NOTICE OF MODIFICATION TO
PRIVATE TAXPAYER RULING LR17-009

April 2, 2019

Pursuant to Arizona Revised Statutes (A.R.S.) § 42-2101(C)(2), the Department is hereby giving you notice of MODIFICATION to Private Taxpayer Ruling LR17-009 issued in response to your original letter to the Department dated December 8, 2016 requesting a ruling on behalf of your client *** ("Taxpayer"). Specifically, you requested a ruling on the application of the Arizona Transaction Privilege Tax ("TPT") to Taxpayer's gross proceeds of sales or gross income derived from the installation of solar power plants.

The Department issued Private Taxpayer Ruling LR 17-009 on April 28, 2017 and held, in part, that Taxpayer may only deduct installation receipts from its tax base where those receipts related to the installation of exempt machinery and equipment that also had independent functional utility ("IFU"). However, further analysis and research has made it necessary for the Department to revise and clarify this position.

The changes in this modification applies from and after the date of the original ruling, April 28, 2017. Save and except for the changes made herein LR 17-009 remains unchanged.

ISSUE:

Whether the exempt machinery or equipment also have IFU and qualify for the exemption under A.R.S. § 42-5075(B)(7).[1]

SUMMARY OF FACTS:

All facts as presented in Private Taxpayer Ruling LR17-009 are incorporated herein by reference.

RULING:

The Department Rules as follows:

The Department's rulings related to issues 1 to 3 under LR 17-009 remain unchanged.

[1] Issues 1 to 3 in LR 17-009 remain unchanged.

4. Taxpayer may only deduct installation receipts from its tax base where those receipts relate to the installation of exempt machinery and equipment that also have IFU. This means the exempt machinery and equipment must be able to operate without attachment to real property or must be attached to real property in a nonpermanent manner. In this case, a common feature of the installation of the various systems is that they have to be stabilized on concrete pads, vaults or foundations that are of a permanent nature. The gross receipts or gross income derived from the installation of exempt machinery and equipment related to nonpermanent attachment or connection to such foundation, concrete pad or vault or other modifications are exempt. However, the gross receipts or gross income derived from the installation of the permanent concrete pad, vault or other modification work remains taxable.

DISCUSSION AND LEGAL ANALYSIS:

4. Whether exempt systems also have IFU so that the receipts from installation of those systems are exempt under A.R.S. § 42-5075(B)(7)?

A.R.S. § 42-5075(B)(7)(a) provides a broad deduction from the contracting tax base for gross income or the gross proceeds of sale for income derived from a contract for the installation, assembly, repair or maintenance of machinery, equipment or other tangible personal property that is deducted from the tax base under A.R.S. § 42-5061(B) *and* that has IFU. The deduction includes gross income from:

> (i) Any activity performed on exempt machinery, equipment or other tangible personal property with IFU.
>
> (ii) Any activity performed on any tangible personal property relating to exempt machinery, equipment or other tangible personal property with IFU in furtherance of assembling, connecting or stabilizing it.
>
> (iii) Any activity that is related to the activities described in items (i) and (ii) above, including inspecting the installation of or testing the machinery, equipment or other tangible personal property.

IFU is defined under A.R.S. § 42-5075(B)(7)(d) as "machinery, equipment or other tangible personal property that can independently perform its function *without* attachment to real property." However, it does not preclude attachment for the purposes of assembling, connecting to other tangible personal property or connecting to part of a system, or for

stabilizing purposes."[2] A.R.S. § 42-5075(B)(7)(d) also limits the type of attachments for stabilizing purposes specifically to *nonpermanent* attachments.[3] In addition, A.R.S. § 42-5075(B)(7)(b) provides that the deduction *does not include* the gross proceeds of sale or gross income from the portion of any contracting activity that consists of the development of, or modification to, real property in order to facilitate the installation, assembly, repair, maintenance or removal of the exempt machinery or equipment.

As discussed above, the following systems are exempt under A.R.S. § 42-5061(B)(4) and consequently also exempt under A.R.S. § 42-5075(B)(8)(b) because the machinery and equipment used in those systems are used directly in producing or transmitting electricity:

- Mounting system and module systems (generation);
- Electrical collection system (generation);
- Substation and gen-tie systems (transmission).

The question then is whether those exempt systems can independently perform their functions without attachment to real property. If any attachment to real property is required, the issue then focuses on whether such attachment is of a type permissible under A.R.S. § 42-5075(B)(7)(d) for purposes of assembling, connecting to other property or to a system or for stabilizing purposes *and* is of a nonpermanent nature.

In this case, Taxpayer asserts that the machinery and equipment can function for their intended purposes without attachment or connection to the real property. The PV modules produce energy when exposed to sunlight, the collection system collects that energy and converts it from DC to AC energy, and the substations use transformers to 'step-up' the energy from generating levels to transmission levels. However, all those systems must be attached to the real property primarily for stabilization purposes. Taxpayer itself asserts that "any attachment is for purposes of stabilizing, to connect the machinery and equipment to other machinery and equipment, to attach the machinery and equipment to power and other utilities or to protect the machinery and equipment." The question then, is whether the attachment is of the type permitted under A.R.S. § 42-5075(B)(7)(d). As noted, such attachment must be nonpermanent and should not include any activity that consists of the development of, or modification to, real property.

Regardless of the type of tracking systems used, the mounting systems to which the PV modules are attached require steel posts which are approximately 4 to 8 inches across to be

[2] *Id.*
[3] See A.R.S. § 42-5075(B)(7)(d).

driven into the ground (or into an embedded foundation)[4] to a depth of approximately 4 to 8 feet. Additionally, the collection system includes combiner boxes and small equipment which are mounted on posts or on concrete pads or vaults. Larger converters may be installed on concrete foundations or vaults. Underground cabling used in the collection system is buried and, if they transition overhead, that transition is made via a riser pole which is embedded in the ground or on a concrete foundation. Where the system includes switchgear and other equipment, they are installed on concrete foundations or vaults. PCS equipment may be installed on prefabricated metal or pre-cast concrete structures or concrete pads or field assembled structures with posts. If meteorological stations are installed, they are installed on posts or on towers which require a concrete foundation of approximately 3 feet by 3 feet that extend to a depth of 4 feet.

The substations and gen-tie systems similarly require the use of concrete foundations and structures. For example, the gen-tie systems in *** and *** require "engineered support structures" located between and around the substation. Such engineered structures will likely require foundations and other modification-type activity.

Taxpayer may deduct gross income derived from a contract for the installation of exempt machinery under 42-5075(B)(7), only if that exempt machinery and equipment has IFU such that any attachment of the exempt machinery and equipment to real property is of a non-permanent nature. In this case, a common feature of the installation is that they have to be stabilized on concrete pads, vaults or foundations. Building concrete foundations or concrete pads as a means of attaching the equipment cannot be said to be nonpermanent as required by the statute and can be contrasted with activities such as bolting and other forms of nonpermanent attachment. Concrete foundations typically extend beneath the earth's surface for several feet and once created cannot be easily removed without damage to the underlying real property. Such construction activity is taxable under the terms of A.R.S. § 42-5075(B)(7)(b) which provides that the deduction *does not include* the gross proceeds of sale or gross income from the portion of any contracting activity. However, the connection or attachment that secures or stabilizes the exempt machinery and equipment to those concrete slabs or vaults will be exempt in cases where the connection or attachment to the concrete slab or vault is nonpermanent.

Taxpayer's income derived from the installation of the following systems are not exempt:

- The portion of income derived from the installation of the module and mounting system attributable to the construction of concrete foundations. However, where posts are

[4] If the site does not facilitate driven posts, an embedded foundation must be used.

only driven into the ground, the portion of the contract attributable to income derived from the installation of the mounting and module system would be deductible form the tax base.

- The portion of income derived from the installation of the collection system attributable to the construction of concrete pads or vaults. Income attributable to nonpermanent connections or attachment between the collection system and the concrete foundations or pads are exempt.
- The portion of income derived from the installation of concrete foundations for the substations. If no concrete foundations or other modification-type activity takes place or if nonpermanent connections are made between the concrete foundation and the substation, the portion of the contract attributable to income derived from the substation installation or the portion related to the nonpermanent attachment is deductible from the tax base.
- The portion of income derived from the installation of concrete foundations for the gen-tie system attributable to engineered support or other modification-type structures. If no concrete foundations or other modification-type activity takes place, or if nonpermanent connections are made between the concrete foundation and the gen-tie system, the portion of the contract attributable to income derived from the gen-tie installation or the portion related to the nonpermanent attachment is deductible from the tax base.

The taxability determinations provided by this MODIFICATION to Private Taxpayer Ruling LR17-009 issued on behalf of your client, do not extend beyond the facts presented in your original correspondence dated December 8, 2016 and save and except for the additions or changes noted herein, Private Taxpayer Ruling LR 17-009 issued by the Department on April 28, 2017 remains in full force and effect.

This modification to private taxpayer ruling LR17-009 and the determinations herein are based solely on the facts provided in your request and subsequent correspondence. The determinations are subject to change should the facts prove to be different on audit. If it is determined that undisclosed facts were substantial or material to the department's making of an accurate determination, this modification to Private Taxpayer Ruling LR17-009 shall be null and void. Further, the determination is subject to future change depending on changes in statutes, administrative rules, case law or notification of a different department position.

The determinations in private taxpayer ruling LR17-009 and this modification are only applicable to the taxpayer requesting the ruling and may not be relied upon, cited nor introduced into evidence in any proceeding by a taxpayer other than the taxpayer who has received the private taxpayer ruling. In addition, this modification to LR17-009

only applies to transactions that occur or tax liabilities that accrue from and after the original date LR17-009 was issued.

PRIVATE TAXPAYER RULING LR17-009

April 28, 2017

Thank you for your letter dated December 8, 2016, requesting private taxpayer rulings ("PTR") on behalf of your client, *** and its wholly owned special purposes entities ("Taxpayer"). Specifically, you requested the rulings for a determination regarding what portion of income derived by Taxpayer from the development of solar power plants for certain projects is deductible from its tax base. For purposes of convenience, the Department has consolidated the rulings and issues two rulings with respect thereto. This ruling relates to:

- ***** Solar Project**
- ***** Solar Project**
- ***** Solar Project**

Pursuant to Arizona Revised Statutes (A.R.S.) § 42-2101, the Department may issue private taxpayer rulings to taxpayers and potential taxpayers on request.

ISSUES:

To determine what portion of Taxpayer's gross proceeds of sales or gross income derived from the development of solar energy plants is deductible, the following issues must be examined:

1. Whether the mounting and module system and the electrical collection system include machinery and equipment used directly in producing electrical power.
2. Whether the substation and gen-tie systems include machinery and equipment used directly in producing or transmitting electrical power.
3. Whether the battery energy storage system ("BESS") includes machinery and equipment used directly in producing or transmitting electrical power.
4. Whether the exempt machinery or equipment also have independent functional utility ("IFU") and qualify for the exemption under A.R.S. § 42-5075(B)(7).

RULING:

The Department Rules as follows:

Pursuant to A.R.S. § 42-5061(B)(4),[5] Taxpayer may purchase certain machinery and equipment tax exempt; additionally, pursuant to A.R.S. § 42-5075(B)(8)(b), Taxpayer may deduct from its tax base the income it receives to cover the purchase of such exempt machinery and equipment as detailed below. Taxpayer may also deduct gross income derived from a contract for the installation of exempt machinery under 42-5075(B)(7) as detailed below, only if that exempt machinery and equipment has IFU such that any attachment of the exempt machinery and equipment to real property is of a non-permanent nature.

1. In this case, the mounting and module system and electrical collection system constitute the solar electrical generation plant, as that is the part of the system that is essential for electrical power generation. For all three projects, the electrical generation has the potential to produce 34.5kV *prior* to the substation. As a result, all machinery and equipment used in the mounting, module and collection systems constitute machinery and equipment used directly in producing electrical power.
2. Substations will be used in all three projects to change the voltage of the electricity generated by the plant from lower to higher voltage. They "step up" the capacity voltage from 34.5 kV to 500 kV. Additionally, the gen-tie system augments, integrates or ties together the sources of power supply for connection to another substation. The substations and gen-tie are therefore primarily transmission systems and the machinery and equipment included in the substations and gen-tie systems constitute machinery and equipment used directly in transmitting electrical power.
3. The BESS does not produce electrical power, and it does not qualify as a transmission system under A.A.C. R15-5-128(C) because it does not change the voltage of the power and it does not augment, integrate or tie together the sources of power supply. It stores electricity generated by the solar power plant so that it can be released to the

[5] A.R.S. § 42-5061(B)(4) provides an exemption for machinery, equipment or transmission lines used directly in producing or transmitting electrical power, but *not* distribution. Arizona Administrative Code ("A.A.C.") R15-5-128 provides that the machinery and equipment used to generate electricity may be considered part of a transmission or distribution system. Generally, systems that generate up to 34,500 volts (34.5kV) are considered part of a distribution system,[5] and systems that generate more than 34,500 volts (34.5kV) may be either a distribution or transmission system depending on the use of equipment. The Department has interpreted this to mean that a generation system must generate at least 34.5kV to qualify for the exemption.

grid at a later, scheduled time. Therefore, it is not used directly in producing or transmitting electricity.

4. Taxpayer may only deduct installation receipts from its tax base where those receipts relate to the installation of exempt machinery and equipment that also have IFU. This means the exempt machinery and equipment must be able to operate without attachment to real property or must be attached to real property in a nonpermanent manner. In this case, a common feature of the installation of the various systems is that they have to be stabilized on concrete pads, vaults or foundations that are of a permanent nature. Thus, Taxpayer may only deduct the portions of the installation contract comprising exempt machinery and equipment as determined by this ruling that *do not* include the installation of a foundation, concrete pad or vault, or where other modification-type activity must be performed to attach the exempt equipment and machinery to real estate.

SUMMARY OF FACTS:

The following is a summary of the relevant facts based on your letter dated December 8, 2016, and subsequent correspondence with the Department dated January 27, 2017:

Taxpayer is a *** LLC registered to do business in Arizona. It provides engineering, procurement and construction ("EPC") services to customers. It has entered into the following EPC agreements with the following wholly owned special purpose entities to develop solar electric power generation facilities as detailed:

Illustration 1

Project	*Entity*	*Power Purchase Agreement*	*Anticipated start date*	*Anticipated completion date*	*Potential voltage*	*County*
***	***	***	***	***	34.5 kV	***
***	***	***	***	***	34.5 kV	***
***	***	N/A	***	***	34.5 kV	***

None of the projects will be located within any incorporated Arizona city or town. The location sites are leased to the LLCs listed above. Taxpayer will provide engineering services, procure equipment and construct the solar power plants.

Solar power plants are large assemblies of photovoltaic ("PV") modules that are electrically connected to transmit electricity to the utility grid. The PV modules produce energy when

exposed to sunlight. Regardless of a solar plant's configuration, every plant has certain common components. A brief summary:

- PV modules are installed on mounting systems which are repeated to form *arrays*. Mounting systems may be either fixed (non-rotating) or tracking (rotating to the sun).

- PV modules generate direct current ("DC") electricity and are electrically connected together into units known as *strings.* The strings are electrically connected by various methods to boxes within the arrays, and the arrays may be connected to a DC collection system or directly to an inverter.

- A DC collection system collects the electricity generated by the arrays and transmits it to inverters for conversion from DC power to alternating current ("AC") power. DC collection systems may be underground or aboveground.

- Collection and transmission systems may have conductors installed aboveground or underground and may include other components such as switchgear, combiner boxes and sectionalizing cabinets.

- Substations that have transformers increase or "step up" the voltage of the electricity for more efficient collection or to match the voltage of the transmission system for interconnection to the grid (from lower to higher voltages). Not all power plants have substations.

- Generation interconnection tie lines ("gen-tie") deliver energy from the substation to the grid at the Point of Interconnection ("POI").

- PV power plant control ("PPC") equipment is typically installed in temperature controlled enclosures near the substation to operate the facility safely.

A solar power plant may include a BESS as part of its configuration. When included, the plant is referred to as a photovoltaic plus storage ("PVS") plant. The BESS utilizes batteries to store the solar generated energy until it is released to the grid at a later time. BESS may be connected to solar plants using either AC-coupled or DC-coupled configuration. Batteries and control equipment are typically installed in temperature-controlled enclosures. The need for a BESS to be included in a solar power plant will depend on a customer's power purchase agreement ("PPA"). If the PPA requires Taxpayer to provide energy on a scheduled basis outside of typical solar hours, then the BESS is required so that the power delivery can be controlled.

The solar power plant involves the furnishing and installation of certain machinery and equipment, as well as the construction of related access and support facilities. *Installation* comprises the following steps:

- Site preparation prior to installation of the plant.
- Mounting system and module installation:
    - Driving steel posts into the ground (for both tracker and fixed mounting systems) or, if not supported by the topography, using an embedded foundation to support the posts. Depending on the mounting system required either a tilt bracket or a bearing and torque tube is installed. Steel table frames are bolted to the bracket or torque tube and then the PV modules are mechanically fastened to the table frames or the PV modules may include a frame which can be directly fastened to the mounting system.
- Electrical collection system installation:
    - The DC collection system which includes combiner boxes, converters and other equipment may be mounted on posts, concrete pads or vaults.
    - The AC collection system which includes conductors installed either overhead or underground, switchgear, sectionalizing cabinet or combiner boxes are installed on concrete foundations or vaults.
        - For both the AC and DC collection systems, conduit may be installed with cabling for protection. Cabling may be buried underground and if cabling transitions overhead, this is usually done via a riser pole embedded in the ground or on a concrete foundation.
    - Power Conversion Station ("PCS") equipment which includes inverters, transformers and monitoring equipment is typically installed on a pre-cast concrete vault.
    - Meteorological stations are installed either on posts or on towers which have concrete foundations that may extend to a depth of 4 feet depending on conditions.
    - Fiber optic communications lines are also installed.
- Substation[6] installation:
    - Includes high voltage transformers to "step up" voltages, inverters, circuit breakers filled with SF6 gas, buswork connections, and capacitor banks among other equipment.
    - Substations are separately fenced and contain a transformer fluid containment area.

[6] The substation prepares the electricity for the transmission grid.

- Gen-tie installation:
  - Includes construction of transmission lines and engineered support structures designed to comply with requirements for transmission lines.
- BESS Installation:
  - Includes battery racks, batteries, power conversion system including bi-directional inverters and transformers and a controls platform.
  - Equipment is housed in one or more insulated steel enclosures set on concrete pads or vaults and may be separately fenced.
- Other construction:
  - Construction of a perimeter and access roads, security fencing, lighting, operations and management facilities, storm water management facilities, water and wastewater systems, communications infrastructure.

The anticipated useful life of the solar equipment is 30 years with a possible repowering that could extend the useful life to 50 years. At the end of the useful life, the property owner could ask Taxpayer to decommission the site and remove the solar arrays and facilities. After removal, the PV modules may be returned to the manufacturer for recycling.

Taxpayer is not requesting a ruling on the taxability of site preparation, other construction or decommissioning contracting work.

DISCUSSION AND LEGAL ANALYSIS:

A.R.S. § 42-5075 imposes TPT on “the business of prime contracting.” Fundamentally, prime contracting TPT can be understood as a tax on service activities. The tax base for the prime contracting classification is sixty-five percent of a prime contractor's gross receipts derived from the business. See A.R.S. § 42-5075(B). The tax base for TPT generally includes gross sales without any deductions for any business expense. Any deductions, exemptions, or exclusions from TPT must be specifically provided for in statute and they are unique to each classification, so they cannot simply be read into another tax classification.

The term “contracting” means “engaging in business as a contractor.” A.R.S. § 42 5075(R)(3) provides that a “contractor" is synonymous with the term "builder" and means any person or organization that undertakes to or offers to undertake to, or purports to have the capacity to undertake to, or submits a bid to, or does personally or by or through others, modify any building. Under A.R.S. § 42-5075(R)(6) "modification" means construction, grading and leveling ground, wreckage or demolition. Under A.R.S. § 42-5075(R)(7), "modify" means to make a modification or cause a modification to be made. In general, modification is considered ground up construction work. Taxpayer is in the contracting business; it provides,

in part, construction services for its customers. In constructing solar development projects, Taxpayer is doing contracting work and all its income derived from that activity is taxable unless a statutory deduction or exemption applies.

A.R.S. § 42-5075(B), which details deductions from the prime contracting base, allows the income attributable to the *cost* of certain tangible personal property purchased in connection with prime contracting projects, and in some cases, *income* from certain contracting projects, to be deducted from the prime contracting tax base.

A.R.S. § 42-5075(B) provides a deduction from the tax base for the gross income or gross proceeds attributable to the purchase of certain machinery, equipment or other property that is exempt from the retail tax base[7] under A.R.S. § 42-5061(B).

A.R.S. § 42-5061(B)(4) provides an exemption for machinery, equipment or transmission lines used directly in producing or transmitting electrical power, but *not* distribution. Arizona Administrative Code ("A.A.C.") R15-5-128 provides that the machinery and equipment used to generate electricity may be considered part of a transmission or distribution system. Generally, systems that generate up to 34,500 volts (34.5kV) are considered part of a distribution system,[8] and systems that generate more than 34,500 volts (34.5kV) may be either a distribution or transmission system depending on the use of equipment.[9]

Taxpayer will be constructing solar power plants as described and is seeking a ruling with respect to the following activities:

- Mounting system and Module System and its installation;
- Electrical Collection System and its installation;
- Substation and gen-tie system and its installation;
- Battery Energy Storage System and its installation.

Whether Taxpayer will be entitled to any deduction from its tax base will depend primarily on whether any of the machinery and equipment comprising the systems described above is used directly in producing or transmitting electricity. If the machinery and equipment are used directly in producing or transmitting electricity, then Taxpayer may purchase such machinery tax exempt under A.R.S. § 42-5061(B)(4) and may deduct from its tax base the income it receives to cover the purchase of such machinery and equipment under A.R.S. §

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[7] A.R.S. § 42 5061 imposes the TPT on the business of selling tangible personal property at retail. "Selling at retail" is defined by A.R.S. § 42 5061(V)(3) as a sale for any purpose other than for resale in the regular course of business. The tax base is the gross proceeds of sales or gross income derived from the business.

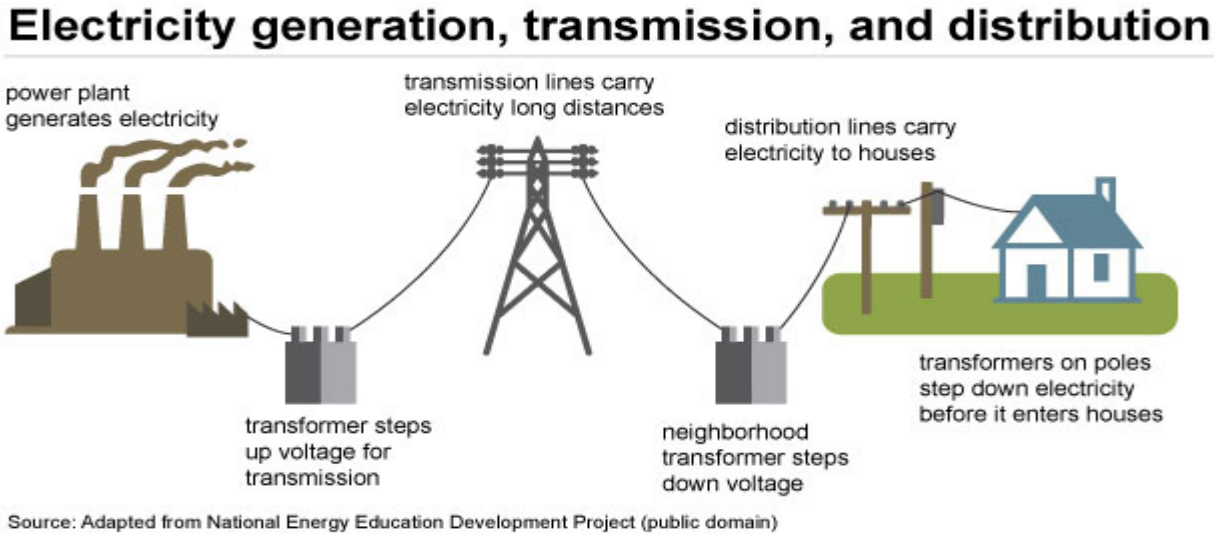
[8] See A.A.C. R15-5-128(B).

[9] See A.A.C. R15-5-128(C).

42-5075(B)(8)(b). Additionally, Taxpayer's gross proceeds of sale or gross income derived from the installation of those systems may be deductible under A.R.S. § 42-5075(B)(7) if those systems are, in fact, exempt *and* have IFU.

As shown in Illustration 2[10] below, there are generally three stages in the production of electrical power: production or generation, transmission and distribution.[11]

Illustration 2



Because there are three separate stages, Taxpayer's activities must first be divided to determine whether they fall into electrical power generation, transmission or distribution. From the information provided, the solar plant's generation system is made up of the following parts:

- The PV modules which produce energy (DC energy) when exposed to the sunlight;
- The mounting system on which the PV modules are installed;
- A DC collection system which collects the electricity and transmits it to inverters to convert the DC energy into AC energy;
- An optional substation which "steps" up the voltage;
- An optional BESS which is used to store the electricity generated until it is ready to be released to the grid.

A substation may or may not be required by a power plant. Taxpayer indicated that whether or not a substation is required depends on the interconnection voltage of the project.

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[10] https://www.eia.gov/Energyexplained/index.cfm?page=electricity_delivery.

[11] Importantly, it should be noted that Private Taxpayer Ruling ("PTR") LR12-001 on which Taxpayer relies, also determined that that there are three stages in producing electrical power. However, the three stages apply to all instances of electrical power generation systems regardless of how such electrical power is produced.

Substations are normally required to "step up" power from a lower voltage to a higher voltage. If the voltage of the interconnection is higher than the voltage at which power is generated, then a substation is needed. Thus, a substation is not necessary in every instance, and would not be included as an essential part of power generation.

Similarly, Taxpayer indicated that the need for integrating a BESS with a solar power plant will depend on the customer's power purchase agreement. If it requires Taxpayer to provide energy on a scheduled basis outside of typical solar hours, including night time hours, then the BESS is required so that Taxpayer can control the power delivery pursuant to the terms of the agreement as the delivery schedule cannot be controlled without the BESS. Thus, a BESS is not necessary in every instance.

As such, the mounting and module system and the electrical system will be considered together, and the substation and gen-tie system will be considered separately. Likewise, the BESS will be considered separately.

1. Whether mounting and module system and the electrical collection system include machinery and equipment used directly in producing electrical power?[12]

Neither the statute nor A.A.C. R15-5-128 provides any details about what is considered an electrical production system for the purposes of clarifying the A.R.S. § 42-5061(B)(4) deduction. A.R.S. § 42-5061(B)(4) itself specifically provides a deduction for:

> Machinery, equipment or transmission lines used directly in producing or transmitting electrical power, but not including distribution. Transformers and control equipment used at transmission substation sites constitute equipment used in producing or transmitting electrical power.

This provision is relevant even though Taxpayer is conducting business under the contracting classification because A.R.S. § 42-5075(B)(8)(b) provides that a Taxpayer may deduct income attributable to the purchase of machinery and equipment that is exempt under A.R.S. § 42-5061(B).

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[12] Importantly, PTR LR12-001 determined that the end of the electrical production stage signaled the beginning of the transmission stage. That ruling determined that the power generation end point was when the voltage increased to transmission levels (34.5kV). While that may have applied in that specific instance for determining what was included in the solar device in question, using such a method in all instances would lead to absurd results as it assumes that power is always "stepped up" to transmission levels after it is generated. In cases where power is not "stepped up" until after several substations or where the power generation is at a distribution substation, the analysis in PTR LR12-001 would include areas of a power system that should not be included in production and transmission for purposes of the A.R.S. § 42-5061(B)(4) deduction.

When interpreting a statute, the language of the statute is the "best and most reliable index" of its meaning.[13] In addition, unless the legislature clearly expresses an intent to give a term a special meaning, we give the words used in statutes their plain and ordinary meaning.[14] In determining the ordinary meaning of a word, we may refer to an established and widely used dictionary.[15]

No specific definition is provided in the statute or rules for what is mean by "producing." However, a look at the dictionary meaning of "producing" shows that it means "to cause to have existence or to happen, to make, to bring about, to give being, form, or shape to."[16]

According to the International Labor Organization's ("ILO") Encyclopedia:

> Most electricity is generated at 13,200 to 24,000 volts [13.2kV to 24kV]…. When electricity comes out of a generating station, the transmission substation… "steps up" the voltages to the range of 138,000 – 765,000 volts [138kV to 765kV]… The distribution system connects the transmission system to the customer's equipment… The distribution substation reduces the transmitted electrical voltage to 2,400 – 19,920 volts [2.4kV to 19.92 kV]…[17]

Similarly, on the US Department of Labor's Occupational Safety and Health Administration ("OSHA") website the following information can be found:[18]

- Transmission system voltages are typically from 69kV up to 765kV.
- Distribution systems typically operate in a voltage range of 4kV to 46kV. However, distribution also includes secondary voltage systems, which operate at less than 1,000V (1kV), that typically connect to electric customers' homes and offices.
- Sub-transmission lines carry voltages reduced from the major transmission line system. Typically, 34.5 kV to 69 kV, this power is sent to regional distribution substations.

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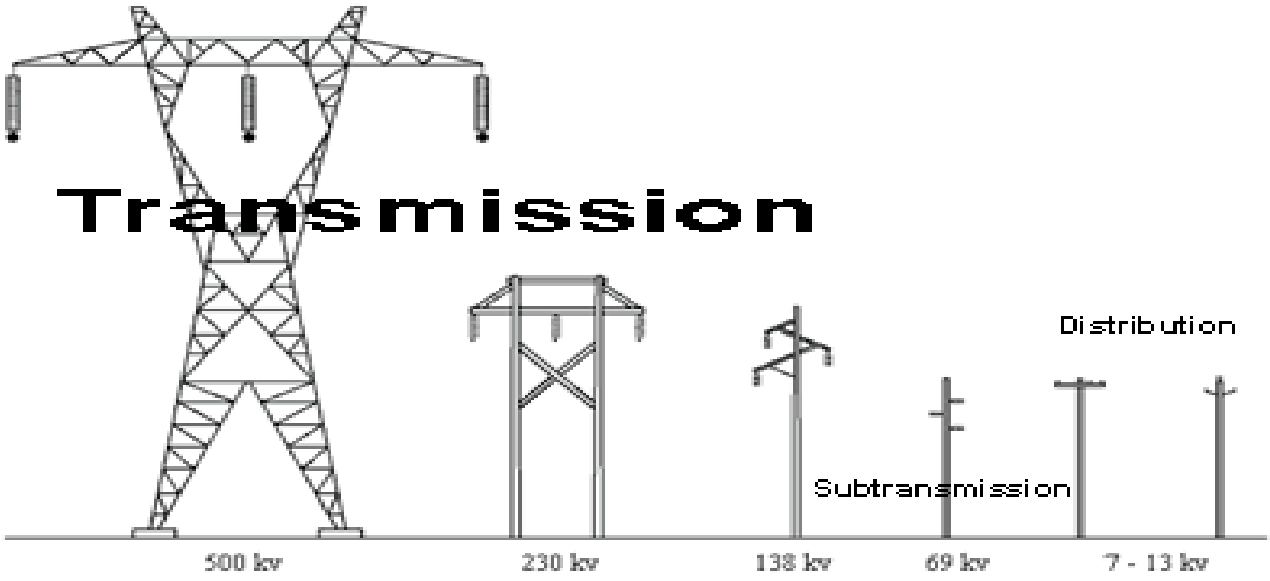
[13] *Janson v. Christensen*, 167 Ariz. 470, 471, 808 P.2d 1222, 1223 (1991).
[14] See *State v. Korzep*, 165 Ariz. 490, 493, 799 P.2d 831, 834 (1990).
[15] See *State v. Wise*, 137 Ariz. 468, 470 n. 3, 671 P.2d 909, 911 n. 3 (1983); *State v. Mahaney*, 975 P.2d 156, 158, 193 Ariz. 566, 568 (Ariz. App., 1999).
[16] "Produce." Merriam-Webster.com. Merriam-Webster, n.d. Web. 2 Mar. 2017.
[17] See http://www.iloencyclopaedia.org/component/k2/item/616-electric-power-generation-transmission-and-distribution-safety-a-us-example.
[18] https://www.osha.gov/SLTC/etools/electric_power/transmission_dist.html.

Illustration 3[19]



What is clear from the above, is that the *transmission* of electrical power takes place at higher voltages and the *distribution* of electrical power takes place at lower voltages. In addition, electrical *generation* referred to by the organizations above are in relation to commercial generation. However, technically speaking, electrical generation may take place at any level voltage. For example, an individual could use a personal generator to produce electricity to run a home or business (e.g. voltage of 1kV) or a facility may produce power only for distribution purposes (e.g. voltage generation of less than 34.5kV) or for transmission purposes (voltage generation of more than 34.5kV).

The other point is that there might be some overlap between transmission and distribution voltages as may be seen above, but such an overlap is seen in a small range. For example, the ILO describes distribution ranges from 2.4 kV to 19.92 kV and OSHA describes distribution as taking place from 4kV to 46 kV and transmission from 69kV up to 765kV. Because A.R.S. § 42-5061(B)(4) elects to provide a deduction for producing or transmitting electrical power, but *not* for distributing electrical power, the Department takes the view that the deduction under A.R.S. § 42-5061(B)(4) relates only to higher levels of electrical power *generated* (i.e. commercial generation of electrical power) for transmission and not electrical power generated for distribution or other purposes. The deduction therefore applies to systems that have the capacity to generate electricity for transmission purposes, but *not* to systems that generate electricity for distribution or other purposes (i.e. less than 34.5kV).[20]

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[19] https://www.osha.gov/SLTC/etools/electric_power/illustrated_glossary/transmission_lines.html.

[20] This interpretation is also in keeping with the historical context of the statute. A.R.S. § 42-5061(B)(4) was originally enacted as A.R.S. § 42-1310.01(C)(4) in 1988 by HB 2001 Section 4 (Chapter 161, 38th Legislature, Second Regular Session). A.R.S. § 42-5061(M) and

This interpretation is supported by A.A.C. R15-5-128 which presumptively classifies machinery and equipment used to facilitate the *production* of voltages up to 34.5kV as part of a distribution system and those used to facilitate the *production* of more than 34.5kV as part of a distribution or transmission system depending on how the machinery and equipment are used.

In this case, the mounting and module system and electrical collection system constitute the solar electrical generation plant as that is the part of the system that is essential for electrical power generation. The PV modules which are mounted on the mounting system generates electricity when exposed to sunlight and the collection system collects all the electrical power generated and converts it from DC to AC current. Those systems together generate electricity. For all three projects under consideration in this ruling (***, *** and ***), the electrical generation has the potential to produce 34.5kV[21] *prior* to the substation. As a result, all machinery and equipment comprising the mounting, module and collection systems constitute machinery and equipment used directly in producing electrical power. Pursuant to A.R.S. § 42-5061(B)(4), Taxpayer may purchase such machinery and equipment tax exempt. In addition, pursuant to A.R.S. § 42-5075(B)(8)(b), Taxpayer may deduct from its tax base the income it receives to cover the purchase of such exempt machinery and equipment.

2. Whether substation and gen-tie systems include machinery and equipment used directly in transmitting or distributing electrical power?

In this case, all three projects will have substations associated with them as well as gen-tie components. The substation "steps up" voltages from lower to higher levels for interconnection purposes. Listed below are the substation capacity and gen-tie details:

Project	*High Voltage Transformer needed?*	*Substation Capacity*	*Gen-tie Details*

corresponding (former) A.R.S. § 42-5075(B)(13) providing deductions for solar energy devices became effective in 1996 and permitted the deduction for contracting purposes until December 31, 2016 (the retail deduction remains valid). Both the current A.R.S. § 42-5061(B)(4) and the solar energy device section provided deductions for electricity generation. However, because A.R.S. § 42-5061(B)(4) was enacted prior to the solar energy device deductions, the Department believes that A.R.S. § 42-5061(B)(4) could not have included all solar energy devices that generate electricity as that would have made A.R.S. § 42-5061(M) and A.R.S. § 42-5075(B)(13) superfluous. See *State ex rel. Ariz. Dept. of Revenue v. Capitol Castings, Inc.,* 207 Ariz. 445, 447, 88 P.3d 159, 161 (2004)(When interpreting statutes, a court strives to discern and give effect to legislative intent, construing the statute as a whole, and considering its context, language, subject matter, historical background, effects and consequences, as well as its spirit and purpose).

[21] See Illustration 1 above.

***	Yes (2)	230 kV; 500 kV	18-mile 230kV transmission line running from on-site substation to off-site substation.
***	Yes	500 kV	.3 mile single-circuit gen-tie to connect the plant's sub-station to the existing *** Substation (may be potentially shared with ***).
***	Yes	500 kV	.3 mile single-circuit gen-tie to connect the plant's sub-station to the existing *** Substation (may be potentially shared with ***).

The question here is whether the substation and gen-tie systems are part of a transmission or distribution system. The substation itself does not generate any electricity and so is not part of an electrical production system; rather, it "steps up" the voltage from lower generation voltage to higher, interconnection voltages. The gen-tie system comprises of tie lines that deliver energy from the substation to the grid at the point of interconnection.

As noted, A.A.C. R15-5-128 generally categorizes systems that generate up to 34.5kV as part of a distribution system.[22] Systems that generate more than 34.5kV may be either a distribution or transmission system depending on the use of equipment.

A.A.C. R15-5-128(C)(1) provides that a "transmission system" comprises:

a. All land, conversion structures, and equipment employed at a primary source of supply[23] *to change the voltage or frequency of electricity* for the purpose of its more efficient or convenient transmission;

b. All land, structures, lines, switching and conversion stations, high tension apparatus and their control and protective equipment *between a generating or receiving point and the entrance to a distribution center or wholesale point*; and

c. All lines and equipment whose primary purpose is to augment, integrate, or tie together the sources of power supply.

A.A.C. R15-5-128(C)(2) provides that a "distribution system" means all land, structures, conversion equipment, lines, line transformers, and other facilities employed *between the primary source of supply and of delivery to customers*, which are not includible in a transmission system whether or not such land, structures, and facilities are operated as part of a transmission system or as part of a distribution system. It also provides that stations which change electricity from transmission to distribution voltage[24] shall be classified as distribution stations.

In this case, substations will be used in all three projects to change the voltage of the electricity generated by the plant from lower to higher voltage. More importantly, they do not

[22] See A.A.C. R15-5-128(B).

[23] A.A.C. R15-5-128(C)(3) provides that "primary source of supply" means a generating station or point of receipt in the case of purchased power.

[24] i.e. steps down the voltage from 34.5kV to between 4kV to 24kV for distributing to customers.

change voltage from transmission to distribution voltage so it is not a distribution station. In all three projects, the substations "step up" the capacity voltage from 34.5 kV to 500 kV which is significant transmission power. Additionally, the machinery and equipment under consideration part of the substation itself and the gen-tie lines run the transmission lines from the substation to other off-site substations. The substation and gen-tie systems under consideration do not include any structures that transmit electricity either to customers or to another distribution substation. The substations and gen-tie systems are therefore primarily transmission systems. As a result, all machinery and equipment comprising the substation and gen-tie system constitute machinery and equipment used directly in transmitting electrical power. Pursuant to A.R.S. § 42-5061(B)(4), Taxpayer may purchase such machinery and equipment tax exempt. In addition, pursuant to A.R.S. § 42-5075(B)(8)(b), Taxpayer may deduct from its tax base any income it receives to cover the *purchase* of machinery, equipment or other property for the substation and gen-tie system.

3. Whether the BESS includes machinery and equipment used directly in producing or transmitting electrical power?

As described, the BESS utilizes batteries to store the solar generated energy until it is released to the grid at a later time. The need for a BESS to be included in the configuration of a solar power plant will depend on a customer's PPA. If the PPA requires Taxpayer to provide energy on a scheduled basis outside of typical solar hours, then the BESS is required so that the power delivery can be controlled. Thus, a BESS does not produce electrical power, and it does not qualify as a transmission system under A.A.C. R15-5-128(C) because it does not change the voltage of the power and it does not augment, integrate or tie together the sources of power supply. It stores electricity generated by the solar power plant so that it can be released to the grid at a later, scheduled time. It is not an essential part of the generation, transmission or distribution system since its purpose is to store and deliver electricity on a set schedule. As such, a solar power plant could be operated without one. Therefore, it is not used directly in producing or transmitting electricity[25] and does not qualify for a deduction from Taxpayer's tax base.

4. Whether exempt systems also have IFU so that the receipts from installation of those systems are exempt under A.R.S. § 42-5075(B)(7)?

A.R.S. § 42-5075(B)(7)(a) provides a broad deduction from the contracting tax base for gross income or the gross proceeds of sale for income derived from a contract for the installation,

[25] Although the definition of a "solar energy device" includes solar energy systems that *may* also have the capability of storing solar energy for future use, for purposes of the deduction under A.R.S. § 42-5061(B)(4) the only relevant question is whether the machinery, equipment etc. is used *directly* in producing or transmitting electrical power. This ruling is strictly limited to the interpretation of A.R.S. § 42-5061(B)(4) and shall not be construed as the Department's interpretation of a solar energy device or any other similar term in relation to any other taxing statute.

assembly, repair or maintenance of machinery, equipment or other tangible personal property that is deducted from the tax base under A.R.S. § 42-5061(B) *and* that has IFU. The deduction includes gross income from:

> (i) Any activity performed on exempt machinery, equipment or other tangible personal property with IFU.
> (ii) Any activity performed on any tangible personal property relating to exempt machinery, equipment or other tangible personal property with IFU in furtherance of assembling, connecting or stabilizing it.
> (iii) Any activity that is related to the activities described in items (i) and (ii) above, including inspecting the installation of or testing the machinery, equipment or other tangible personal property.

IFU is defined under A.R.S. § 42-5075(B)(7)(d) as "machinery, equipment or other tangible personal property that can independently perform its function *without* attachment to real property." However, it does not preclude attachment for the purposes of assembling, connecting to other tangible personal property or connecting to part of a system, or for stabilizing purposes."[26] A.R.S. § 42-5075(B)(7)(d) also limits the type of attachments for stabilizing purposes specifically to *nonpermanent* attachments.[27] In addition, A.R.S. § 42-5075(B)(7)(b) provides that the deduction *does not include* the gross proceeds of sale or gross income from the portion of any contracting activity that consists of the development of, or modification to, real property in order to facilitate the installation, assembly, repair, maintenance or removal of the exempt machinery or equipment.

As discussed above, the following systems are exempt under A.R.S. § 42-5061(B)(4) and consequently also exempt under A.R.S. § 42-5075(B)(8)(b) because the machinery and equipment used in those systems are used directly in producing or transmitting electricity:

- Mounting system and module systems (generation);
- Electrical collection system (generation);
- Substation and gen-tie systems (transmission).

The question then is whether those exempt systems can independently perform their functions without attachment to real property. If any attachment to real property is required, the issue then focuses on whether such attachment is of a type permissible under A.R.S. § 42-5075(B)(7)(d) for purposes of assembling, connecting to other property or to a system or for stabilizing purposes *and* is of a nonpermanent nature.

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[26] *Id.*
[27] See A.R.S. § 42-5075(B)(7)(d).

In this case, Taxpayer asserts that the machinery and equipment can function for their intended purposes without attachment or connection to the real property. The Department disagrees with this assessment. The PV modules produce energy when exposed to sunlight, the collection system collects that energy and converts it from DC to AC energy, and the substations use transformers to 'step-up' the energy from generating levels to transmission levels. However, all those systems must be attached to the real property primarily for stabilization purposes. Taxpayer itself asserts that "any attachment is for purposes of stabilizing, to connect the machinery and equipment to other machinery and equipment, to attach the machinery and equipment to power and other utilities or to protect the machinery and equipment." Thus, Taxpayer agrees that the machinery and equipment cannot properly function without attachment to real property. The question then, is whether the attachment is of the type permitted under A.R.S. § 42-5075(B)(7)(d). As noted, such attachment must be nonpermanent and should not include any activity that consists of the development of, or modification to, real property.

Regardless of the type of tracking systems used, the mounting systems to which the PV modules are attached require steel posts which are approximately 4 to 8 inches across to be driven into the ground (or into an embedded foundation)[28] to a depth of approximately 4 to 8 feet. Additionally, the collection system includes combiner boxes and small equipment which are mounted on posts or on concrete pads or vaults. Larger converters may be installed on concrete foundations or vaults. Underground cabling used in the collection system is buried and, if they transition overhead, that transition is made via a riser pole which is embedded in the ground or on a concrete foundation. Where the system includes switchgear and other equipment, they are installed on concrete foundations or vaults. PCS equipment may be installed on prefabricated metal or pre-cast concrete structures or concrete pads or field assembled structures with posts. If meteorological stations are installed, they are installed on posts or on towers which require a concrete foundation of approximately 3 feet by 3 feet that extend to a depth of 4 feet.

The substations and gen-tie systems similarly require the use of concrete foundations and structures. For example, the gen-tie systems in *** and *** require "engineered support structures" located between and around the substation. Such engineered structures will likely require foundations and other modification-type activity.

Taxpayer may deduct gross income derived from a contract for the installation of exempt machinery under 42-5075(B)(7), only if that exempt machinery and equipment has IFU such

[28] If the site does not facilitate driven posts, an embedded foundation must be used.

that any attachment of the exempt machinery and equipment to real property is of a non-permanent nature. In this case, a common feature of the installation is that they have to be stabilized on concrete pads, vaults or foundations. Building concrete foundations or concrete pads as a means of attaching the equipment cannot be said to be nonpermanent as required by the statute and can be contrasted with activities such as bolting and other forms of nonpermanent attachment. Concrete foundations typically extend beneath the earth's surface for several feet and once created cannot be easily removed without damage to the underlying real property. Thus, in cases where a foundation or concrete pad or vault must be installed, the systems being installed will not be considered IFU.

Taxpayer's income derived from the installation of the following systems would not be exempt as IFUs:

- The module and mounting system where embedded foundations are required. However, where posts are only driven into the ground, the portion of the contract attributable to income derived from the installation of the mounting and module system would be deductible form the tax base.
- The collection system where combiner boxes are mounted on concrete pads or vaults; where converters are installed on concrete foundations or vaults; where riser poles are embedded on concrete foundation; or where PCS equipment is installed on pre-cast concrete structures or concrete pads.
- Substations where concrete foundations are used. If no concrete foundations or other modification-type activity takes place, the portion of the contract attributable to income derived from the substation installation is deductible from the tax base.
- The gen-tie system where engineered support or other modification-type structures are required. If no concrete foundations or other modification-type activity takes place, the portion of the contract attributable to income derived from the gen-tie installation is deductible from the tax base.

This response is a private taxpayer ruling and the determinations herein are based solely on the facts provided in your request. Therefore, the conclusions in this private taxpayer ruling do not extend beyond the facts presented in your correspondence. The determinations are subject to change should the facts prove to be different on audit. If it is determined that undisclosed facts were substantial or material to the department's making of an accurate determination, this private taxpayer ruling shall be null and void. Further, the determination is subject to future change depending on changes in statutes, administrative rules, case law or notification of a different department position.

The determinations in this private taxpayer ruling are only applicable to the taxpayer requesting the ruling and may not be relied upon, cited nor introduced into evidence in any proceeding by a taxpayer other than the taxpayer who has received the private taxpayer ruling. In addition, this private taxpayer ruling only applies to transactions that occur or tax liabilities that accrue from and after the date the taxpayer receives the ruling.