REDACTED VERSION

[Date]

[Address]

Re: Formal Ruling 18-04

Dear [Deleted]:

This is a formal ruling for your client, [Taxpayer] regarding the applicability of sales tax to its purchase of certain equipment for use in its solar energy business. This ruling is based upon representations in your letter dated [Date], and the enclosed materials.

RULING

Based upon the facts presented, the BESS equipment is not used for manufacturing, but is used for storage of the manufactured product, electricity, and is therefore not eligible for exemption from sales tax.

FACTS

[Deleted] Taxpayer, proposes to install and operate a [deleted] megawatt electric generating site. Taxpayer's site will generate electricity using a solar photovoltaic generating system, termed a "PV Component" (PVC). Taxpayer will sell the electricity it generates to its customer, a local electric utility, in the form of alternating current, or "AC," as required by the customer utility.

Taxpayer's PVC will generate direct current (DC) electricity from sunlight which hits the panels of the PVC. The PVC contains a set of electrical inverters which will combine the electricity generated by its individual solar panels and convert that combined DC electricity to AC electricity. The PVC's transformers will then increase the voltage of some of the AC electricity

from [deleted] kV and transmit that higher-voltage AC electricity to Taxpayer's electric utility company customer.

Not all electricity produced by the PVC panels will be transmitted immediately to the electric utility company; a portion will be converted by the PVC back to DC and transmitted to Taxpayer's Battery Energy Storage System Component (BESS) located at Taxpayer's site.

The BESS will be charged with electricity transmitted from the PVC. The BESS will store this electricity in the BESS's lithium ion batteries as chemical energy. The BESS can later discharge its stored chemical energy by converting it through chemical reactions back to DC electricity, converting the DC to AC in the BESS inverters, and using its transformer to increase the voltage to [deleted] kV for distribution to the electric utility company.

At certain times, the BESS will also be charged with electricity transmitted to it from the electric utility company. The BESS will store that electricity in the same manner, for later discharge in the same manner, and distribution back to the utility company.

The BESS will be in constant operation except during periods of service and maintenance. It will be located near the PVC and will be connected to the PVC by control and cabling systems. The PVC may be the equipment located on your Exhibit C diagram on "Solar Equipment Pad B," and the BESS may be the equipment located on that diagram on the "Energy Storage Equipment Pad."

You have asked whether the BESS equipment components will be exempt from sales tax as manufacturing equipment; you have expressly not requested a ruling on whether the PVC qualifies as exempt manufacturing equipment.

DISCUSSION

Vermont's sales tax applies generally to sales of tangible personal property (TPP). 32 V.S.A. § 9771(1). A sales tax exemption is allowed for purchases of machinery and equipment which will be used in manufacturing TPP:

> [T]he following shall be exempt from the tax on retail sales imposed under . . . this title.
>
> * * *
>
> (14) [M]achinery and equipment for use or consumption directly and exclusively, except for isolated or occasional uses, in the manufacture of tangible personal property for sale. . . .

32 V.S.A. § 9741(14).

TPP includes electricity. 32 V.S.A. § 9701(7). Taxpayer will thus be engaged in the manufacture of TPP. Under the Department's regulations, Taxpayer's generation of electricity from solar energy would be the "industrial processing" type of "manufacturing":

> Definitions
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> B. "Manufacturing" means:
> 1. Industrial processing
> 2. Food processing
> 3. Mineral extraction
> 4. Information processing
>
> * * *
>
> C. "Industrial Processing" means an integrated series of operations, usually involving machinery and equipment, which changes the form, composition or character of tangible personal property by physical, chemical or other means.
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> * * *

Department of Taxes Regulation (Reg.). § 1.9741(14)-2(B), (C).

The language of the manufacturing equipment exemption statute quoted above limits the exemption to machinery and equipment for use "directly and exclusively" in the manufacturing process.

Most states which impose a sales tax provide an exemption or partial exemption for purchases of machinery and equipment used in manufacturing. Hellerstein and Hellerstein, State Taxation, 3d ed., Vol. II, § 14.05[1]. The states vary, however, on how broadly they view what constitutes the manufacturing operation:

> There are two distinct lines of authority followed in determining whether machinery and equipment are used directly in manufacturing. The first of the theories is the liberal "integrated plant theory," which allows tax breaks for assets that are essential to the manufacturing process. The second theory is the more narrow "Ohio Rule" or "physical change theory," which permits an exemption only for assets that physically transform raw materials during the manufacturing process.

Goodman, Marcus and Hughes, 1330 T.M., BNA, Sales and Use Taxes: The Machinery and Equipment Exemption, § 1330.04. Under the broader "integrated plant theory" manufacturing encompasses all operations which are essential to the production, including certain steps prior to and after the manufacturing process itself. Id. Under the narrower "Ohio Rule," manufacturing only includes those steps in the operation that act on the raw material to change it into the finished product. *Hellerstein*, § 14.05[2][a]. Vermont's limitation of the exemption to manufacturing equipment for use "directly and exclusively" in manufacturing follows the narrower "Ohio Rule." *Goodman*, et al., § 1330:0032, (46) "Vermont"; *see also* Wetterau, Inc. v. Dep't of Taxes, 141 Vt. 324, 328–29 (1982) ("'[M]anufacture' is generally regarded as a process of transforming raw materials into an altered form for use.").

Vermont's regulations pertaining to the manufacturing exemption illustrate its narrow scope. The manufacturing exemption covers equipment used "in the manufacture of," and this phrase is defined in the regulations as "activities that are an integral part of the manufacturing process":

> D. The phrase "in the manufacture of" shall be interpreted to exclude the periods before manufacture and after manufacture. Thus, the exemption does not extend to the procurement of raw materials except the extraction of mineral deposits and it does not extend to the storage and transportation of the finished product. Similarly, the exemption does not extend to administration, sales, advertising and other

> ancillary activities that are not an essential and integral part of the manufacturing process.

Reg. § 1.9741(14)-3(D) (emphasis added). Under this regulation, "manufacturing" does not include storage. Moreover, components which are of practical necessity to the business operation are not thereby qualified as "manufacturing" components; they must be components used as an "integral part of the manufacturing process."

> The fact that particular machinery or equipment may be considered essential to the conduct of the business of manufacturing because its use is required either by law or practical necessity does not, of itself, mean that the machinery or equipment is 'used directly' in the manufacturing operation.

Reg. § 1.9741(14)-4.B.2(b).

The electricity that Taxpayer manufactures from solar energy is either transmitted from the PVC directly to Taxpayer's customer or is transmitted to Taxpayer's on-site BESS equipment. The BESS is a device used to store the manufactured product, electricity, until it is later required. The BESS does not manufacture additional electricity; it only stores and later discharges the electricity originally manufactured by Taxpayer.[1] Storage is not part of the manufacturing process; it is a post-production activity. Devices used to store the product are therefore not used "directly in manufacturing," and are taxable:

> Post-production Activities
> Tangible personal property, including machinery or equipment, used to transport or convey the finished product from the final manufacturing operation and storage facilities or devices used to store the product are not used directly in manufacturing and are taxable.

Reg. § 1.9741(14)-8 (emphasis added).

[1] It might be suggested that the BESS is equipment used in the manufacture of electricity when its chemical electrolyte allows the flow of electrical charge between the anode and the cathode for discharge. If so, then every battery would be manufacturing equipment. In any case, even if the chemical reaction in the battery were termed "manufacturing" (which it is not) this is not the "exclusive" use of the BESS, so it could not be equipment used "directly and exclusively" in manufacturing, as required for the exemption.

Although the BESS equipment may have some physical proximity to the PVC which manufactures the electricity from the solar panel collectors, the BESS has no causal relationship to the manufacturing of electricity from the solar panels, it does not operate as an integrated and synchronized system to manufacture electricity from solar energy, and it does not guarantee the integrity or quality of the electricity manufactured from the solar energy. The BESS does not actively or passively contribute to the manufacture of electricity from solar energy, and comes into play only after the electricity production in the PVC. Therefore, under the principles enunciated by the superior court in *Alteris*, the BESS is not an integral part of the manufacturing process. Alteris Renewables, Inc. v. Vermont Dep't of Taxes, No S0208-11 CnC (Vt. Superior Ct. June 27, 2011) ("Steel and aluminum racks that hold [photovoltaic] modules at a constant 30 degrees facing solar south" were integral to manufacture of electricity from solar energy by those modules, and thus qualified as exempt manufacturing equipment.).

In addition to the limiting "directly and exclusively" language in the exemption statute, general principles of tax law require that exemptions be strictly construed. "It is established practice that exemptions from taxation are to be strictly construed, and to be denied unless shown to be within the necessary scope of the statute." Wetterau, Inc. v. Department of Taxes, 141 Vt. 324, 329-330 (1982). The reason for this strict construction is that exemptions create special treatment and place a greater burden on other taxpaying businesses:

> Statutory exemptions from taxation are subject to strict construction since they are the antithesis of equality and uniformity and because they place a greater burden on other taxpaying businesses and individuals. . . An exemption cannot be raised by implication, but must affirmatively appear, and all doubts are resolved in favor of the taxing authority and against the claimant."

Bullock v. National Bancshares Corporation, 584 S.W.2d 268, 271-2 (Texas 1979). The Supreme Court has made clear that the Department may not expand the application of an exemption beyond the strict meaning of the exemption statutes and regulations: "Any tax exemption provision must

be strictly construed against the exemption, and to doubt is to deny the exemption; the taxpayer has the burden of clearly establishing the exemption beyond a reasonable doubt." World Publications, Inc. v. Vermont Dept. of Taxes, 192 Vt. 547, 550, ¶ 8 (2012). The standard of proof, beyond a reasonable doubt, is the highest standard of proof demanded by the law. Expansion of an exemption from tax is solely in the purview of the Legislature.[2]

Based on the foregoing analysis, Taxpayer's BESS equipment is not eligible for exemption from the sales tax as manufacturing equipment.

As Taxpayer may be aware, its owners may qualify for a Vermont investment tax credit against Vermont personal income tax, in the amount of 24 percent of any Federal investment tax credit allowed for the cost of "solar energy property." 32 V.S.A. § 5822(d)(1); 26 U.S.C. (IRC) §§ 38, 46, 48. Use of the BESS for storage of electrical energy received from a utility may limit that credit, however.[3]

GENERAL PROVISIONS

Issuance of this ruling is conditioned upon the understanding that neither the taxpayer nor a related taxpayer is currently under audit or involved in an administrative appeal or litigation concerning the subject matters of the ruling. This ruling is issued solely to the taxpayer and is limited to the facts presented, as affected by current statutes and regulations.

Other taxpayers may refer to this ruling, when redacted to protect confidentiality, to see the Department's general approach, but the Department will not be bound by this ruling in the case of any other taxpayer or in the case of any change in the relevant statutes or regulations.

[2] Commercial-scale battery storage for solar energy is a relatively recent development. Energy storage "has the ability to impart flexibility to the grid." W. Atkinson, "Utility-Scale Storage: Four Utilities, Four Strategies," Fortnightly, Vol. 154, No. 1 (Jan 2016); *see also* "Fact Sheet: Obama Administration Announces Federal and Private Sector Actions on Scaling Renewable Energy and Storage with Smart Markets," The White House (June 16, 2016); K. Wojcik and A. Levinson, "Energy Storage: The Future of Cleantech Has Arrived," J. of Multistate Taxation and Incentives, (Sept. 2015); J. Sharpe III and B. Hearne "Battery Energy Storage System Overview," Public Utilities Fortnightly, Vol. 130, No. 2 (July 15, 1992).

[3] The IRS recently ruled that a solar energy "AC battery with an inverter that will convert solar electricity between AC and DC so the battery can charge and discharge the solar electricity" is only "qualified solar electric property," qualified for the investment tax credit, if "100 percent of the energy used by the Battery [is] derived from the sun" and "If this is not the case, the Battery does not meet the definition of 'qualified solar electric property' in the Code." Internal Revenue Service Private Letter Ruling PLR 201809003 (March 2, 2018).

This ruling will be made public after deletion of the taxpayer's name and any information which may identify the taxpayer. A copy of this ruling showing the proposed deletions is attached, and you may request within 30 days that the Commissioner delete any further information that might identify the taxpayer. The final discretion as to deletions rests with the Commissioner.

You have the right to appeal this ruling within 30 days. 3 V.S.A. §§ 808, 815.

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Emily Bergquist Date

Approved:

Commissioner signed the original ruling on May 22, 2018.

_____ _____

Kaj Samsom Date
Commissioner of Taxes