NREL
NATIONAL RENEWABLE ENERGY LABORATORY





Tax Incentive Based Financing Options for Renewable Energy

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Financing Options and Sources of Capital

- Cash on hand (e.g., reserves, trust, cash flow from other activities)
- Grants from third parties
- Renewable energy incentives
- Monetizing green attributes (e.g., renewable energy certificates [RECs])
- Traditional tax-exempt/corporate debt
- New Market Tax Credits
- Tax incentive based financing mechanisms

Tax-Based Financing Concept:

*Using non-competitive, economically valuable federal tax incentives to secure **tribal and private capital sources** to support financing and development and of renewable electricity*

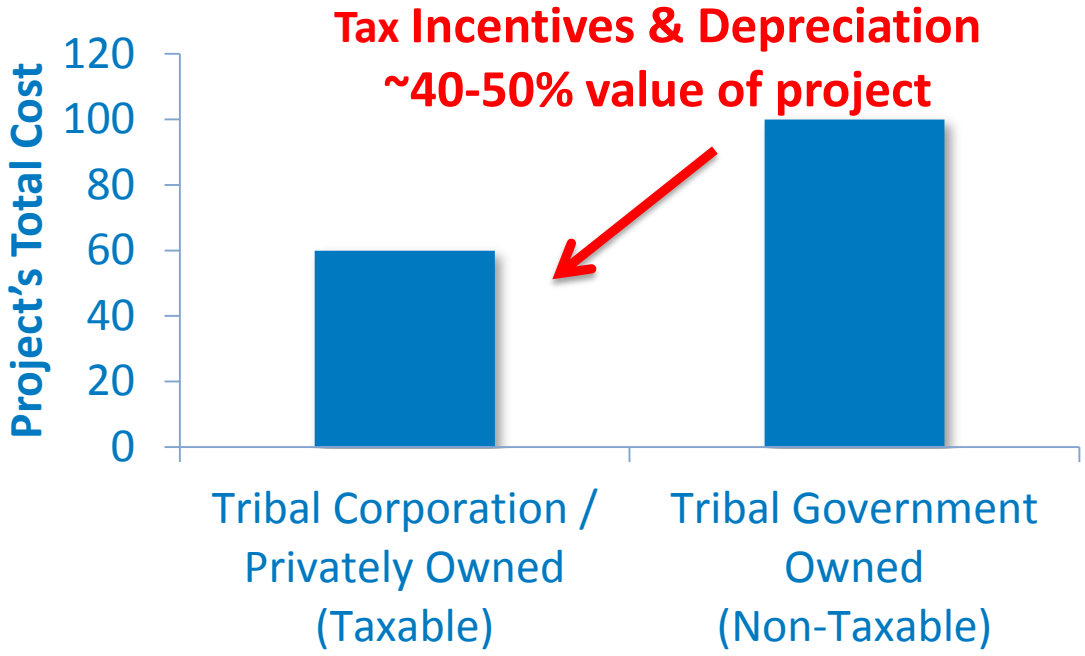
- *Investment Tax Credit, or*
- *Production Tax Credit*

&

- *Depreciation*

Why Seek Tax Incentive – Based Financing?

- Tax incentives (ITC/PTC and Depreciation) can represent up to half the project value, or reduce project's costs by ~40-50% (capital or LCOE)
- Quick recovery of capital by financier – *5 or 6 years*
- Tribal ownership can be contractually structured as soon as year 6
- May be possible to combine with other forms of finance such as new market tax credits (NMTCs)



Investment Tax Credit (ITC)

- One-time federal tax credit worth either 30% or 10% of project's eligible tax basis (by technology)
  - 30% ITC available for primarily solar
  - 10% ITC available for geothermal electric
- Schedule: Project must *"start construction"* to qualify by:

	2016	2017	2018	2019	2020	2021	2022
Solar Technologies	30%	30%	30%	30%	26%	22%	10%

- Example: 1 MW solar project costing $2 M
  - Tax Credit = $600,000 recovered in year 1 of project ($2M x 30%)

For more information on the investment tax credit, see: http://programs.dsireusa.org/system/program/detail/658

Production Tax Credit (PTC)

- 2.3¢ for every kWh generated for *wind*, *geothermal* for 10 years
  - 1.2 ¢/kWh for select other renewable technologies
- Available for 10-years after project is built
- Schedule: Wind projects must *"start construction"* to qualify
  - Other Non-wind technologies placed in service by 12/31/16

	2016	2017	2018	2019	2020
Wind	100% (~2.3¢/kWh)	80% (~1.84¢/kWh)	60% (~1.38¢/kWh)	40% (~.92¢/kWh)	0%

- Example: 1 MW wind, costing $1.5M with 35% capacity factor =
  - ~$70k annually for 10 years = $700k after 10 years

For more information on the production tax credit, see: http://programs.dsireusa.org/system/program/detail/734

Accelerated Depreciation

- **Modified Accelerated Cost Recovery System (MACRS)**
  - Allows for depreciation of certain costs over 5 years (instead of 15-20 year lifetime)
  - Allows owner to "write off" business expenses such as an energy project from taxable income (note tax credits like ITC/PTC reduce tax liability not taxable income)
- **Available to all ITC or PTC eligible technologies**
  - Though not 100% of project costs are eligible for depreciation treatment
- **MACRS Depreciation is *IN ADDITION to ITC or PTC***
- **No stated expiration date**

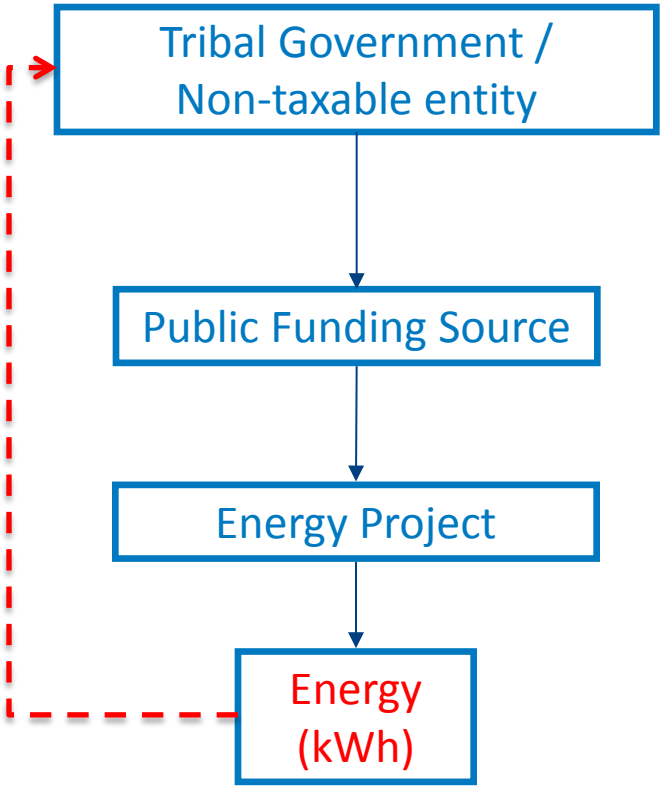
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
5-Year MACRS schedule	20%	32%	19.2%	11.52%	11.52%	5.76%

Example: 1 MW solar project costing $2 M

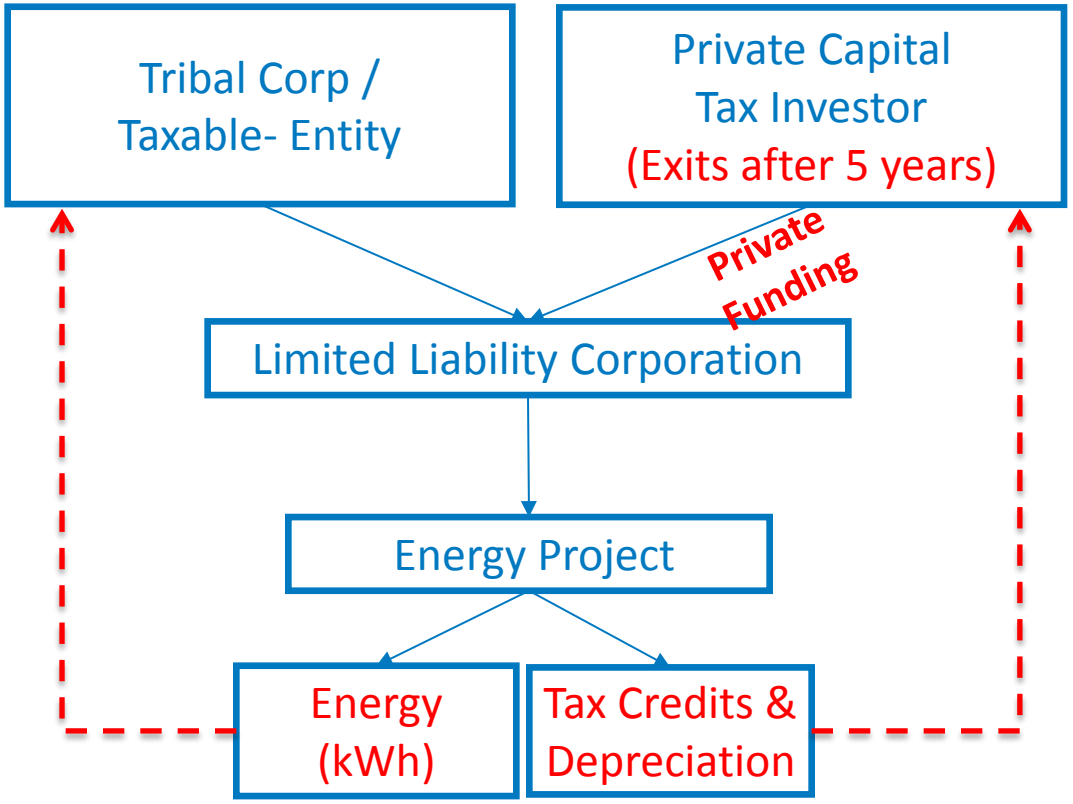
Depreciation = ~ $550,000 recovered in years 1-6 of project

Tribal Non-Taxable Funding vs. Tax Equity Financing

Grant-based funding:
Primary Benefit:
Energy/Cost Savings

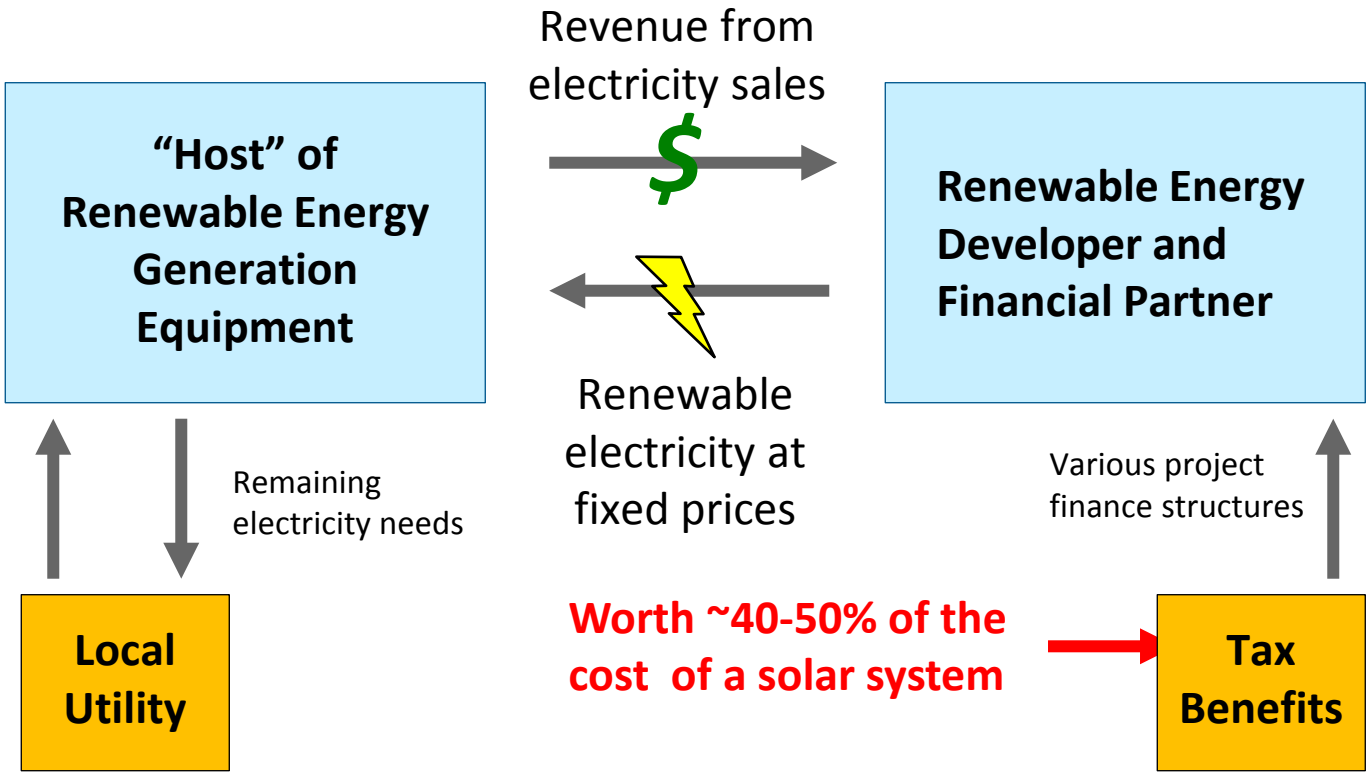


Tax Equity Partnership
Primary Benefits:
Energy / Cost Savings, and Valuable Tax Benefits



Third Party Power Purchase Agreement

- The customer agrees to **host** the system and **purchase** the electricity to indirectly benefit from renewable energy tax based incentives



- Other mechanisms could include a land host and service provider (labor, gravel, etc.) or tribal owner through taxable tribal corporation

Challenges of Tax Credits and Tax-Equity Finance

1. Tax credits cannot be used efficiently by entities without significant tax liability
2. Transaction costs can be high – particularly at first
3. Need to find a tax equity partner
4. Investors generally want large projects or portfolio of projects ($1-2 M min)

More Information

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Cash Purchase: Simple and Direct

- **Things to consider:**

❑ Host ownership requires tax appetite to absorb solar tax benefits
❑ Budgetary constraints – capital allocation, checkbook availability
❑ Financial Statement impact: balance sheet: increase in liabilities & reported leverage
❑ Loan option for cash purchase - New loan products are being introduced to market

Benefits:

✓ Maximize returns by
  - Not passing incentives to a financier: Yields the highest NPV
  - Retaining solar tax benefits and rebates
  - Asset depreciation benefits
  - Any environmental attributes generated by the system
  - Avoiding financing costs

✓ Hedge Against Rising Electricity Prices by limiting exposure to volatile energy rates
✓ Reduce the total time required for a solar project
✓ Loan option
  - Bank terms typically shorter than term of PPA;
  - Cost of debt cheaper than equity;
  - Host may pay higher price for electricity on a monthly basis for a set period (especially when large portion of debt payment is principle)

Considerations for PPA Versus Traditional Municipal Finance

	PPA (Third Party Ownership)	Cash Purchase, Bond, Lease
Upfront Cost	• Low/Zero upfront costs: from $0 down to 50% of cost	• Requires upfront payment in full or loan/lease
Incentives	• Goes to TPO provider	• Stays with system owner
Tax Appetite	• Provided by third party	• Must have sufficient tax appetite/eligibility to use tax credits
Maintenance	• O&M remain the responsibility of the TPO	• You own the system outright and are responsible for O&M and additional costs (i.e. solar inverter) • May require outside entity to track system performance
Term	• Typically 20 years but can be as little as 10 years	• Life of asset for cash purchase • Loan tenor determined by lender. The average is around 7 years with interest rates of 3.5% to 7.5%

Transfer / End of Contract Issues	• Complications may arise when moving or transferring
	• Transfer options may include
	  • Contract buy-out
	  • Transfer to another property
	• Continued payments while technology innovates
		• System generally a money-saving asset
		• Less complicated transfer, buy-out options
		• Solar electricity generated for 25-40 years

Pros	• Low upfront investment, less O&M or repair risks, possible utility savings • Allows for depreciation deductions	• Utility savings, carbon emission reductions, tax credits and other incentives, likely increase property value
Cons	• Leases/PPA may complicate transfer of property • May reduce utility savings compared to purchase	• Larger cash outlay and responsibility for O&M costs • Loss of depreciation (no residential depreciation)