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# Tax credit eligibility of reflective roofs to bolster solar production

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The IRS issued three private letter rulings from 2009 to 2014 addressing reflective roofs that bolster the electricity production of related solar equipment. The question addressed in each ruling is the reflective roof's eligibility for the investment tax credit.<sup>1</sup>

The three letter rulings demonstrate the need for the IRS and Treasury to complete the pending regulation project to define ITC eligible property.<sup>2</sup> Over the five years between the first and third rulings, the IRS's economic analysis became more sophisticated. However, its legal analysis has evolved to rely on a regulation that does not apply to solar equipment.

Reflective roof systems that enhance the production by a related photovoltaic system are known as "dual function property." Dual-function property is property involved in solar production and another ancillary non-energy function. In the case of a reflective roof, that ancillary function is protecting the building from the elements. Those reflective roofs are distinguished from solar roofs. A solar roof actually generates electrons, while a reflective roof aids a related photovoltaic system in generating more electrons than it otherwise would.

The first ruling was LTR 200947027, which was requested by a taxpayer "involved in the knitwear industry." The solar panel manufacturer Solyndra Corp. touted the ruling as having been issued regarding its "cool roof" that enhances the operation of the photovoltaic system it manufactured.<sup>3</sup> Solyndra likely asked the knitwear company to request the ruling, thinking that a favorable ruling would help it market its solar equipment; although, as a technical matter, only the taxpayer to which the ruling was addressed may rely on it (or even cite it as precedent) to avoid an IRS challenge of its tax credit.

The solar equipment in question was a photovoltaic solar generation system mounted on a roof installed with a reflective roof system. The reflective surface enables the photovoltaic system to generate significantly more electricity than it could have without it. Although not highlighted in its factual discussion, the ruling's conclusion refers to the reflective roof system being "installed over an existing roof." Because the original roof remained in place, it was unnecessary for the ruling to address whether the reflective roof system was a "structural component" that is generally excluded from eligibility for the ITC by reg. section 1.48-1(e), but which reg. section 1.48-9(b) provides "may qualify for the energy credit."

Thus, the issue boiled down to whether the reflective roof, which did not itself generate any electricity but which enhanced the efficiency of the components that did, qualified as "energy property." The IRS's conclusion in the ruling was elegant in its simplicity: "The reflective roof surface, when installed over an existing roof in connection with the System, constitutes energy property under section 48 of the Code."

The next ruling is LTR 201121005, which was issued to a taxpayer that sold solar equipment and installed it on the roofs of its customers. The taxpayer had installed the equipment on its own roof. When the ruling request was submitted, the taxpayer had not filed its tax return for the year that the solar equipment was placed in service.

It is difficult to analyze how the facts of this ruling compare with the other two because the ruling provides little detail about the solar equipment. For instance, neither the word “photovoltaic” nor the words “thin film” appear in the version of the ruling released to the public. It is possible that the taxpayer convinced the IRS that revealing details about the equipment would risk divulging trade secrets. Unlike the other two rulings on this topic, it does not refer to a reflective roof.

Of the three rulings, LTR 201121005 is the only one citing Rev. Rul. 79-18,<sup>4</sup> which holds that a structural component that “is so specifically engineered that it is in essence part of the . . . equipment with which it functions will qualify . . . for purposes of the investment tax credit.” The letter ruling does not discuss what the structural component in question was or what aspects of it satisfied the revenue ruling.

The letter ruling then discusses reg. section 1.48-9(f). That discussion seems out of place because that regulation, by its terms, is limited to specifically enumerated types of equipment (for example, heat exchangers), none of which are solar equipment. However, reg. section 1.48-9(f) is discussed because it provides that for equipment with more than one function, “only the incremental cost,” as defined in reg. section 1.48-9(k), is ITC eligible. In effect, that limits the credit to the excess of the total cost over the amount that the equipment would have cost if it were not used for a qualifying purpose. The regulation applies the term “incremental cost” to various technologies but not to solar.<sup>5</sup>

Although the references to reg. section 1.48-9(f) and -9(k) suggest that the IRS may believe that the incremental cost approach is appropriate in this circumstance, the ruling does not state that. Instead, it simply states that while “incremental cost” is defined in reg. section 1.48-9(k), that reg. section 1.48-9 does not provide for use of the incremental cost method of allocation except in specifically enumerated instances when it references reg. section 1.48-9(k) expressly.<sup>6</sup> It is significant that the solar rules of reg. section 1.48-9(d) do not reference reg. section 1.48-9(k).

The solar rules do provide a different set of allocation rules for so-called dual-use equipment. Dual-use equipment uses energy from two sources to generate electricity. For instance, some concentrated solar power systems use natural gas in the morning to start the water boiling in order to make steam that turns a turbine, using heat from solar thereafter to keep the water boiling. Those rules call for an allocation of the basis of equipment that is involved in both solar energy production and conventional energy production based on an annual

British thermal unit (BTU) measurement.<sup>7</sup> However, there is no way to apply a BTU measurement to an item of property such as a reflective roof because there is no way to measure the BTU benefit of the roof that provides the underlying building protection from the elements.

Thus, while acknowledging the necessity of allocating total cost between eligible and ineligible components, the ruling does not tell us (although it suggests) how to make that allocation:

We conclude that the [equipment] constitutes energy property . . . except to the extent that Treasury Regulation Section 1.48-9 requires that a portion of the basis of the property is allocable to any portion of such property that performs the function of roof, e.g., portion from rain, snow, wind, sun, hot or cold temperatures or that provides structural support or insulation.

LTR 201450013 provided guidance on how to make the allocation. The taxpayer was a “privately-held limited liability company.” Its line of business was unspecified. The taxpayer was “considering the purchase of a . . . solar photovoltaic generation system manufactured by [d]eveloper.” As with the 2009 ruling, the driving force was likely the developer who wanted to communicate to its customers that the IRS had “ruled” on its solar equipment.

The ruling includes a detailed description of the solar equipment. There is a “system” and a “reflective roof.” The system is described as “photovoltaic cells, electrical wiring, associated inverters and control equipment, and mounting hardware to allow the panels to be positioned above the surface of the roof of Taxpayer’s building.”

The reflective roof is described as “a highly reflecting impermeable membrane of thermoplastic polyolefin . . . and counter flashing, insulation adhesive, a fiberglass mat gypsum board, the fasteners and agents used to affix the membrane, and two layers of polyisocyanurate supporting material.”

LTR 201450013 acknowledges that the incremental cost allocation, as defined in reg. section 1.48-9(k) is not, by the terms of the regulation, applicable to solar.

Treas. Reg. Section 1.48-9(k) provides, in part, that the term “*incremental cost*” means the *excess* of the total cost of equipment over the amount that would have been expended for the equipment if the equipment were not used for qualifying purposes. *Only the incremental cost of the types of property* described in Treas. Reg.

Section 1.48-9(c)(6)(i) (alternative energy property that constitutes modification equipment), Treas. Reg. Section 1.48-9(c)(8) (pollution control property), Treas. Reg. Section 1.48-9(f) (specially defined energy property), and Treas. Reg. Section 1.48-9(g)(7) (recycling property that replaces and increases existing recycling capacity) constitutes energy property. [Emphasis added.]

Note the omission of solar from that list. Nonetheless, the ruling concludes that the incremental cost allocation method is appropriate to use for solar equipment even though it is outside the literal scope of the regulation<sup>8</sup>:

Accordingly, we conclude that the Reflective Roof, when installed in connection with the System, constitutes energy property under section 48 of the Code only to the extent that the cost of the Reflective Roof exceeds the cost of reroofing Taxpayer's building with a nonreflective roof that is allowed by local law.

Industry rumors suggest that the developer had advocated for a fixed percentage (75 percent), which would have avoided the exercise of determining the cost of a standard that merely meets the requirements of local law. The IRS may have rejected that position out of concern that the relative cost of a reflective roof and a non-reflective roof would vary by locality.

Another distinction between the 2011 ruling and the 2014 ruling is that the 2011 ruling referred to Rev. Proc. 79-183, which addresses the ITC eligibility of structural components that are specifically engineered and essentially part of the underlying equipment, while that discussion was omitted from the 2014 ruling.<sup>9</sup> Thus, taxpayers are left wondering: Was there a factual difference in the two rulings or has the IRS decided that the revenue procedure should not be applicable to a solar roofing system?

The three letter rulings appear to suggest three principles that should be included in the new regulations regarding ITC eligibility of reflective roofs that enhance the performance of related solar equipment.

First, if the reflective material is installed over a functioning roof that was not in need of improvement, the entire cost of the reflective material and its installation should be ITC eligible.<sup>10</sup>

Second, if the reflective material is in lieu of a roof and meets the Rev. Rul. 79-18 standard that it is “so specifically engineered” that it is “in essence part of” the related solar equipment, all of the cost of the reflective material and its installation should qualify for the ITC. The regulations could include a presumption that if the reflective features of the roof are attributable to more than 50 percent of the cost, the reflective roof is deemed to be “specifically engineered,” and the entire cost qualifies for ITC.<sup>11</sup> That type of presumption could apply to all dualfunction property, not merely reflective roofs.

Finally, if reflective attributes contribute 50 percent or less of the cost of the reflective roof, the portion of the cost exceeding the cost of a roof<sup>12</sup> that complied with local building regulation requirements would be ITC eligible.<sup>13</sup> This approach could also apply to other dual-function property, the renewable energy component of which contributed 50 percent or less of the cost of the property.

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<sup>1</sup> See section 48.  
<sup>2</sup> Notice 2015-70  
<sup>3</sup> See <http://www.soldist.com/wp-content/uploads/2011/05/PLR-IRS-Solyndra.pdf>.  
<sup>4</sup> 1979-1 C.B. 44.  
<sup>5</sup> See, e.g., reg. section 1.48-9(d)(8) (“incremental cost” of “pollution control equipment”); cf. reg. section 1.48-9(d) (discussing solar equipment with no reference to “incremental cost”).  
<sup>6</sup> See, e.g., reg. section 1.48-9(f)(2).  
<sup>7</sup> See reg. section 1.48-9(d)(6).  
<sup>8</sup> LTR 201444025 addressed solar equipment on “customized bases” (as opposed to a roof) and required a similar allocation but reached that conclusion without any reference to reg. section 1.48-9(k). It is unclear why the IRS deemed it appropriate to reference reg. section 1.48-9(k) regarding the allocation conclusions in LTR 201121005 and LTR 201450013 but not in LTR 201444025.  
<sup>9</sup> A discussion of Rev. Proc. 79-183 was also omitted from LTR 201444025, which addressed “customized bases” that supported solar modules. The customized bases did not appear to be in the nature of a roof.  
<sup>10</sup> See LTR 200947027.  
<sup>11</sup> See LTR 201121005.  
<sup>12</sup> See LTR 201450013.  
<sup>13</sup> In the absence of local building regulation requirements, the taxpayer would look to the standard provided by a widely recognized industry body, such as a national trade association.

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