Financing Solar+Storage with Federal Tax Credits

February 3, 2016

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Project Manager
Clean Energy Group
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- Increase public/private investment in clean, resilient power systems
- Engage city officials to develop resilient power policies/programs
- Protect low-income and vulnerable communities
- Focus on affordable housing and critical public facilities
- Advocate for state and federal supportive policies and programs
- Technical assistance for pre-development costs to help agencies/project developers get deals done
- See www.resilient-power.org for reports, newsletters, webinar recordings
Today’s Speakers

• **Gary Hecimovich**, Partner, Washington National Tax Office, Deloitte Tax

• **Joel Meister**, Tax Manager, Washington National Tax Office, Deloitte Tax
Financing Solar + Storage with Federal Tax Credits

Gary Hecimovich
Joel Meister
Deloitte Tax LLP

February 3, 2016
Financing storage with energy credits

- Background on Energy Storage
- Evolution in tax code treatment
- Tax issues associated with specific use cases
- Looking ahead – current projects and new regulations
- Questions
What does storage have to do with energy credits?

• Despite falling costs, energy storage remains prohibitively expensive in many markets.
• Some states have incentivized adoption.
• No federal tax incentive currently in place
• Interest in pairing with tax credit-eligible projects.
  − Protecting Americans from Tax Hikes Act of 2015 (the “PATH Act”)
  − Consolidated Appropriations Act of 2016 (the “Omnibus bill”)
Emerging use cases

Source: Rocky Mountain Institute
## Primary federal energy tax benefits

<table>
<thead>
<tr>
<th>Incentive</th>
<th>Economic benefit</th>
<th>Investment horizon</th>
<th>Timing of benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Tax Credit (PTC) (IRC § 45)</td>
<td>Currently $2.3 cents per kilowatt-hour (kWh)</td>
<td>10 Years</td>
<td>10 years</td>
</tr>
<tr>
<td>Investment Tax Credit (ITC) (IRC § 48, §25D)</td>
<td>10% or 30% of eligible basis</td>
<td>5 Years</td>
<td>1st year</td>
</tr>
<tr>
<td>Modified Accelerated Cost Recovery Period (MACRS) (IRC § 168)</td>
<td>Accelerated depreciation deduction</td>
<td>5-Year property</td>
<td>6 years</td>
</tr>
</tbody>
</table>
## PTC and ITC in lieu of PTC

### Summary

<table>
<thead>
<tr>
<th>Qualified Resources/Facilities</th>
<th>Credit Amount for 2015</th>
<th>Construction Beginning…</th>
<th>Phase-out (Reduction to PTC)</th>
<th>30% ITC Election</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind</td>
<td>2.3 cents/kwh</td>
<td>Before 1/1/2017</td>
<td>None</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>After 12/31/206 and before 1/1/2018</td>
<td>20%</td>
<td>24%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>After 12/31/2017 and before 1/1/2019</td>
<td>40%</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>After 12/31/2018 and before 1/1/2020</td>
<td>60%</td>
<td>12%</td>
</tr>
<tr>
<td>Geothermal</td>
<td>2.3 cents/kwh</td>
<td>Before 1/1/2017</td>
<td>None</td>
<td>30%</td>
</tr>
<tr>
<td>Closed-loop biomass</td>
<td>2.3 cents/kwh</td>
<td>Before 1/1/2017</td>
<td>None</td>
<td>30%</td>
</tr>
<tr>
<td>Open-loop biomass</td>
<td>1.2 cent/kwh</td>
<td>Before 1/1/2017</td>
<td>None</td>
<td>30%</td>
</tr>
<tr>
<td>Municipal solid waste (landfill gas, trash)</td>
<td>1.2 cent/kwh</td>
<td>Before 1/1/2017</td>
<td>None</td>
<td>30%</td>
</tr>
<tr>
<td>Hydropower</td>
<td>1.2 cent/kwh</td>
<td>Before 1/1/2017</td>
<td>None</td>
<td>30%</td>
</tr>
<tr>
<td>Marine and hydrokinetic renewables (including small irrigation power)</td>
<td>1.2 cent/kwh</td>
<td>Before 1/1/2017</td>
<td>None</td>
<td>30%</td>
</tr>
</tbody>
</table>
# ITC Summary

<table>
<thead>
<tr>
<th>Qualified Resources/Facilities</th>
<th>ITC rate</th>
<th>Statutory Deadline*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar*</td>
<td>30%</td>
<td>Before 1/1/2020</td>
</tr>
<tr>
<td></td>
<td>26%</td>
<td>After 12/31/2019 and before 1/1/2021</td>
</tr>
<tr>
<td></td>
<td>22%</td>
<td>After 12/31/2020 and before 1/1/2022</td>
</tr>
<tr>
<td></td>
<td>10%</td>
<td>Before 1/1/2022 but PIS after 12/31/2023; After 12/31/2021</td>
</tr>
<tr>
<td>Fuel cell</td>
<td>30%</td>
<td>Before 1/1/2017</td>
</tr>
<tr>
<td>Stationary microturbine</td>
<td>10%</td>
<td>Before 1/1/2017</td>
</tr>
<tr>
<td>Geothermal heat pump</td>
<td>10%</td>
<td>Before 1/1/2017</td>
</tr>
<tr>
<td>Small wind</td>
<td>30%</td>
<td>Before 1/1/2017</td>
</tr>
<tr>
<td>Combined heat/power</td>
<td>10%</td>
<td>Before 1/1/2017</td>
</tr>
<tr>
<td>Geothermal</td>
<td>10%</td>
<td>[Permanent]</td>
</tr>
</tbody>
</table>
Credits and storage at first glance

• At the outset, an ITC on cost of the storage asset is valuable.

• A production-based incentive like the PTC does not directly benefit the taxpayer
  – Storage device can only discharge what is input to the device. Contrary to some views, it can not generate its own energy! (more on this later)
  – But note tax benefit can accrue indirectly from ability to store electricity from a curtailed facility (e.g., wind facilities) and later sell to 3rd party.
Qualified facility vs. energy property

• Section 48
  – Directly contemplates a variety of components within the definition of qualifying energy property, including storage.
• More complex standard for Section 45 vs. 48 with respect to eligible property
  – IRS in Notice 2009-52 said: other tangible property part of a qualified facility only if “integral” to the facility.
Historical tax code treatment

• ITC can be traced as far back as 1962
• Tax regulations in 1978 included “storage devices” in the definition of qualifying energy property for solar, wind, and geothermal – but equipment that used only qualified energy
• If property used both qualified and non-qualified energy (“dual use property”), it was not considered qualifying solar, wind, or geothermal energy property for purposes of the ITC
• In 1987, Treasury re-considered legislative intent and adopted so-called “75% Cliff”
Historical Tax Treatment

In 1987, Treasury reconsidered its approach:

“Upon reconsideration of the legislative history, it has been determined that, while Congress did not intend that property that does not use qualified energy be eligible for the business energy credit as solar, wind, or geothermal property, Congress also did not intend to adopt an all or nothing rule for dual use solar, wind, or geothermal energy property. Neither the statute nor the legislative history of section 48(l) include this restriction. Where such a restriction was intended (as in the case of the residential energy credit for solar, wind, and geothermal property) the committee reports explicitly said so.”

Source: Proposed Regulations, December 9, 1986, 51 FR 44315-01
Historical tax treatment

Primary elements to dual use property rule

• Dual use property may qualify to the extent of the property's basis or cost allocable to its annual use of qualified energy so long as the use of non-qualified energy does not exceed 25 percent of the total energy input of the property in “annual measuring period” defined as the “365-day period beginning with the day it is placed in service or a 365-day period beginning the day after the last day of the immediately preceding annual measuring period.”

• Allocation may be made by comparing, on a Btu basis, energy input to dual use property from qualified sources with energy input from other sources.

• However, the Commissioner may accept any other method that, in his opinion, more accurately establishes the relative annual use of energy from qualified sources and energy from other sources.

• Recapture required for any reduction in basis or cost allocable.
Historical tax treatment

- Example in the Regulations at Treas. Reg. Section 1.48-9(d)(8):
  - Taxpayer, constructs an apartment building and purchases equipment to convert solar energy into heat for the building.

- Equipment
  - Oil-fired water heater and other equipment to provide a backup source of heat when the solar energy equipment cannot meet the energy needs of the building
  - Roof solar collector
  - Heat exchanger
  - Hot water tank
  - Control component
  - Pumps
  - Pipes
  - Fan-coil units that could be used with energy derived from an oil or gas substance
  - Valves

On a Btu basis, 80% of the total energy input to the dual use equipment during the 365 day period is from solar energy.
## Historical tax treatment

<table>
<thead>
<tr>
<th>Solar energy property</th>
<th>Ineligible</th>
<th>Dual use equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Roof solar collector</td>
<td>1. Oil-fired water heater</td>
<td>1. Distribution pipe</td>
</tr>
<tr>
<td>2. Pumps between water tank and collector</td>
<td>2. Equipment providing a backup source of heat when the solar energy equipment is insufficient</td>
<td>2. Control component</td>
</tr>
<tr>
<td>3. Pipes between rooftop collector and hot water tank</td>
<td>3. The pumps and valves serving oil-fired water heater as well as the solar energy equipment</td>
<td></td>
</tr>
<tr>
<td>4. Hot water tank</td>
<td>* Qualify only to the extent of eighty percent of their cost or basis, the portion allocable to use of solar energy.</td>
<td></td>
</tr>
<tr>
<td>5. Heat exchanger</td>
<td>* Subject to annual measurement/recapture.</td>
<td></td>
</tr>
</tbody>
</table>
Recent evolution in tax treatment

• Little case law applying dual use rules to energy property
  – Majority of analysis focuses on thermal.

• More recently, rules applied to 1603 Grants.

• Beginning in 2011, IRS would issue 3 Private Letter Rulings that would show an evolution in the application of ITC rules to energy storage devices.
  – Note that only the requesting taxpayer may rely on the ruling
## Notable private letter rulings

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility-scale wind</td>
<td>Utility-scale wind (subject to curtailment)</td>
<td>Rooftop solar PV (prospective for typical setup)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Storage device</th>
<th>Li-ion battery</th>
<th>Undisclosed battery</th>
<th>Undisclosed battery</th>
</tr>
</thead>
</table>

| Use case(s) | Frequency regulation | - Time shifting  
- Frequency regulation | - Time shifting  
- Frequency regulation  
- Ramp rate  
- Demand charge management  
- Time of use |
|---------------|----------------------|---------------------|---------------------|

<table>
<thead>
<tr>
<th>Non-qualified input %</th>
<th>Redacted - reportedly ~3% no methodology</th>
<th>Redacted - reportedly ~15% no methodology</th>
<th>No mention of inputs from grid or other non-qualifying sources</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>IRS analysis</th>
<th>Mentions dual use rules, but only concludes that it is not auxiliary equipment</th>
<th>Mentions dual use rules, but only concludes that it is not auxiliary equipment</th>
<th>Notes inputs from solar and grid for off-peak/peak use, as well as supplying to grid during peak hours via NEM</th>
</tr>
</thead>
</table>

| IRS conclusion | Full cost eligible for ITC in lieu of PTC election under IRC Section 48(a)(5) | Full cost eligible for ITC in lieu of PTC election under IRC Section 48(a)(5) | - Applies dual use rules  
- No additional credit for subsequent increase in % |
|----------------|------------------------------------------|--------------------------|----------------------------------|
## Notable private letter rulings

<table>
<thead>
<tr>
<th>Energy property</th>
<th>PLR 201444025 May 5, 2014</th>
<th>PLR 201543001 July 17, 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>DG solar PV (reportedly solar infrastructure/light poles)</td>
<td>No generation – Storage only PLR request on asset class life for depreciation purposes</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Storage device</th>
<th>Undisclosed batteries</th>
<th>Undisclosed technology</th>
</tr>
</thead>
</table>

| Use case(s) | - Designed for self-consumption  
- Capable of exporting energy to the grid in some cases | Frequency regulation only |
|-------------|------------------------------------------------------------------|--------------------------|

<table>
<thead>
<tr>
<th>Non-qualified input %</th>
<th>No mention of inputs from grid or other non-qualifying sources</th>
<th>Only inputs from grid energy</th>
</tr>
</thead>
</table>

| IRS analysis | - “Single solar energy system”  
- Emphasizes certain components will support lights, surveillance equipment, motion detectors, two-way transmission | - Despite buying/selling electricity, transactions are "ancillary to frequency regulation service" and effectively the cost of providing service  
- Function is not transmission and distribution |
|--------------|------------------------------------------------------------------|-----------------------------|

| IRS conclusion | - Storage device fully eligible  
- Requires allocation of basis to the extent the support components perform another function as non-energy property (no methodology) | - Storage device is deemed to be Rev. Proc. 87-56 class 57 - Distributive Trades and Services  
- 5-year MACRS property |
|----------------|------------------------------------------------------------------|-----------------------------|
Notable private letter rulings

Takeaways for industry

• IRS analysis has evolved in last five years
• Remember that technology is very new, along with new business models
• Tech x market segments x use cases = ?
• Even wind projects with batteries will likely be subject to dual use haircut for non-qualified inputs going forward
Tax issues associated with use cases

QEG with ancillary services

• Frequency regulation requires the storage device to charge and discharge energy when called upon by an electronic signal from grid operator

• IRS noted in the first PLR that the energy is “drawn temporarily from the grid”

• Charging/discharging occurs in second increments yet IRS appears to take the view that this is “use” for purpose of the dual use rules
Tax issues associated with use cases

Complexity of behind-the-meter configurations

- Many systems are capable of providing overlapping functionality, such as bi-directional inverters
- Storage device charging could pull energy from different sources simultaneously – how can you tag electrons?
- Consider documenting how the system controls storage device inputs from possible sources
- Metering considerations – DC meter for solar panels enables you to compare panel output to inverter activity
Tax issues associated with use cases

QEG + On-site generation

• Easiest example is a microgrid where end-user wants to be able to integrate an existing back-up generator with qualifying energy generation (QEG) and storage device
• Creates issue where storage device may be charged with QEG, but also energy inputs from a non-qualifying resource
• Novel question: What is storage device’s eligibility if 50% of a storage device’s input is from solar, and the other 50% is from another renewable energy resource (e.g., geothermal)? Does it meet the 75% cliff?
Tax technical issues

• Drawing the box
• Placed in service for new build vs. “retrofits”
• Separate ownership of QEG and storage device
• Dual use methodology
Drawing the box

• Consider many of the containerized storage products/services in the market
• Often includes the storage device, but also key components like the inverter and other balance of system components
• Drawing a box around dual use property may implicate such components even if they would otherwise be 100% eligible for the ITC without the storage
New build vs. “retrofits”

• Adding storage device to newly-constructed facility
  – Developers will often coordinate QEG and storage device installations in an effort to have a coordinated placed-in-service date for both
  – Placed-in-service date is determined by 5-factor test developed from a deep body of case law/rulings
• But when is storage with multiple functions placed in service?
• Some have taken view (unrelated to storage) that property must be ready and available for all functions.
New build vs. “retrofits”

- Adding storage device to an operational facility that has already been placed in service
  - IRS guidance and 1603 Grant rulings contemplate scenarios in examples
  - Even in the case of Section 45 qualified facilities, where property is placed in service at a later date than the original facility and, therefore, not functionally interdependent with the original facility.
  - Property may still be eligible if it becomes an integral part of the original facility when placed in service
  - Related questions: split ownership, split 1603 Grant/ITC
Separate ownership

- Some seek to separate ownership of QEG and storage
  - Issue has not been analyzed in detail in rulings published to date

- Statutory eligibility concerns the “use” of solar energy
  - “…equipment that uses solar energy to generate electricity…including storage devices…and parts related to the functioning of those items”

- Consider open-loop biomass example from 1603 Guidance:
  - Conversion equipment and generation equipment owned by different persons, yet they are both qualifying under IRC section 48(a)(5) for each owner due to the equipment functioning as an integrated whole

- Consider recent community solar PLR 201536017
  - Taxpayer permitted to claim 25D residential credit on expenditures associated with a portion of PV panels and a partial ownership interest in racking equipment, inverter equipment, wiring, and other installation services comprising a community solar project (equipment partially owned by other taxpayers)
Separate ownership

- Some case law and IRS ruling support, considering the economic relationship of the components in question
- Consider extent to which the components are co-dependent technically (one inverter?) and legally (one service contract for services?)
- Likely important consideration for retrofits
- Consider more complex hypotheticals
  - Utilities own storage with inverter but solar panels are owned by the homeowner
    - Combination of commercial ITC and homeowner’s credit under IRC section 25D?
  - Flip roles, whereby utility/developer only owns solar panels and separately provides storage and inverter O&M services to homeowner who claims 25D credit?
Dual use methodology

Eligible share of basis = \( \frac{QEG Inputs}{(QEG Inputs + NonQualifying Inputs)} \)

Dual use credit % = Eligible share of basis x Statutory credit

Credit amount = Dual use credit % x Cost basis

Treasury example of 80% in Year 1 (assume $500 cost basis)

Eligible share of basis = \( \frac{80 \text{ kWh}}{(80 \text{ kWh} + 20 \text{ kWh})} = 80\% \)

Dual use credit % = 80% x 30% = 24% (6% haircut)

Credit amount claimed = 24% x $500 = $120

Calc. at end of year 1: 75% x 30% = 22.5% (7.5% haircut)

Credit amount = 22.5% x $500 = $112.5 ($7.50 recaptured)
Dual use methodology – Alternatives?

• Reminder: IRS still retains authority to reject a methodology
• IRS imposes similar allocation requirements for other components (see support structures in fourth IRS PLR) but no details on method
• See also PLRs using incremental cost approach for roofs
• IRS did not foreclose other acceptable methods in 1987 Regulations
• Other areas of the Tax Code require similar allocation requirements for purposes of credits and deductions as a function of various factors: cost, time, revenues, etc.
• Non-tax methods?
  – “Net” approach akin to net metering?
• PLR would typically offer opportunity to confirm a particular method
Looking ahead

• IRS Notice 2015-70
  – Requesting public comment for new regulations on definition of “qualifying energy property”
  – Key issues: storage and dual use property rules

- **Notice 2015-70 Issued**
  October 2, 2015

- **Comments Due**
  February 16, 2016

- **Proposed Regulations Issued**
  Spring 2017 (Deloitte projection)

- **Final Regulations Issued**
  Fall 2018 (Deloitte projection)

- Taxpayers submit comments
- IRS / Treasury draft proposed regulations
- 60-day comment period
- IRS / Treasury review comments and finalize regulations
- Public hearing held approximately 3 weeks after 60-day comment window
Looking ahead

• IRS Notice 2015-70 – Specific issues identified

1. Whether only property that actually produces electricity may be considered energy property or whether property such as storage devices and power conditioning equipment may also be considered energy property.

2. Whether dual use property should qualify for the credit and, if so, under what circumstances it should qualify. If it should qualify, what portion of the basis of dual use property should be taken into account in computing the energy percentage.

3. Comprehensive definitions of the property described in Section 3 of this notice [generally all technologies under IRC section 48].

4. Definitions of terms such as storage devices, power conditioning equipment, transfer equipment, and other property commonly used in conjunction with property described in Section 3 of this notice, as well as definitions of parts related to the functioning of these items.

5. The need for other energy-related definitions.
Looking ahead

• Consider submitting comments by Feb. 16 in response to IRS Notice 2015-70 to further inform the process before new regulations are proposed
  – Conceivably implicates IRC section 45 technologies that could elect to take ITC

• What about the interim?
  – Unlikely that new PLRs will be considered
  – Current dual use rules require documentation on the front-end concerning eligibility, as well as ongoing review
    • Procedures for measuring energy usage
    • Procedures to mitigate risk
Questions?

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• New Jersey Energy Storage Rebate Program, February 17
• Hydrogen and Fuel Cells for Resiliency: Financing Energy Resiliency, February 18
• Energy Storage in PJM: Wholesale Market Rules and Requirements, February 23
• Software for Energy Storage Optimization: Free Tools from Sandia National Laboratories, February 25

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