

NEIL ABERCROMBIE
GOVERNOR

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Letter Ruling No. 2011-07

[redacted text]

[redacted text]

[redacted text]

September 13, 2011

**RE: ANALYSIS OF PHOTOVOLTAIC SYSTEM INSTALLATION UNDER
TAX INFORMATION RELEASE NOS. 2010-02 AND 2010-03**

Dear [redacted text]:

This letter is in response to your March 29, 2011 request for a letter ruling analyzing the composition of two systems that qualify for the renewable energy technologies income tax credit under Section 235-12.5, Hawaii Revised Statutes (HRS) ("Energy Credit"), based on the facts discussed below.

STATEMENT OF FACTS

You will be installing two photovoltaic "systems" within the meaning of HRS § 235-12.5. Your request relates not to the number of systems, but rather the composition of the two systems. You are requesting advice on determining the appropriate composition of the two photovoltaic systems.

The proposals include the following components that comprise two legitimate photovoltaic systems—

- 16 [redacted text] solar panels
- 16 [redacted text] microinverters
- 2 circuit breakers

Technical literature for these components is attached as Exhibit A.

[redacted text] technical data states this model of microinverter can have a maximum of 15 inverters connected to a single 15-Amp circuit breaker. Since the installation is designed to have 16 microinverters there will need to be a second 15-Amp breaker installed to accommodate the sixteenth inverter. For a system utilizing the foregoing components, you are contemplating

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[redacted text]

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two different system designs. Based upon the two different system designs, two materially different Energy Credit calculations result. The two proposals and the respective tax credit attributes as represented by you are as follows:

Proposal A

- System 1 is comprised of 15 panels and 15 microinverters
 - Total cost = \$21,000
 - Energy Credit generated = \$5,000
- System 2 is comprised of 1 panel and 1 microinverter
 - Total cost = \$1,400.
 - Energy Credit generated = \$490
- Total Energy Credit:

	System 1	\$5,000
	<u>System 2</u>	<u>\$490</u>
Proposal A	Total	\$5,490

Proposal B

- System 1 is comprised of 8 panels and 8 microinverters
 - Total cost = \$10,500.
 - Energy Credit generated = \$3,675
- System 2 is comprised of 8 panels and 8 microinverters
 - Total cost = \$10,500.
 - Energy Credit generated = \$3,675
- Total Energy Credit:

	System 1	\$3,675
	<u>System 2</u>	<u>\$3,675</u>
Proposal B	Total	\$7,350

As discussed above, you represent that the two different system designs contain similar components. As can be seen in the analysis of the system proposals above, materially different Energy Credit calculations occur (*i.e.*, \$5,490 vs. \$7,350).

You also represent that, Energy Credit calculations aside, once the conditions are met to necessitate two systems (*i.e.*, the inclusion of a sixteenth microinverter in the installation), you would choose to balance the number of inverters on each connection as described in Proposal B in order to reduce electrical line loss and generate significantly more power over the 25-year lifespan of the system. Your reason for this preference is that as microinverters are added to a branch circuit, voltage drop increases non-linearly. Reducing the number of microinverters in a branch circuit greatly reduces the voltage measured at the last microinverter in the branch. One way to minimize voltage drop is to balance each branch circuit to minimize the total number of

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inverters per string. Balancing the branch circuits as described under Proposal B will result in a 350% decrease in voltage drop losses over the 25-year lifespan of the system compared with the voltage drop losses that could be expected under Proposal A. Additional discussion of voltage drop is attached as Exhibit B.

ISSUE PRESENTED

Whether Proposal B, based upon the facts in this letter, is considered tax-motivated within the meaning of Tax Information Release (TIR) Nos. 2010-02 and 2010-03.

BRIEF ANSWER

Proposal B is not tax-motivated within the meaning of TIR Nos. 2010-02 and 2010-03 because you have legitimate non-tax reasons for choosing Proposal B over Proposal A and therefore you may claim the higher credit amount generated under Proposal B.

ANALYSIS

Section 235-12.5, HRS, provides an income tax credit for each renewable energy technology system placed in service. The amount of the credit is subject to a cap, which is dictated by the number of "systems." *See* HRS § 235-12.5(a)-(b). The Department has issued TIR Nos. 2007-02, 2010-02 and 2010-03 to provide additional guidance on determining a "system" for purposes of the Energy Credit.

"Renewable energy technology system" is defined by section 235-12.5(b), HRS, as "a system that captures and converts a renewable source of energy, such as wind, heat (solar thermal), or light (photovoltaic) from the sun into:

- (1) A usable source of thermal or mechanical energy;
- (2) Electricity; or
- (3) Fuel."

TIR 2007-02 defines a photovoltaic energy system as "an identifiable facility, equipment, apparatus, or the like that converts light (photovoltaic) energy to useful thermal or electrical energy for heating, cooling, or reducing the use of other types of energy that are dependent upon fossil fuel for their generation."

While TIR Nos. 2007-02, 2010-02 and 2010-03 provide numerous examples for determining the number of legitimate systems for purposes of the Energy Credit, they do not directly address the question in this case: where more than one system is necessitated, what constitutes legitimate composition of those multiple systems for purposes of the Energy Credit?

The Department believes the general principles used for determining the number of

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systems, as discussed in TIR Nos. 2010-02 and 2010-03, should be used for determining the system compositions in instances where multiple systems will be installed. Specifically, TIR 2010-02 states that independent, separate systems are those that "have a legitimate purpose and are not tax-motivated." Similarly, the Department believes that, in instances where more than one system is installed, the system compositions must serve a legitimate purpose and not be tax-motivated.

Examples of legitimate, nontax reasons for system design in TIR 2010-02 include: 1) separate circuit breaker connections; 2) independent utility metering; 3) system capacity or equipment requirements; and 4) any other system design certified by an electrical engineer as being non-tax-motivated. *See* TIR No. 2010-02, pg. 5. Further examples of legitimate, nontax reasons for system design in TIR 2010-03 include: 1) Maximum Power Point Tracking; 2) multiple roof planes; 3) shading; 4) future system expansion; 5) increased inverter efficiency; 6) utility requirements; and 7) maximizing energy output. *See* TIR No. 2010-03, pg. 4.

Based upon the facts discussed in this letter, Proposal B, which is identical to Proposal A in components and number of systems, has legitimate, non-tax reasons for being chosen over Proposal A. Specifically, you represent that Proposal B is superior to Proposal A in terms of [redacted text] as discussed by TIR No. 2010-02, and that Proposal B is superior to Proposal A in terms of [redacted text] as discussed by TIR No. 2010-03.

CONCLUSION

Based upon the discussion above, Proposal B is motivated by legitimate, non-tax reasons. You may claim the Energy Credit pursuant to the calculations discussed above. So long as your reasons for choosing Proposal B over Proposal A are those legitimate, non-tax reasons discussed in this letter, you may claim the higher credit generated under Proposal B.

This ruling is applicable only to you and shall not be applied retroactively. It may not be used or cited a precedent by any other taxpayer.

The conclusions reached in this letter are based on our understanding of the facts that you have represented. If it is later determined that our understanding of these facts is not correct, the facts are incomplete, or the facts later change in any material respect, the conclusion in this letter will be modified accordingly. Specifically, should the Department ever find that in fact you chose Proposal B over Proposal A solely for tax reasons as discussed under TIR Nos. 2010-02 and 2010-03, the Department may recharacterize your credit claim and adjust the amount of credit you are owed downward. This ruling also may be subject to change due to future amendments to laws, rules, or official Department positions.

You have reviewed and agreed that a redacted version of this ruling will be available for public inspection.

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[redacted text]

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If you have any further questions regarding this matter, please call me (808) 587-5334. Additional information on Hawaii's taxes is available at the Department's website at www.state.hi.us/tax.

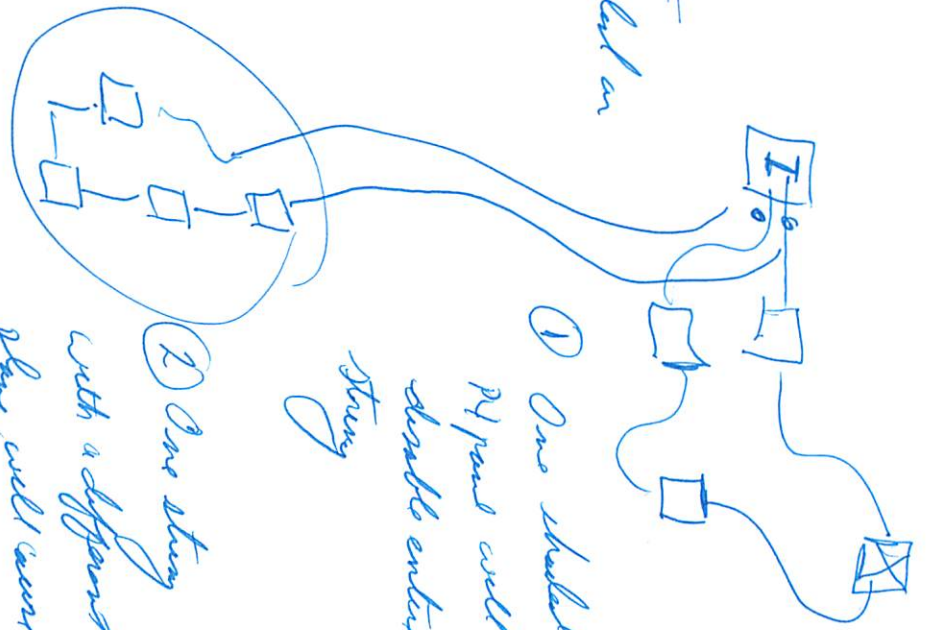
Sincerely,

/s/ Jacob L. Herlitz /s/

JACOB L. HERLITZ
Administrative Rules Specialist

MULTIPLE ROOF PAVES

If any panel in system is shaded or



① One shaded PV panel will shade the entire string

② One string with a different panel will seem unlike to be different at all times panels. Not balanced