

## DWEA Statement on Section 45Z in the Senate Finance Committee Reconciliation Draft of Dec. 11, 2021

Section 45Z – Advanced Manufacturing Production Credit (Page 590, Line 20) provides important incentives for domestic manufacturing of solar modules, solar inverters, solar trackers, and wind systems. DWEA strongly supports 45Z, but it could be more equitable and effective with a handful of minor improvements:

1. **Add “distributed wind inverters/converters” up to 150 kW at the solar micro-inverters rate of 11 cents/Watt.**

Rationale: Inverters/converters for wind turbines are different from solar inverters but are equally amenable to domestic manufacturing and U.S. companies are now introducing advanced distributed wind inverters developed with assistance from the US-DOE. Adding distributed wind inverter/converter incentives to 45Z will help build manufacturing volume and lower prices, benefiting U.S. consumers and propelling exports.

An example of the U.S. wind inverter/converter technology entering the market is the Intergrid IG25 25 & 75 kW advance Silicon-Carbide inverter, which has been developed under US-DOE support and which will be used in various versions by Intergrid (Temple, NH), Bergey Windpower (Norman, OK), Pecos Wind Power (Somerville, MA), QED (Tucson, AZ), XFlow (Seattle, WA), Wind Harvest (Sacramento, CA) and Windurance (Coraopolis, PA). Small wind turbines require inverter designs that are different from solar inverters (due to differences in inputs and loading control) and they are manufactured in much smaller volumes than either solar or large wind inverters. The Intergrid IG25 inverter/converter is shown below.

The fiscal impact of adding small wind inverters/converters to Section 45Z will be quite small because the proposed size limit of 150 kW represents under 1% of the current wind turbine market in the U.S. DWEA estimates that the cost of this provision would be under \$25M over 5 years and under \$100M over 10 years.



2. **Double the manufacturing credits for distributed wind turbines up 150 kW.**

Rationale: There are significant economies of scale for onshore wind turbines and providing the same capacity-related incentives for components provides a much smaller relative incentive for smaller

distributed wind turbines. In their latest report Lazard<sup>1</sup> provides a midpoint Capital Cost for MW-scale onshore turbine used in windfarms of \$1,186/kW (offshore wind = \$3,050/kW). NREL<sup>2</sup> provides current midpoint Capital Costs for a 20 – 100 kW distributed wind turbines at \$4,988/kW. But DWEA expects these costs to be reduced to around \$3,500/kW by 2023 based on emerging advanced technology.

As currently written, 45Z would provide an 11.8% tax credit on a 3 MW windfarm turbine (\$420,000 credit / \$3,588,000 installed cost), but only a 4% tax credit on a 25 kW farmer-owned turbine (\$3,500 credit / \$87,500 installed cost), using the \$3,500/kW figure. Also, many small wind turbine manufacturers are pass-through entities (e.g., Subchapter-S or LLC's) subject to higher personal income tax rates than large wind turbine manufacturers so the credit would be more impactful to these small businesses.

### 3. **Add a certification of quality requirement for wind turbines up to 150 kW**

Rationale: Because there's a lower cost of entry for wind manufacturing, compared to solar, and the credits are refundable, DWEA is concerned that opportunists will offer substandard products and game, in the short-term, the incentives intended to generate long-term manufacturing jobs. This "gaming" has happened in the past on many occasions (particularly from Chinese shadow companies). The IRS currently requires certification for the Section 48 ITC through a letter ruling.

An example of the gaming DWEA fears is provided by a company that offers a 9" x 9" "MicroCube" shrouded wind turbine that they rate at 1,000 Watts at 22 mph. This would require an efficiency of 3,290%, which is physically impossible. A more realistic rating would be 15 Watts, or about 98% lower.<sup>3</sup> They package these in multiple units they call a "WindWall." The "WindWall" turbine is not certified to the American national standards and does not qualify for the Section 48 ITC.

The "MicroCube" also has 11 blades so it would qualify for 3.7 times the blade manufacturing tax credit compared to Vestas, GE or Bergey, whose turbines have 3 blades. DWEA believes that the refundable tax credit that could be claimed by this company could easily exceed their total manufacturing cost.



[This document was updated on 6/20/2022]

Contact: Lloyd Ritter, DWEA Policy Director, 202-215-5512, [lritter@greencapitol.net](mailto:lritter@greencapitol.net)

---

<sup>1</sup> Lazard's Levelized Cost of Energy Analysis – Version 15.0, October 2021

<sup>2</sup> Technology Innovation Pathways for Distributed Wind Balance-of-System Cost Reduction, Parangat Bhaskar and Tyler Stehly, Technical Report No. NREL/TP-5000-77452, April 2021

<sup>3</sup> Assuming 20% overall efficiency at 30 mph, where most commercial turbines reach their peak power.

## **Suggested edits:**

### Inverters

Add a new definition to 45Z (B), Page 597, Line 11, as a new section “(VI) distributed wind inverter/converter, 11 cents.” This is the same incentive proposed for solar micro-inverters. Additional changes in this section are:

In Section (B) ASSOCIATED DEFINITIONS, in (i)(I), Page 597, Line 11, add "or distributed wind turbines" after "modules"

In the same Section (B), after (VI) add a new section:

"(VII)" DISTRIBUTED WIND INVERTER/CONVERTER. - The term "distributed wind inverter/converter" means an inverter/converter which -

"(aa) is used in residential and non-residential systems utilizing one of more certified wind energy systems,

"(bb) has a rated output of not more than 150 kW.

Also, on Page 599, beginning on Line 7, in Section (B), ASSOCIATED DEFINITIONS, (i) INVERTERS, (VI) UTILITY INVERTER, (aa) insert "solar or wind" after "utility-scale".

### Wind Component Incentive Levels

After Line 10 on Page 594, after (iv), add “(v) in the case of a distributed wind system up to 150 kW the applicable amounts shall be doubled”

### Certification

After Line 11 on Page 604, insert a new section<sup>4</sup>:

“(C) IN GENERAL.—The term wind component means any blade, tower, nacelle, or hub which is a component in a wind energy system which—

“(i) is rated at more than 150 kilowatts, or

“(ii) is certified by an accredited certification agency to meet Standard 9.1-2009 of the American Wind Energy Association or revisions approved by the American National Standards Institute.

---

<sup>4</sup> Alternatively, the language in S. 2909 could be used with an updated designation for the new ANSI-approved certification standard, which is ACP 101-1-2021 (the SWT-1 designation is now obsolete).