. He also testified that driving a car onto an expressway and accelerating up to 60 miles per hour changes the character of the car because of the kinetic energy the car can then deliver to anything the car might hit. (Fuchs, Tr. 216-218.) Moreover, according to Dr. Fuchs, "processing" occurs throughout the utility's transmission lines and other conductors, through its distribution system, to the last pole transformer outside a customer's house, into the customer's house, and to the light bulb of a lamp the customer has switched on. (Fuchs, Tr. 236, 234.) Dr. Fuchs also testified that "processing" was taking place in the courtroom when the lights were on. (Fuchs, Tr. 233-234.)

Dr. Aucoin, on the other hand, explained that the free electrons in the conductors act in response to the external force placed upon them by voltage produced at the terminals of a generator; they do not take on a different character. Dr. Aucoin explained that this was similar to lifting a pen above the tabletop on which the pen had rested. The character of the pen does not change when it is moved from one position to another. Voltage is the work needed to move a charge from one location to another, and there is nothing about that concept that says the electron changes character – it has just changed position. Dropping the pen changes its position because it is under the influence of an external force, in that case gravity. Likewise, an electron will move in response to an external force, in that case voltage. (Aucoin, Tr. 380-381.)

(quoting Trax-Fax, Inc. v. Hobba, 277 Ga. App. 464, 466 (2006))). What Petitioner's expert Dr. Fuchs characterized as the "processing" of electrons in Petitioner's Transmission and Distribution System happens anywhere a consumer uses electrical energy purchased from Petitioner. Such "processing" takes place in the wiring of every home, factory, or business using electrical energy when the switch to an electrical device is flipped on. It is happening in the circuitry of my computer while I type this very sentence. To say such "processing" constitutes manufacturing stretches the fabric of the statutory language past the breaking point. "The judiciary has the duty to reject a construction of a statute which will result in unreasonable consequences or absurd results not contemplated by the legislature." Haugen v. Henry County, 277 Ga. 743, 746 (2004). It would require a tortured construction of the statute indeed to conclude that the General Assembly meant that what is going on in the home of every one of Petitioner's retail customers qualifies as "manufacturing" when it happens in Petitioner's transmission and distribution system. See Utilicorp, 75 S.W.3d at 730 ("While a consumer's small appliance transformers are performing the same function as the step-down transformers used by the utility company outside the home, it would be difficult to contend that a consumer using such transformers is 'manufacturing' electricity."). Common sense and the common and ordinary meaning of words tells us that any such "processing" that occurs cannot constitute "manufacturing" of electric energy.

4. The NAICS Codes incorporated into the Department's regulation make clear that Petitioner is engaged in "manufacturing" only at its generation facilities

The evidence in this case established that what happens in Petitioner's Transmission and Distribution System does not meet the general definition of "manufacturing" contained in Regulation 560-12-2-.62(2)(h). But the Department's regulation also addresses the activities of electric utilities specifically, and it does so in a way that makes clear Petitioner is engaged in

"manufacturing" only at its generation facilities.

Under Regulation 560-12-2-.62(2)(i), "manufacturers" include persons or businesses that are "[c]lassified as a manufacturer under the 2007 North American Industrial Classification System Sectors 21, 31, 32, or 33; or specific North American Industrial Classification System codes 22111, or 511110" or are "[g]enerally regarded as being a manufacturer." During the process of promulgating the Department's regulations, Petitioner specifically requested that the proposed regulation be changed to include the reference to Sector 22111, stating the following:

> The proposed Regulations provide the following two definitions of the term manufacturer: "(1) [a person or business] [c]lassified as a manufacturer under the 2007 North American Industrial Classification System Sectors 21, 31, 32, or 33; or (2) [a person or business] generally regarded by the public as being a manufacturer." NAICS Sector 21 includes mining, quarrying, and oil and gas extraction. Sectors 31, 32 and 33 include manufacturers of various items of goods, such as textiles, food products, wood products, chemicals, plastics, automotive parts, and so forth. Electric power generation is not included in Sectors 21, 31, 32, or 33, but rather is included in Sector 22111, Electric Power Generation. Sector 22111, Electric Power Generation, is defined in the NAICS as follows: 'This industry comprises establishments primarily engaged in operating electric power generation facilities. These facilities convert other forms of energy, such as water power (i.e., hydroelectric), fossil fuels, nuclear power, and solar power, into electrical energy. The establishments in this industry produce electric energy and provide electricity to transmission systems or to electric power distribution systems.'
>
> Georgia Power believes the Revenue Department has taken the position that electric power generation falls within the Proposed Regulations' second, "catch-all," definition of the term manufacturer, i.e., one generally recognized as such by the public. While we would agree that anyone familiar with the complex process of converting the heat energy in coal or uranium into electrical energy is "manufacturing," given the significance of the issue, the company believes it is important to specifically identify electric power generation as manufacturing in the final Regulation. This can easily be accomplished by adding NAICS Sector 22111 to the other NAICS Sectors listed in the first definition of the term.

(Stip. ¶ 27; Joint Exhibit 6).[24]

It is significant that Petitioner did not request that its Transmission and Distribution

[24] A copy of 2007 NAICS Sector Code 22111 is included as Respondent's Exhibit 10.

System be specifically identified as a manufacturing operation, even though 2007 NAICS Sector 22112 specifically addresses "operating electric power transmission systems, controlling (i.e., regulating voltages) the transmission of electricity, and/or distributing electricity." Thus the regulation, by including the reference to NAICS Sector 22111 but omitting any reference to NAICS Sector 22112, makes explicit that the "manufacture of tangible personal property" includes "operating electric power generation facilities" that "convert other forms of energy, such as water power (i.e., hydroelectric), fossil fuels, nuclear power, and solar power, into electrical energy" but does not include "operating electric power transmission systems, controlling (i.e., regulating voltages) the transmission of electricity, and/or distributing electricity." See Miller Cnty. Bd. of Ed. v. McIntosh, 326 Ga. App. 408, 413 (2014) (it is an established principle of statutory construction that *expressio unius est exclusio alterius*, or the express mention of one thing implies the exclusion of another); First Union Nat'l Bank of Ga. v. Collins, 221 Ga. App. 442, 444 (1996) ("The rules of statutory construction . . . are also applicable to regulations . . . .").

The NAICS codes are also instructive more generally in that they illustrate that, as generally understood, the activities of generating electric energy and transmitting and delivering that energy are fundamentally separate activities. It is helpful to keep such broader understandings in mind when interpreting how a tax statute such as that in issue here should be applied.

5. Under Petitioner's theory of the case, every electric membership corporation would be able to claim the machinery and equipment used in its power delivery systems as tax-exempt, even if the EMC does not produce any electrical energy

One of the problems with Petitioner's argument that the transmission and distribution system can be exempt from taxation as a manufacturing facility is the absurd result to which such

a position leads. Both of the expert witnesses in this case agreed that in the case of a utility that does not generate any electrical energy but merely transmits and distributes electrical energy that it purchases from someone else, what occurs in that utility's transmission and distribution system is in no relevant way different from what occurs in Petitioner's Transmission and Distribution System. (Fuchs, Tr. 270-271; Aucoin, Tr. 373). Petitioner's customers in this state include numerous EMCs (Stip. ¶ 12), and Mr. Robinson testified that for the most part Georgia's EMCs do not own any electric generation units and purchase their energy requirements from others, including Oglethorpe Power, Southern Power, and Petitioner. (Robinson, Tr. 144-145). Petitioner claims it operates an "integrated generation, transmission and distribution system [that] constitutes a single machine designed . . . to provide useful electrical energy at a customer's home or place of business," see Petition ¶ 14. But under Petitioner's theory of this case, a company that did not produce a single watt-hour of electrical energy, like an EMC, could still be "manufacturing" electrical energy and qualify for these exemptions. Again, such an interpretation simply does not accord with a common sense understanding of the language of the statute, could not have been the General Assembly's intent, and must be rejected. Again, this example illustrates how the transmission and delivery of electric energy is an activity that is fundamentally different from the production (*i.e.* manufacturing) of electric energy.

6. Case law supports the Respondent's position in this litigation

Several cases from other jurisdictions are helpful in their analysis of these issues. In Utah Power & Light Co. v. Pfost, 286 U.S. 165 (1932), the U.S. Supreme Court considered whether, under the Commerce Clause analysis prevailing at the time, a utility's electric generating was sufficiently distinct from what occurred in its transmission and distribution system (which crossed state lines) to permit Utah constitutionally to impose a tax on the former. After

reviewing the underlying science, id. at 178-180, the Court stated that "the generator and the transmission lines perform different functions, with a result comparable[] . . . to the manufacture of physical articles of trade and their subsequent shipment and transportation in commerce." Id. at 180-81.

In a legal context closer to that which is in issue here, the Supreme Court of New York considered what items used by a utility in its generation, transmission, and distribution operations would qualify for a sales tax exemption applicable to "property [purchased] for use or consumption directly and exclusively in the production of tangible personal property to be produced for sale by manufacturing [or] processing." Niagara Mohawk Power Corp. v. Wanamaker, 144 N.Y.S.2d 458, 460 (N.Y. App. Div. 1955).[25] The court concluded that

> [p]roduction stops at the generator, which produces electricity at a voltage which is (1) already too high as far as the residential consumers are concerned, and (2) saleable so far as concerns the industrial consumers [who can receive their energy at transmission levels[26]]. The generator puts out electricity at 13,000 volts, which the transformers immediately increase to 23,000 and 115,000 volts. The factories purchase electricity at those voltages . . . . Certainly so far as they are concerned, the transformers are used in distribution. With respect to the residential consumers, the question may be asked, why does [the utility] increase the voltage from 13,000 volts? That is already more than they can use. The voltage is radically increased, and then gradually decreased, simply to facilitate distribution. We conclude that the disputed items subsequent to the generator [including transformers, conductors, voltage regulators, circuit breakers, and similar equipment] are used in the distribution and not in the production of electricity.

Id. at 463.

The Iowa Supreme Court reached a similar conclusion in Peoples Gas & Electric Co. v. State Tax Comm'n, 28 N.W.2d 799 (Iowa 1947). Iowa's excise tax exempted certain "industrial

---

[25] The phrase "tangible personal property" was defined in the act to include electricity. Id.

[26] The record in this case reflects that some electric utility customers can receive electrical energy delivered to them at voltages that are equal to a generating plant's output voltage. (Fuchs, Tr. 249-250; Aucoin, Tr. 367; Stip. ¶¶ 18, 19, Joint Exhibit 3). There also are electric utility customers who can receive electrical energy delivered to them at transmission level voltages. (Fuchs, Tr. 252; Aucoin, Tr. 367)

materials and equipment . . . which are directly used in the actual fabricating, compounding, manufacturing or servicing of tangible personal property intended to be sold ultimately at retail." Id. at 803. The court noted that "[w]e have held the generation of electricity to be manufacturing. The Commissioner concedes the equipment and materials purchased for the power plant and directly used in generating electricity would be directly used in manufacturing. The issue at this point involves only the electric distribution system." Id. at 808. The taxpayer in that case argued, much like Petitioner, that "the process of manufacturing electricity continues throughout its transmission until it passes through the last transformer before it reaches the customer."[27] Id. The court rejected that argument, using an analogy appropriate to the times:

> [T]he legislature said in [the statutes] that for the purposes of this act electric energy is tangible personal property. As thus considered its distribution 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 sufficient ice for each homeowner's needs is not a processor. He merely delivers the ice. . . . The ice is transported from the plant in large blocks, and the electric energy is transported at high voltages[] . . . because such methods of transportation are the most practical.
>
> We hold the poles, wires, transformers, and other equipment in the distribution system were not directly used in manufacturing . . . the electric energy within the meaning of the processing exception.

Id. at 809.

The Missouri Supreme Court has tackled these same issues more recently. In Utilicorp United Inc. v. Dir. of Revenue, 75 S.W.3d 725 (Mo. 2001), that court considered whether certain items used by utilities in their transmission and distribution systems fell within a sales tax exemption for "[m]achinery and equipment . . . used directly in manufacturing, mining or fabricating a product which is intended to be sold ultimately for final use or consumption." Id. at

---

[27] Petitioner actually is being more aggressive, asserting that "manufacturing" continues past the last pole transformer and to the customer's meter.

727 n. 4. The court identified the items in question as "[s]tep-down transformers . . . used to reduce the voltage and increase amperage, predominately at substations or on poles or transformer pads near the customers' meters"; "a small transformer . . . located in a power substation to take measurements of currents and voltages"; capacitors; and "[s]upervisory control and data acquisition hardware . . . used to provide information back from the distribution system to the control equipment for the generator in order to adjust the generators' outputs to the needs of the customers." Id. at 726-27. The court noted that "[t]he parties agree that generating electricity is manufacturing within the meaning of the statute . . . . The question is whether the transmission and distribution of electricity are also 'manufacturing.'" Id. at 727.

The Missouri Supreme Court answered that question with a resounding "no":

> [N]one of the utilities can show that, through the use of this equipment, the utility makes something new and different, whether it generates the electricity or buys the electricity from others. Though volts and amperes may change during the transmission and distribution, not every change is "manufacturing." The total amount of electric energy does not change very much from the point of generation to the points of use. Electric energy is sold by its producers and distributors in quantities of power over a time period, commonly expressed as "kilowatt-hours" or "megawatt-hours." A kilowatt of power can be 100 volts at 10 amperes, or it can be 1,000 volts at one ampere. The product is the same [in either case] . . . .

Id. at 729 (internal citations omitted). The court also was unimpressed by the utilities' contention that the equipment should qualify because all their operations were part of an "integrated plant," the court pointing out that not all the electricity they transmitted and distributed actually was generated by them. Id. The court ended its opinion with the following observation:

> [The equipment at issue includes] step-down transformers used to reduce the voltage to a level that customers, including residential customers who need only 120-240 volt service, demand. It might be noted that consumers have transformers of their own in their homes that perform the same function for various appliances – these are the small transformers found at the plugs of various electrical devices that reduce the voltage to the six or nine or whatever small

> voltage the device uses. While a consumer's small appliance transformers are performing the same function as the step-down transformers used by the utility company outside the home, it would be difficult to contend that a consumer using such transformers is "manufacturing" electricity.

Id. at 729-730.

It is true that Niagara Mohawk Power, Peoples Gas & Electric Co. and Utilicorp all arose under statutes that incorporate the concept of "used directly" in manufacturing while the Georgia statute now uses the broader concept of "necessary and integral" to such manufacturing. But, as Petitioner correctly notes, the new and broader formulation of the exemption contained in the statute did not erase forty-five years of case law determining what constitutes manufacturing for the purposes of the machinery exemption. See, e.g., Hawes v. Institutional Packers of America, Inc., 117 Ga. App. 243 (1968) (blending and packing tea and other beverages) and Chilivis v. Marble Products Co., 135 Ga. App. 187, 188-89 (1975) (pulverizing, washing and heating marble to produce calcium carbonate). Accordingly, the underlying reasoning of Niagara Mohawk Power, Peoples Gas & Electric Co. and Utilicorp continues to be persuasive precisely because these cases focus on what is the nature of manufacturing in the production of electric energy and when does that manufacturing begin and when does it end.

Stated a bit differently, there is no dispute that Petitioner's Transmission and Distribution System is highly integrated with Petitioner's generating facilities and that a smoothly operating Transmission and Distribution System is essential in order to enable Petitioner to safely, efficiently and reliably deliver electric energy (not all of which Petitioner produces) to its end user customers. But that is not the question which the statute poses. The question is whether the Transmission and Distribution System is necessary for the manufacture of the electric energy that Petitioner produces. The answer to that question is no.[28] And, again, note that at least some

[28] Just as EMCs generally do not own or operate generating facilities, no one has suggested that a utility could not

of Petitioner's customers purchase electric energy from Petitioner at the voltages that such electric energy is distributed through Petitioner's Transmission and Distribution System. So it is indisputable that the Transmission and Distribution System is not necessary for the manufacture of electric energy. It may be necessary for distribution of that energy, but it is not necessary for its manufacture.

To support its position, Petitioner principally relies on two other cases in which Dr. Fuchs has testified. Although each arose in slightly different statutory contexts, each held that transmission and distribution systems engage in industrial processing such that electrical energy is not in a final form until it reaches the end of the transmission and distribution system. See, Detroit Edison Co. v. Dep't of Treas., 844 N.W.2d 198, 207 (Mich. Ct. App. 2014) ("[W]e find it indisputable that electricity is not a finished good ready for sale until it reaches the meters of DTE's customers. The expert testimony and affidavits clearly indicated that electricity is not in usable form for customers, and is in fact a danger or hazard to customers, until it completes its passage through the transmission and distribution system."); Pub. Serv. Co. v. Dep't of Revenue, No. 10CA1026, 2011 Colo. App. LEXIS 1518, at *30 (Colo. Ct. App. Sept. 15, 2011) ("Here, the trial court accepted the testimony of taxpayer's expert witness that the manufacture of electricity is not completed until the electricity is in a form usable by the retail customer, which occurs at the last step-down transformer prior to entering the consumer's meter. The record supports this conclusion."), *reversed on other grounds* Dep't of Revenue v. Pub. Serv. Co., 330 P.3d 385 (Colo. 2014) (reversing based on the court's holding that electricity is a service under the Colorado statute and is not tangible personal property in Colorado).

---

elect to limit itself to producing electricity and sell that electricity to others, such as EMCS, to effectuate distribution through the other's distribution system. Indeed, that is precisely what is done when homeowners such as Dr. Fuchs produce electricity in roof top photo-voltaic cells on their homes and sell that electric energy into the distribution network provided by utilities such as Georgia Power. Stip. ¶ 14.

Although interesting reading, Pub. Serv. Co. v. Dep't of Revenue, of course has been reversed. This leaves the Detroit Edison case as the most significant authority cited by Petitioner in support of its contentions.

In Detroit Edison the taxpayer claimed that equipment purchased for use in the production of electricity qualified for exemption from Michigan use tax under an industrial processing exemption. The Michigan law exempted from tax "the activity of converting or conditioning tangible personal property by changing the form, composition, quality, or character of the property for sale at retail or for use in manufacturing of a product to be ultimately sold at retail. Industrial processing begins when tangible personal property begins movement from the raw materials storage to begin industrial processing and ends when finished goods first come to rest in finished goods inventory storage." Mich. Comp. Laws Ann. § 205.94o(7)(a).

The Michigan Department of Treasury agreed that Detroit Edison was an industrial processor and that the production of electrical energy was an industrial process. The Michigan Department of Treasury argued that Detroit Edison's transmission and distribution system equipment was used solely for the transportation of electrical energy to the customer. Like the Respondent in this case, the Michigan Department of Treasury argued that "the production of electricity ceases at the point it reaches the last transformer in the generating plant, and that all processes after that point are merely processes used to transport the finished product, without change, to the customer." Detroit Edison v. Dept. of Treas., Case No. 10-104-MT, March 28, 2012. In support of its contentions, the Michigan Department of Treasury introduced affidavit testimony of its expert to the effect that "stepping up or down voltage does not change the composition of electricity" and that "although voltage and current ranges are repeatedly altered, the power available – current times voltage – always remain the same." Id. Not persuaded by

this conclusory testimony, the Michigan Court of Claims in reliance on the affidavit testimony of Professor Fuchs concluded that "the altering of voltage and current constitutes a change in the composition, combination, or character of electricity, regardless of whether the measurement of available power remains the same." Id. Accordingly, the Court of Claims ruled that Detroit Edison's T&D System qualified for the Michigan use tax exemption for industrial processing equipment. Id.

But on close reading, the decision in Detroit Edison is not persuasive for several reasons.[29] First the applicable legal standard in that case is quite different from what is at issue here. The court concluded that Detroit Edison was engaged in "industrial processing" beyond its generating plants, stating that the statutory definition of that term was "sufficiently broad and expansive to encompass voltage and current changes in electricity as it travels through the transmission and distribution system," Id. at 207. This is quite different from analyzing whether a transmission and distribution system is "necessary and integral" for the manufacture of electric energy as required by the Georgia stature.

Moreover, the opinion gives no indication the court understood certain important facts that are critical for the resolution of this case. For instance, the court says "electricity is not a finished good ready for sale until it reaches the meters of [the utility's] customers," Id. While it is certainly true that retail customers cannot use electric energy until it is stepped down by transformers, the opinion also contains no indication that the court realized as the record shows in this case that some customers can receive electrical energy delivered to them at voltages equal to a generating plant's output voltage. See Niagara Mohawk Power Corp. v. Wanamaker, 144 N.Y.S. 2d 458, 448 (N.Y. App. Div. 1955) ("[p]roduction stops at the generator, which produces

[29] Detroit Edison is currently on appeal and will be heard by the Michigan Supreme Court. See Detroit Edison Co. v. Dep't of Treasury, 853 N.W.2d 280 (Mich. Oct. 1, 2014)(application for leave to appeal granted).

electricity at a voltage which is . . . [obviously] saleable as far as concerns [certain] consumers"). Nor does the court in Detroit Edison appear cognizant of the fact consumers have their own transformers that perform the same function as a utility's – such as transformers used to recharge cellphones, or those in doorbells, or those in electric razors – so what the utility was calling "industrial processing" also occurred in the homes of the utility's customers. Moreover, as far as the opinion reflects, there is no evidence that Detroit Edison was required to prove that its entire service area constituted a single "manufacturing plant" in order to qualify for the exemption at issue in that case.

In summary, the Detroit Edison decision involves different legal and factual landscapes from the case before this Tribunal.

F. Petitioner's generating facilities and its Transmission and Distribution System should not be viewed as constituting a single "manufacturing plant" encompassing virtually the entire state of Georgia

Under Regulation 560-12-2-.62(3), "[i]n order to qualify for the manufacturing machinery and equipment exemption in O.C.G.A. § 48-8-3(34), . . . the property purchased or leased must . . . [b]e used in a manufacturing plant," which is defined as "any facility, site, or other area where a manufacturer engages in the manufacture of tangible personal property." Ga. Comp. R. & Regs. 560-12-2-.62(2)(g). Petitioner has alleged that "Georgia Power's integrated generation, transmission and distribution system constitutes a single machine designed for one purpose; to provide useful electrical energy at a customer's home or place of business when a circuit is completed by the customer." See Petition ¶ 14. See also Consolidated Pre-Trial Order, ¶ (5) (claiming that Petitioner has "an integrated manufacturing plant").

Petitioner's generation facilities and its Transmission and Distribution System stretch into 155 of Georgia's 159 counties and include over 670,000 transformers, more than 1,700

substations, and tens of thousands of transmission and distribution lines located throughout the state, some on land where Petitioner has only an easement, right-of-way, or permit to use a public right-of-way. (Stip. ¶¶ 7, 8, 9, 10, 11, 20, 46).[30] Petitioner's contention that its Transmission and Distribution System is part of a single "plant" that includes Petitioner's generating facilities would convert Petitioner's entire service area into an one enormous "plant" covering virtually the whole state like a spider's web. We do not think this is what the General Assembly intended when it used the term "manufacturing plant." To the contrary, we think what the General Assembly meant that a "plant" for purposes of generating electricity would be what one would refer to in ordinary parlance -- *i.e.* a "generating facility" is a "plant."

The Kansas Supreme Court rejected Petitioner's argument in sales tax litigation in a setting similar to that here. In holding that a tax exemption for machinery and equipment was used in a "manufacturing or processing plant or facility" did not apply to items an electric utility used in its transmission and distribution system, the court said:

> The [Kansas Revenue Department] contends that . . . the Taxpayer's argument would convert its entire service area, which includes private property on which the Taxpayer has easements, into a giant workshop (or a giant plant or facility covering half the state) belonging to the Taxpayer.
>
> We agree that it is not a reasonable interpretation of the terms "plant" or "facility" to extend the physical boundary of the generating plant along the easements used for electrical lines. *In the context of electricity generation, the ordinary meaning of the terms "plant or facility" implies the electrical generating plant itself and not transformers, substations, lines, and poles which are located outside the boundaries of the generating plant and which may be located many miles away from the plant and on land where the utility has only an easement.*

In the Matter of the Appeal of Western Resources, Inc./Kansas Gas & Electric Co., 281 Kan.

[30] Because Petitioner's entire Transmission and Distribution System is interconnected with Petitioner's generating facilities through its transmission lines, this case does not present the question of whether non-contiguous facilities can constitute a "single" manufacturing plant for purpose of these exemptions. Cf. Kan. Stat. Ann. § 79-3606(kk)(2)(C) (2013) (defining "manufacturing or processing plant or facility" for purposes of sales tax exemption as "a single, fixed location owned or controlled by a manufacturing or processing business that consists of one or more structures or buildings in a contiguous area where integrated production operations are conducted to manufacture or process tangible personal property to be ultimately sold at retail.")

572, 578-79 (2006) (emphasis added). While the statutory contexts are different, the logic of how we apply the definition of "plant" in the context of electric power generation is instructive. See also Stop 'N Save, Inc. v. Dep't of Revenue Servs., 212 Conn. 454, 460 (1989) ("We see no reason why, in interpreting [Connecticut's sales tax] regulation, the trial court could not have ascribed to the term 'manufacturing facility' its ordinary meaning and commonly approved usage."). The Kansas Supreme Court also explained that

> [the tax statute] must be interpreted strictly because it is a tax exemption statute and, under such an interpretation, [even] if the manufacturing process takes place at a location other than the plant or facility, the sale of machinery and equipment which perform that process is not exempt from sales tax. In this case, the transformers, substations, lines, and poles which are located outside the boundaries of the electricity generation plant itself do not fall within the common meaning of the term "plant or facility."

Id. at 581. See also Stop 'N Save, 212 Conn. at 460 ("[I]f the taxpayers were to prevail in their contention that a 'manufacturing facility' is any place where a manufacturing production process is carried on, it would render superfluous and meaningless the sentence in [the regulation] which states that a 'manufacturing production process shall occur solely at an industrial plant.'").

By like reasoning, neither the statute nor the Department's regulation should be read to treat Petitioner's thirty-six generating facilities and its entire Transmission and Distribution System as one huge "manufacturing plant." With exceptions not applicable here, "[i]n all interpretations of [Georgia] statutes, the ordinary signification shall be applied to all words." O.C.G.A. § 1-3-1(b). In every day parlance, one refers to "Plant Hatch" or "Plant Boulevard." Petitioner itself does so. The ordinary meaning of the term "plant" in this context must mean Petitioner's several electric generation facilities, not Petitioner's combined generating facilities and Transmission and Distribution System.

Statutes must be interpreted to achieve legislative intent. "The judiciary has the duty to

reject a construction of a statute which will result in unreasonable consequences or absurd results not contemplated by the legislature." Haugen v. Henry County, 277 Ga. 743, 746 (2004). So we simply cannot agree that Petitioner operates one giant "manufacturing plant" that runs alongside roads, extends down into residential neighborhoods, and would rarely be far from sight in most developed areas of this state. Again, the fact that Petitioner's Transmission and Distribution System can and does deliver electic energy that Petitioner does not produce also requires the conclusion that Petitioner's facilities cannot be viewed as one huge "plant." And that Petitioner's generating facilities and Transmission and Distribution System are in fact separate activities is indicated by the fact that they are described by two distinct NAICS codes. Likewise, the General Assembly must have intended the term "manufacturing plant" when applied to Petitioner to refer to Petitioner's several generating facilities, not its entire generating and distribution facilities combined as one immense "plant."

There is no question that Petitioner operates an incredibly sophisticated, highly integrated enterprise that produces electric energy and delivers that energy to a myriad of customers over an immense service area. But the fact that Petitioner's enterprise is highly integrated does not turn all of the various components of that system into one huge "plant" for purposes of the sales tax exemption. If integration were the sole test for determining what constitutes a "plant" then the entire Eastern Interconnection could equally be viewed as a single "plant." Rather, it makes a great deal more sense to interpret the statute using the normal and customary usage of the term "plant" to refer to each of Petitioner's several generating facilities, which is where Petitioner manufactures electric energy that it sells, and to interpret the statutory exemption accordingly. To accept Petitioner's argument that Petitioner's "plant" includes the bulk of the state of Georgia just does not accord with the usual and customary understanding of those terms.

V. Summary

As the record amply shows, Petitioner operates a sophisticated, highly integrated enterprise in which it manufactures and sells electric energy to both retail and wholesale customers over an immense service area. The statute in question exempts from Georgia sales and use tax purchases that Petitioner makes of "machinery and equipment" that is "necessary and integral" to the "manufacture" of "tangible personal property" in a "manufacturing plant" within this state. The record shows that Petitioner's Transmission and Distribution System is highly integrated with Petitioner's generating facilities and that such integration is critical in order for Petitioner to safely, reliably and efficiently deliver electricity that it manufactures to its customers. But the record also shows that while the Transmission and Distribution System is highly integrated with Petitioner's generating facilities at which the electric energy is manufactured, it is not necessary for such manufacturing which begins and ends at the Petitioner's thirty six generating plants.

VI. Conclusion

For the reasons discussed above, this Tribunal upholds the Commissioner's denial of the refunds sought by Petitioner. Judgment is therefore entered in favor of Respondent and against Petitioner.

SO ORDERED, this 5th day of January, 2015.

CHARLES R. BEAUDROT, JR.
CHIEF JUDGE
GEORGIA TAX TRIBUNAL

GEORGIA POWER COMPANY

PETITIONER

WILLIAM M. DROZE, ESQ.
ROGER S. REIGNER, ESQ.
COURTNEY E. FERRELL, ESQ.

ATTORNEYS FOR PETITIONER, GEORGIA POWER COMPANY

SAMUEL S. OLENS, Attorney General, W. WRIGHT BANKS, JR., Deputy Attorney General, WARREN R. CALVERT, Senior Assistant Attorney General, LOURDES G. MENDOZA, Senior Assistant Attorney General, and NANCY M. GALLAGHER, Senior Assistant Attorney General

ATTORNEYS FOR RESPONDENT, DOUGLAS J. MACGINNITIE, Commissioner, Georgia Department of Revenue