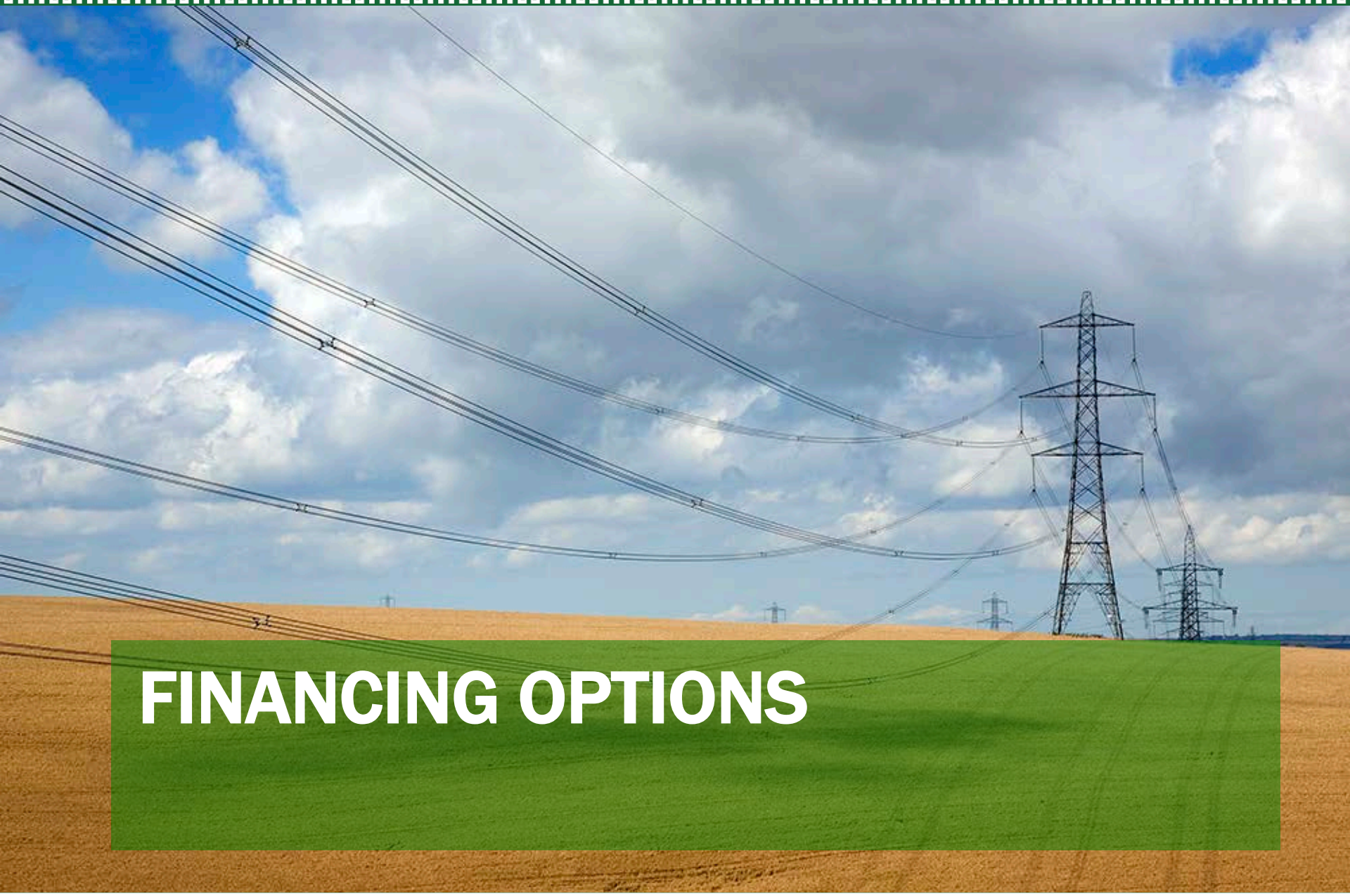


FINANCING OPTIONS

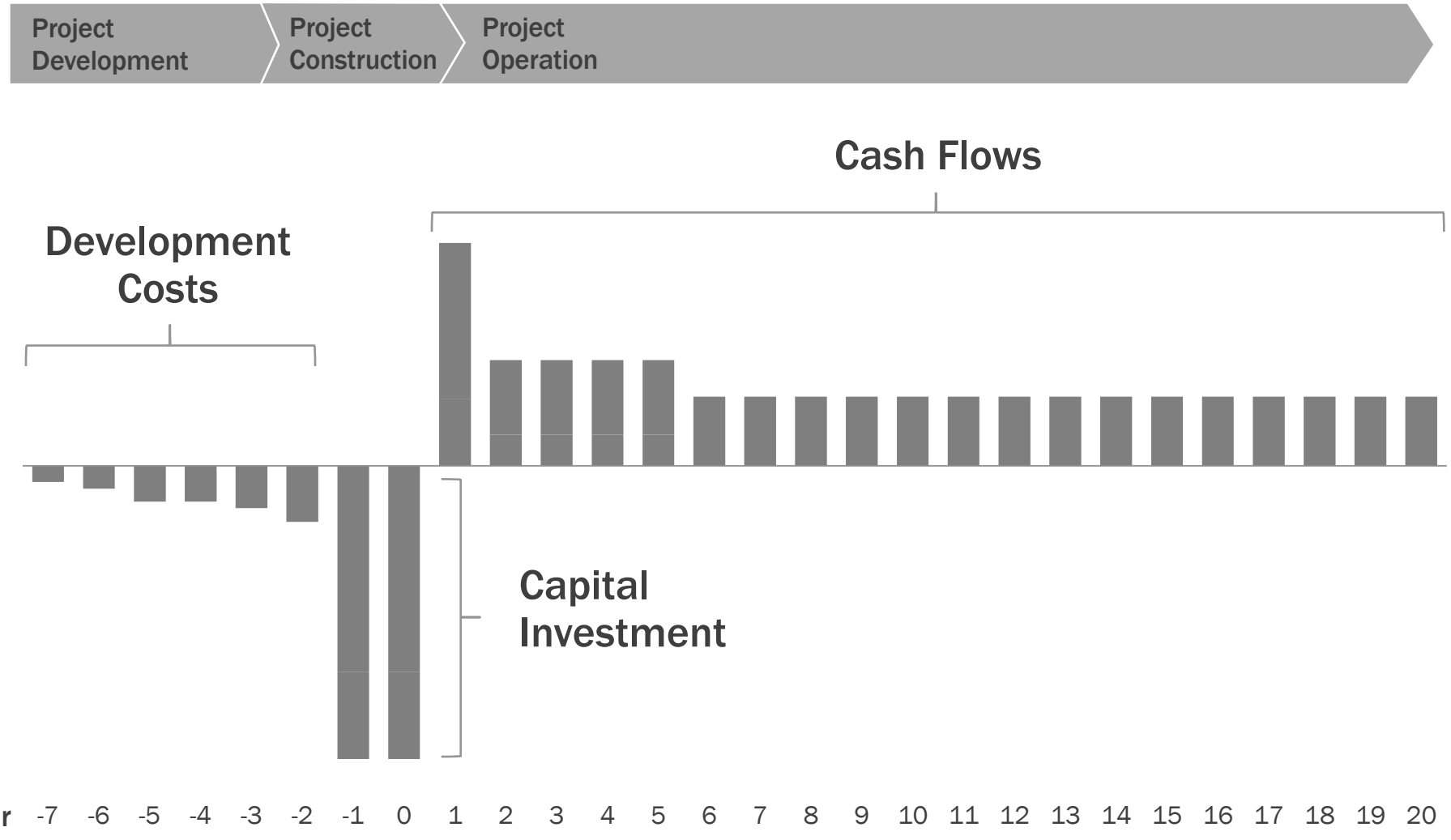
Paying for the Project

Three Major Costs to Develop a Project

- Feasibility – this is the project potential analysis
- Preconstruction – permitting, environmental
- Construction – engineering, procurement of equipment and actual construction of plant

PV panels installed on Grand Ronde Tribal Housing Authority carport.
42 kW: Combination of tribal funds and state incentives
Photo from GRTHA, NREL 31797

Project Costs



Financing Options and Sources of Capital

- Internal tribal funds
- Grants (e.g. TEP, USDA, etc.)
- Incentives (state, local, utility)
- Debt/loans
- Energy saving performance contacts (ESPCs)
- Tax equity incentives
- Monetizing green attributes (RECs)

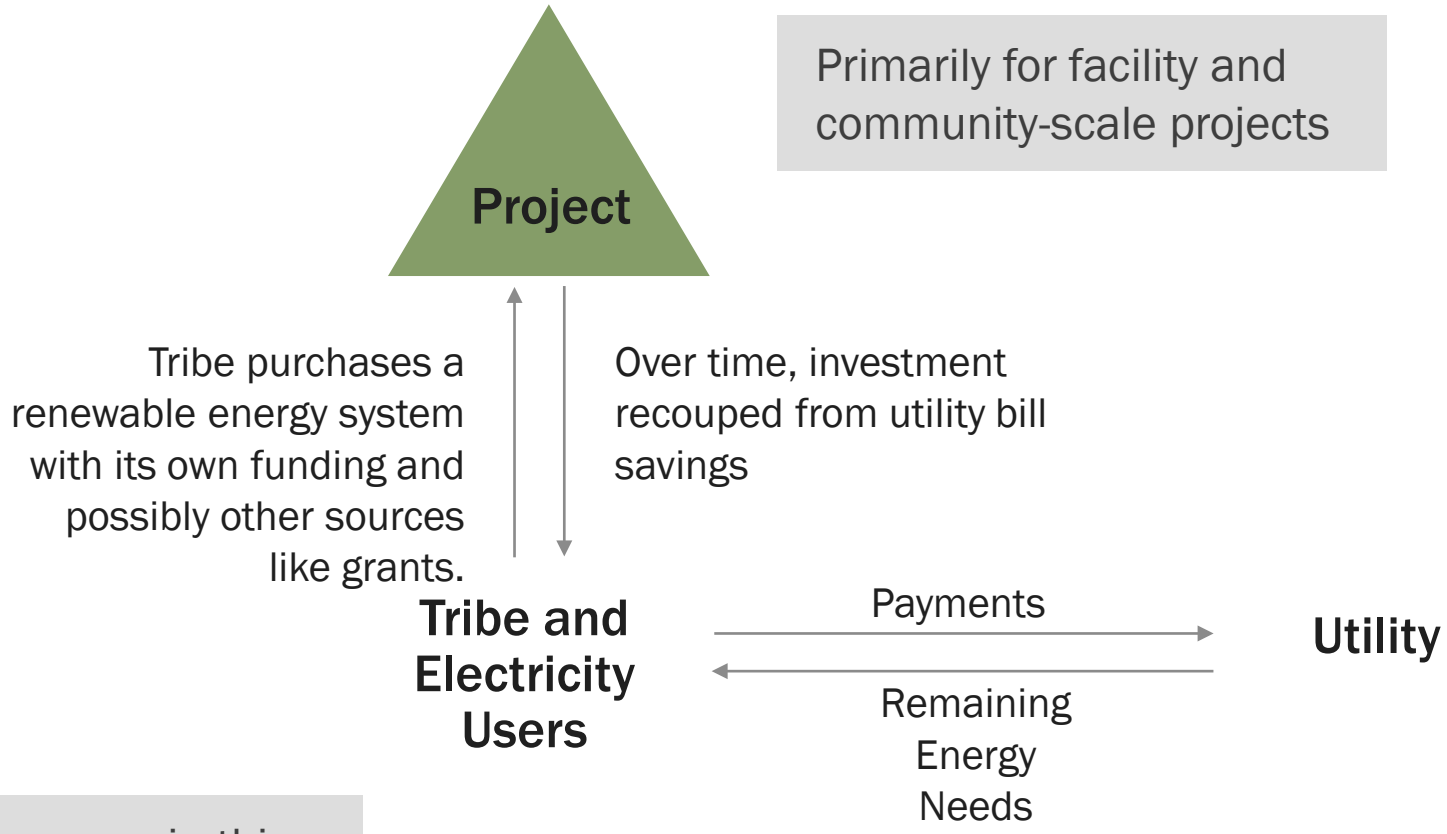
Project will likely involve a combination of sources of capital

Project Ownership

Financing structure is highly dependent on size of the project and the capital available for a given project:

- Tribe owns the project
- Tribe hosts the project and buys the electricity (PPA)
- Tribe partners with private sector and co-develops the project

Direct Ownership Structure



The Tribe is the owner in this structure and self-generates its electricity

Direct Ownership Using Tribal Funds

Advantages

- Maximum control over a project: design, operations, and risks
- Low or no financing costs
- Material reduction in electricity bills
- May own renewable energy certificates (RECs) and can choose to retain or monetize
- Might be only option for small projects

Disadvantages

- Requires upfront financial resources
- Don't fully benefit from available tax incentives given tax-exempt status
- Responsibilities of ownership (operations & maintenance)
- Opportunity costs of not using the cash for other competing investments such as housing, gaming, or other interests

Grants

Advantages

- No repayment (free money)
- No financing costs
- Material reduction in electricity bills
- Might be only option for small projects

Disadvantages

- Typically must be used for a specific purpose and may require match funding of some sort
- Eligibility requirements may limit the applicant pool
- Issued via competitive solicitations
- Application process may be difficult, costly, and time consuming or based on a funding cycle that can delay project
- Likely to involve significant reporting and monitoring efforts

DSIRE Tool: Grants

Filter Options

Category: Financial Incentive | **State/Territory:** New Mexico | **Program Type:** Grant Program

Search... | Subscribe | Show 50 entries | Apply Filter

Name	State/ Territory	Category	Policy/Incentive Type	Created	Last Updated
Tribal Energy Program Grant	US	Financial Incentive	Grant Program	05/01/2003	05/21/2015
Weatherization Assistance Program (WAP)	US	Financial Incentive	Grant Program	03/31/2015	03/31/2015
Low Income Home Energy Assistance Program (LIHEAP)	US	Financial Incentive	Grant Program	03/16/2015	03/16/2015
USDA - Rural Energy for America Program (REAP) Energy Audit and Renewable Energy Development Assistance (EA/REDA) Program	US	Financial Incentive	Grant Program	02/18/2015	02/19/2015
USDA - Repowering Assistance Biorefinery Program	US	Financial Incentive	Grant Program	10/08/2012	02/06/2015
USDA - Rural Energy for America Program (REAP) Grants	US	Financial Incentive	Grant Program	04/09/2003	12/09/2014
USDA - High Energy Cost Grant Program	US	Financial Incentive	Grant Program	09/27/2010	11/20/2014

www.dsireusa.org

Incentives and rebates

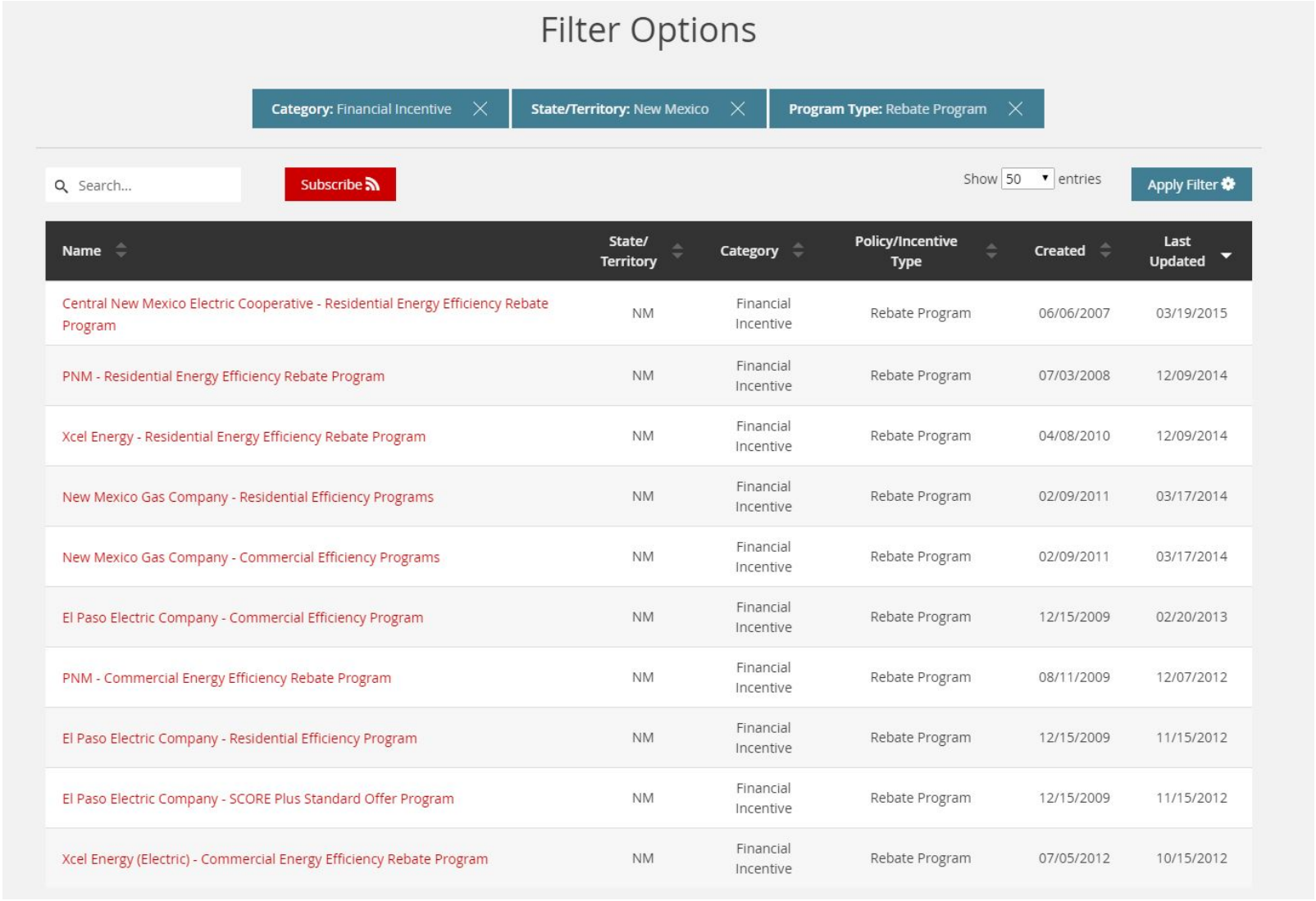
Advantages

- Reduce either the upfront cost of project or assist in repaying construction costs.
  - $/Watt (Capacity based)
  - Cents per kWh (Production based)
- Reduces need for debt or equity capital from other sources.

Disadvantages

- Availability of incentives can vary based on demand, technology, market sector and available funds.
- Often capped at a certain level (kW) which might lead to smaller projects than what is optimal or sub-dividing projects.
- Tend to decline or step down over time.
- May reduce taxable basis which can impacts certain tax incentives.

DSIRE Tool: Incentives and Rebates



Name	State/ Territory	Category	Policy/Incentive Type	Created	Last Updated
Central New Mexico Electric Cooperative - Residential Energy Efficiency Rebate Program	NM	Financial Incentive	Rebate Program	06/06/2007	03/19/2015
PNM - Residential Energy Efficiency Rebate Program	NM	Financial Incentive	Rebate Program	07/03/2008	12/09/2014
Xcel Energy - Residential Energy Efficiency Rebate Program	NM	Financial Incentive	Rebate Program	04/08/2010	12/09/2014
New Mexico Gas Company - Residential Efficiency Programs	NM	Financial Incentive	Rebate Program	02/09/2011	03/17/2014
New Mexico Gas Company - Commercial Efficiency Programs	NM	Financial Incentive	Rebate Program	02/09/2011	03/17/2014
El Paso Electric Company - Commercial Efficiency Program	NM	Financial Incentive	Rebate Program	12/15/2009	02/20/2013
PNM - Commercial Energy Efficiency Rebate Program	NM	Financial Incentive	Rebate Program	08/11/2009	12/07/2012
El Paso Electric Company - Residential Efficiency Program	NM	Financial Incentive	Rebate Program	12/15/2009	11/15/2012
El Paso Electric Company - SCORE Plus Standard Offer Program	NM	Financial Incentive	Rebate Program	12/15/2009	11/15/2012
Xcel Energy (Electric) - Commercial Energy Efficiency Rebate Program	NM	Financial Incentive	Rebate Program	07/05/2012	10/15/2012

www.dsireusa.org

Debt/Loans

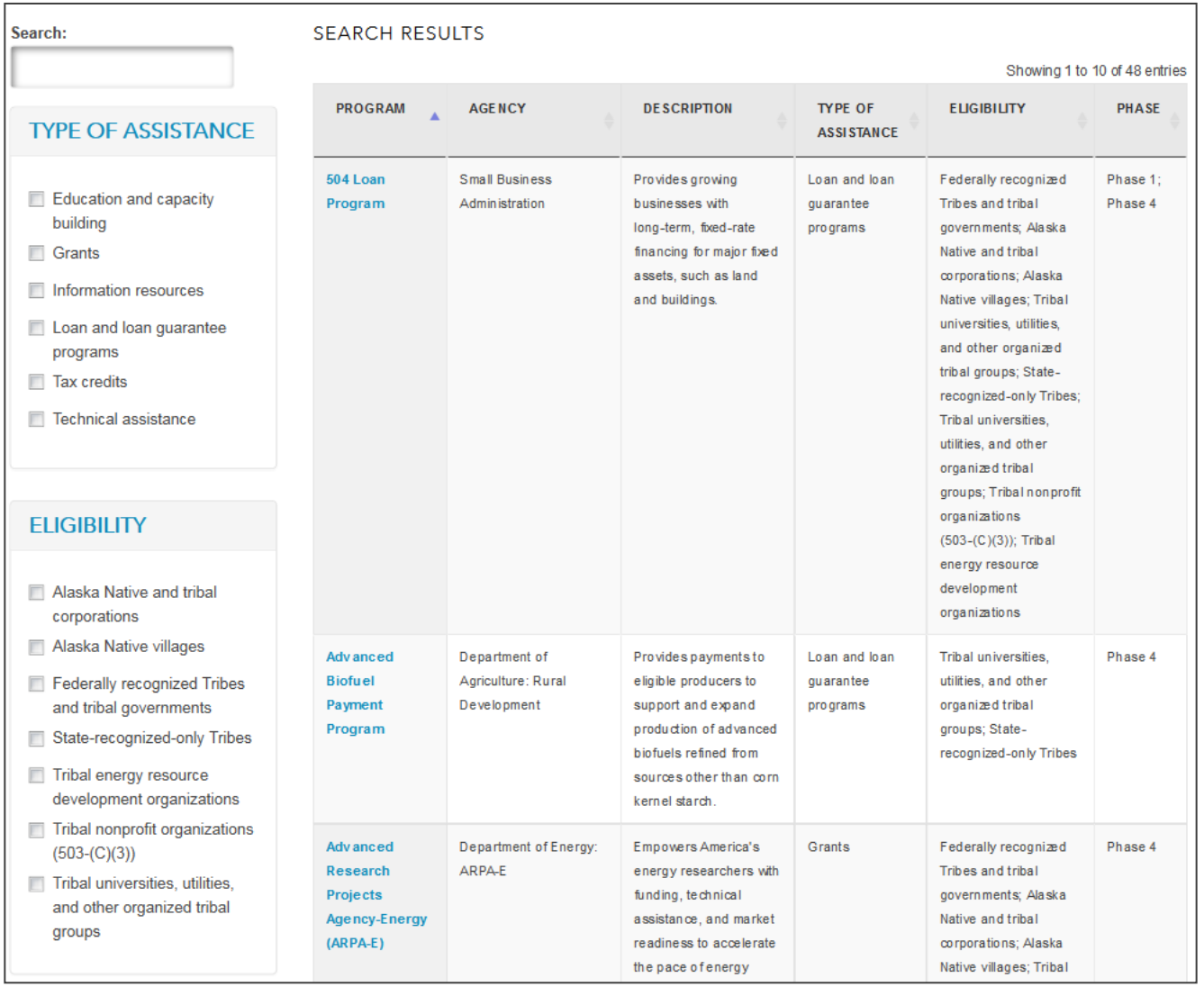
- Tribal Economic Development Bonds
- Commercial bank loans
  - Third party guarantees
  - Interest rate subsidy
- Others
  - Clean Renewable Energy Bonds (CREBs)
  - Qualified Energy Conservation Bonds (QECBS)

Debt: Government-Sponsored Loan Programs

Program	Type	Details
Indian Affairs Loan Guaranty, Insurance, and Interest Subsidy Program (BIA)	**Guarantee**	• Max 90%; Interest subsidy covers the difference between the lender's rate and the Indian Financing Act rate • Requirements: Borrower must have 20% tangible equity in the project. This is for business development.
Rural Energy for America Loan Guarantee Program (USDA)	**Guarantee**	• Up to 85% of loan amount • Requirements: Borrower must be rural small business or agricultural producer • Technology: Biomass, solar, wind, hydro, hydrogen, geothermal • Applications: equipment, construction, permitting, professional service fees, feasibility studies, business plans, land acquisition

Find more with the Federal Energy Development Assistance Tool:
www.energy.gov/indianenergy/fedprograms

Federal Energy Development Assistance Tool



Search:

TYPE OF ASSISTANCE

- Education and capacity building
- Grants
- Information resources
- Loan and loan guarantee programs
- Tax credits
- Technical assistance

ELIGIBILITY

- Alaska Native and tribal corporations
- Alaska Native villages
- Federally recognized Tribes and tribal governments
- State-recognized-only Tribes
- Tribal energy resource development organizations
- Tribal nonprofit organizations (503-(C)(3))
- Tribal universities, utilities, and other organized tribal groups

SEARCH RESULTS

Showing 1 to 10 of 48 entries

PROGRAM	AGENCY	DESCRIPTION	TYPE OF ASSISTANCE	ELIGIBILITY	PHASE
504 Loan Program	Small Business Administration	Provides growing businesses with long-term, fixed-rate financing for major fixed assets, such as land and buildings.	Loan and loan guarantee programs	Federally recognized Tribes and tribal governments; Alaska Native and tribal corporations; Alaska Native villages; Tribal universities, utilities, and other organized tribal groups; State-recognized-only Tribes; Tribal universities, utilities, and other organized tribal groups; Tribal nonprofit organizations (503-(C)(3)); Tribal energy resource development organizations	Phase 1; Phase 4
Advanced Biofuel Payment Program	Department of Agriculture: Rural Development	Provides payments to eligible producers to support and expand production of advanced biofuels refined from sources other than corn kernel starch.	Loan and loan guarantee programs	Tribal universities, utilities, and other organized tribal groups; State-recognized-only Tribes	Phase 4
Advanced Research Projects Agency-Energy (ARPA-E)	Department of Energy: ARPA-E	Empowers America's energy researchers with funding, technical assistance, and market readiness to accelerate the pace of energy	Grants	Federally recognized Tribes and tribal governments; Alaska Native and tribal corporations; Alaska Native villages; Tribal	Phase 4

www.energy.gov/indianenergy/fedprograms

Debt/Loan

Advantages

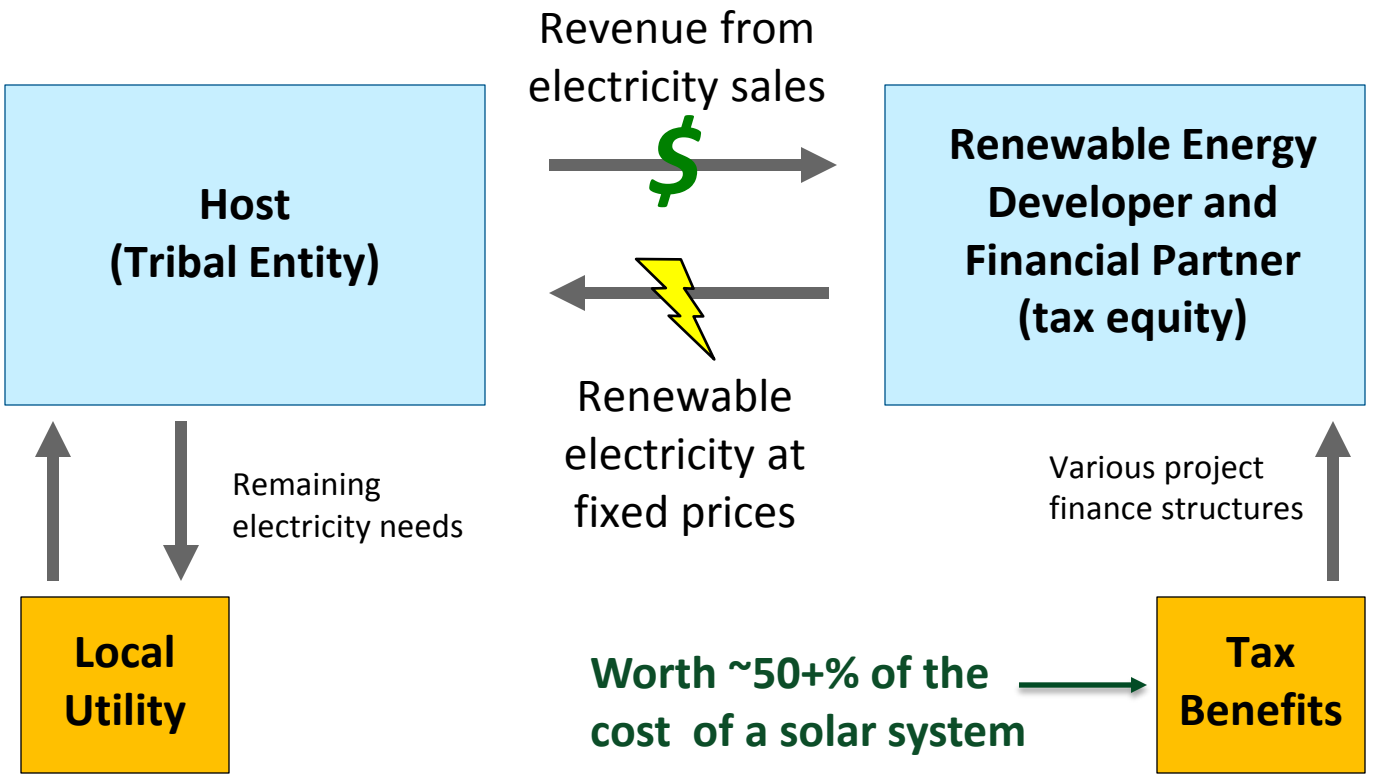
- Can provide a significant portion of the cost of a project, reducing the amount of the Tribe's invested capital
- Can be a low cost source of capital
- Retain ownership in project
- Might be able to benefit from a third party guarantee.

Disadvantages

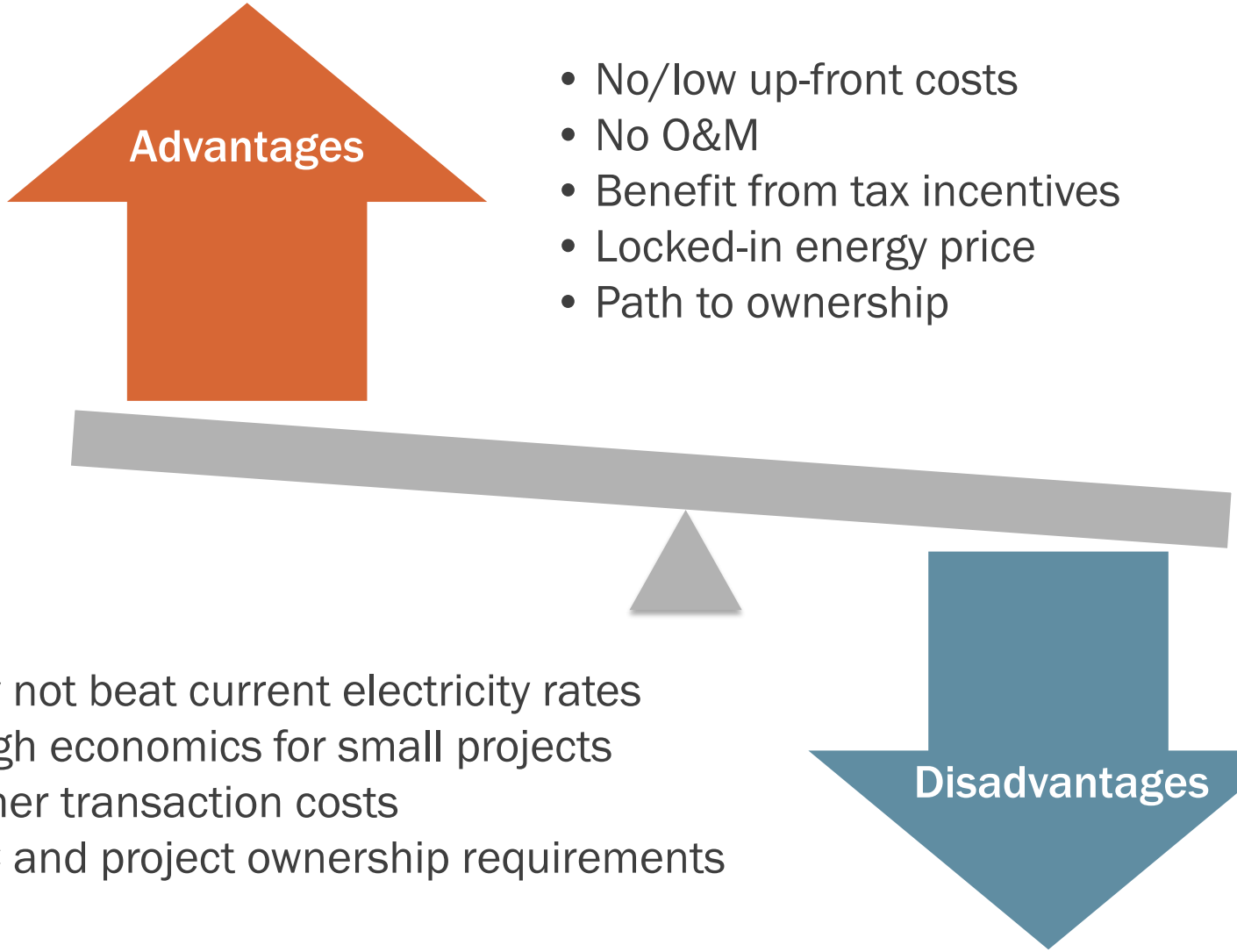
- Requires repayment with interest
- Terms (maturity, interest rate, etc.) can vary and default penalties can be punitive
- May require the Tribe to offer a limited sovereignty waiver or pledge other assets as collateral
- May require the borrower to demonstrate a strong financial position itself

Third-Party Power Purchase Agreement (PPA)

The customer agrees to **host** the system and **purchase** the electricity



Power Purchase Agreement (PPA) Considerations

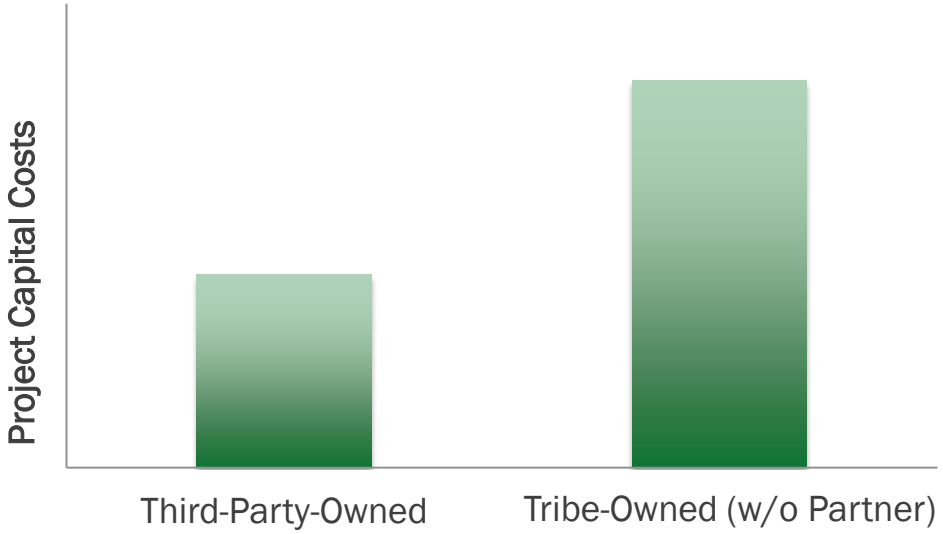


- No/low up-front costs
- No O&M
- Benefit from tax incentives
- Locked-in energy price
- Path to ownership

- May not beat current electricity rates
- Tough economics for small projects
- Higher transaction costs
- REC and project ownership requirements

So Why Seek a Tax-Equity Finance Partner?

- Tax incentives such as Modified Accelerated Cost Recovery System (MACRS) and either Production Tax Credit (PTC) or Investment Tax Credit (ITC) can represent up to half the project value, or reduce project capital costs by ~50%



- Tax incentives can help to achieve a competitive price of power

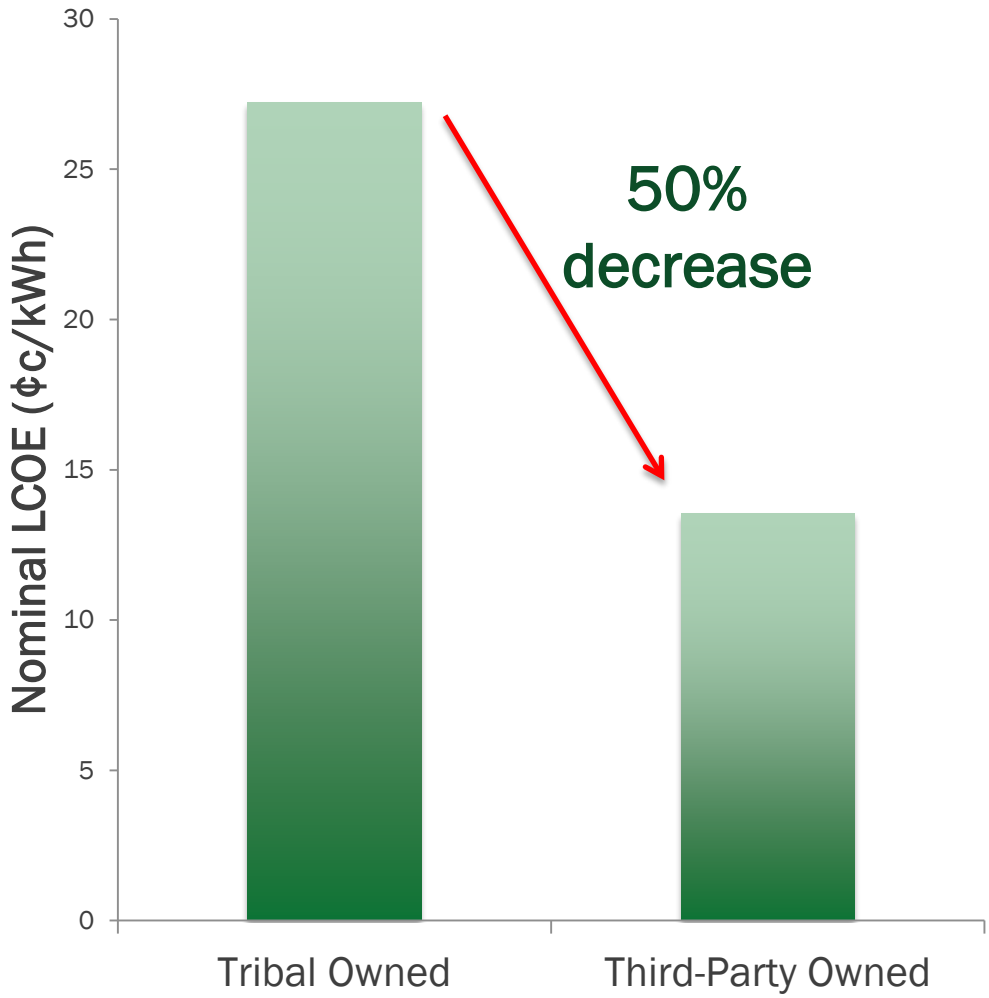
Third-Party (i.e., Tax Equity) vs. Tribal Ownership

Tribal Owned (Without Incentives)

Metric	Base
Annual Energy	37,230,428
PPA price	25.36 ¢/kWh
LCOE Nominal	27.22 ¢/kWh
LCOE Real	22.11 ¢/kWh
Internal rate of return (%)	12.00 %
Minimum DSCR	3.36
Net present value ($)	$ 2,386,955
Calculated ppa escalation (%)	1.00 %
Calculated debt fraction (%)	50.00 %
Capacity Factor	21.3 %
First year kWhac/kWdc	1,862
System performance factor (%)	0.82

Third-Party Owned (With Incentives)

Metric	Base
Annual Energy	37,230,428
PPA price	12.62 ¢/kWh
LCOE Nominal	13.55 ¢/kWh
LCOE Real	11.00 ¢/kWh
Internal rate of return (%)	21.11 %
Minimum DSCR	1.57
Net present value ($)	$ 6,525,698
Calculated ppa escalation (%)	1.00 %
Calculated debt fraction (%)	50.00 %
Capacity Factor	21.3 %
First year kWhac/kWdc	1,862
System performance factor (%)	0.82



Comparison of Tax Incentives

	PTC	ITC	Accelerated Depreciation
Value	Tax credit of 2.3¢/kWh or 1.1¢/kWh, depending on tech	Tax credit of 10% or 30% of project costs, depending on tech	Depreciation of eligible costs (not all project costs qualify)
Select Qualifying Technologies	• Wind • Geothermal • Biomass • Hydro	• Solar • Fuel cells • Small wind • Geothermal	Depreciation can be taken with either PTC or ITC
Basis	Energy produced over 10-year period. Can be combined with depreciation.	Eligible project cost. Credit taken at the time the project is placed in service. Can be combined with depreciation.	**MACRS:** 5-year depreciation schedule
Expiration/ Step Down	Start construction before 12/31/2014	Placed in service before 1/1/2017*	**MACRS:** None

Key Concept: Tax-Equity Partnerships

1. Tribe can benefit from tax-equity incentives without being taxable.

2. A taxable tribal entity may be able to monetize the tax credits directly and eliminate the need for a tax equity partner.
   - One tribal entity selling power to another tribal entity under a PPA

3. Tribes can partner with third-party tax investors and/or developers to gain this incentive/advantage
   - Recent IRS PLR supports Tribal partnerships with third-party tax equity http://www.irs.gov/pub/irs-wd/1310001.pdf

Federal Renewable Energy Tax Incentives

Advantages

- Can be worth up to approximately half of the project's costs
- Not competitively issued – awarded when project is built and producing energy
- No federal cap on amount of incentives that can be received

Disadvantages

- When tax-based (e.g. tax credits and depreciation), they are not easily monetized by tribal entities with special tax status
- Involves complex negotiations with outside investors and relinquishing a certain level of control and economic return during the early years of the project
- Certain current tax incentives set to expire or be reduced, reducing their value for projects.

Energy Savings Performance Contract (ESPC)

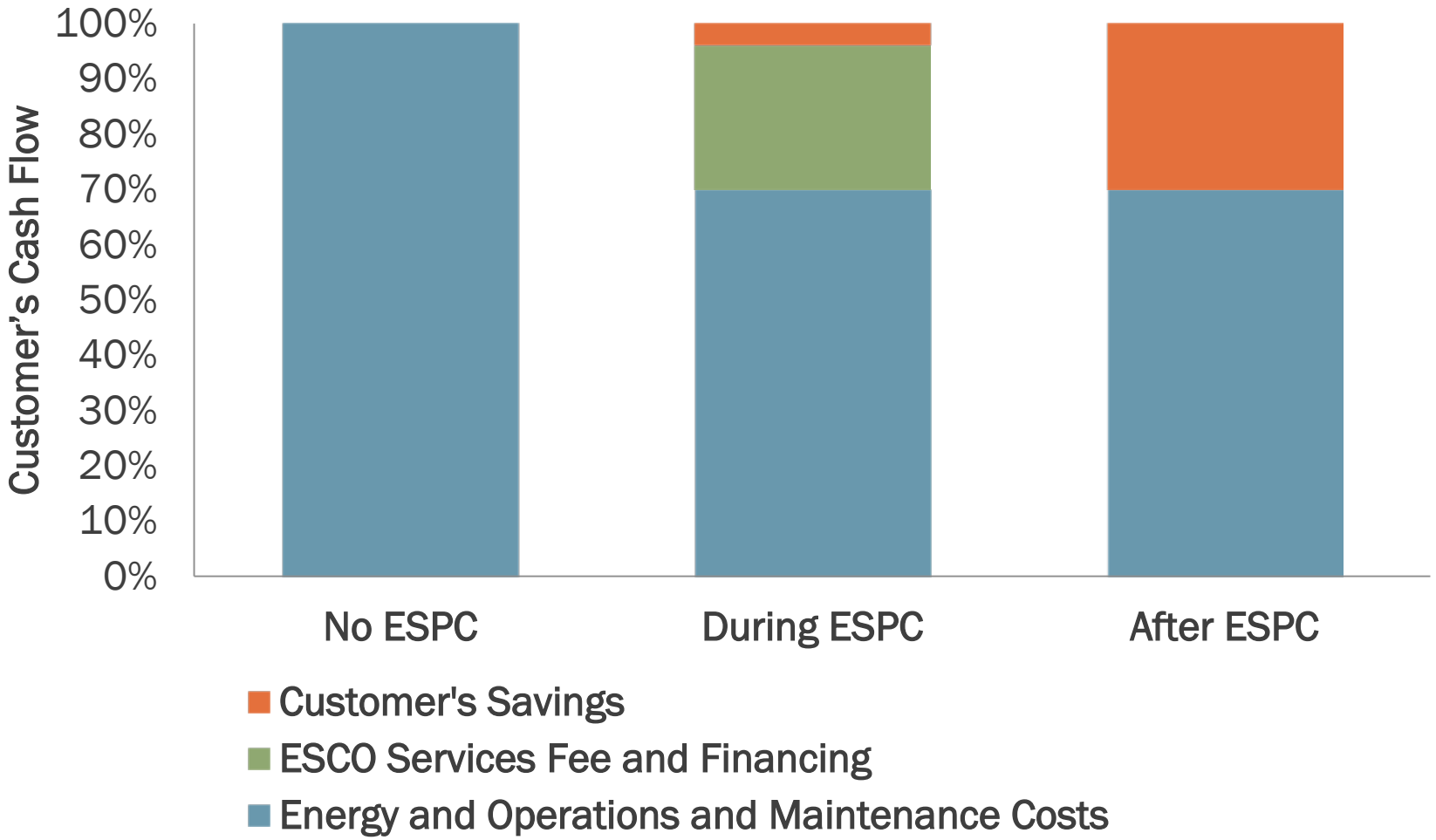
An ESPC is a **no up-front cost** contracting mechanism between a site customer and an energy service company (ESCO). Energy conservation measures and on-site generation are financed and implemented by an ESCO, which is **repaid through energy savings**.

Over 90 DOE-Qualified ESCOs, including:

AMERESCO SOLAR Green • Clean • Sustainable
McKinstry
Chevron Human Energy
SIEMENS
Honeywell
TETRA TECH
Johnson Controls
TRANE

View the full DOE ESPCs list at: energy.gov/eere/femp/doe-qualified-energy-service-companies

ESPCs Reallocate Current and Future Energy Spending



Typical ESPC Measures

- Lighting: indoor, outdoor, street lights
- Heating, ventilating, and air conditioning (HVAC)
- Energy management systems
- Motors and variable speed drives
- Building envelope measures
- Water conservation measures
- Distributed generation and combined heat and power—renewable or fossil fuel

Photo from Kathie Brosemer, Sault Ste. Marie Tribe of Chippewa Indians

ESPC Advantages and Disadvantages

Advantages

- Typically, little to no upfront cost for the building owner
- Pays for the project via energy savings of new equipment
- Can cover a bundle of upgrades in one financing, from energy efficiency to renewable energy installations
- May offer some modest cost savings including monthly payment from the onset

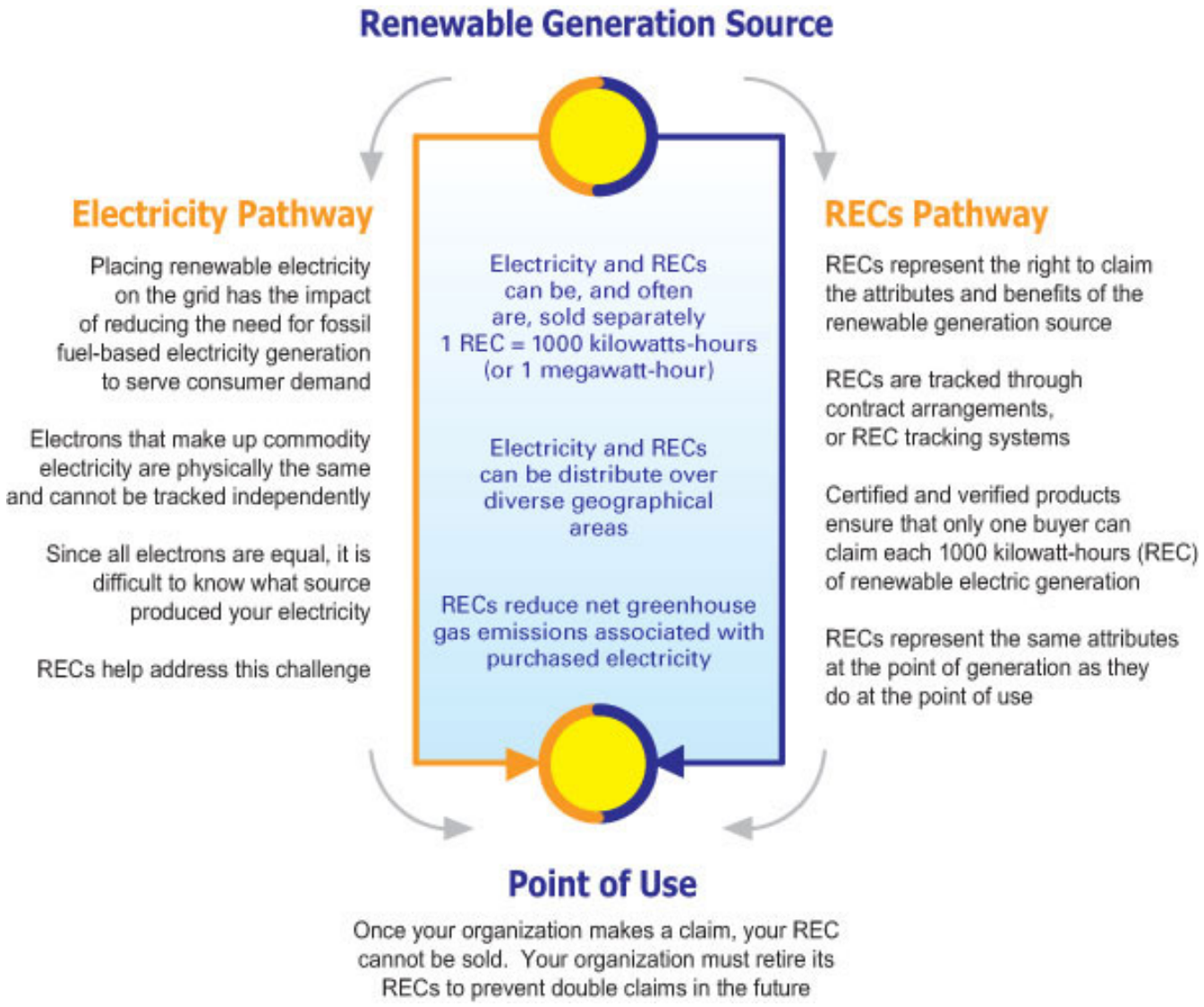
Disadvantages

- Energy savings calculations depend on initial assumptions, and may not accurately reflect actual savings
- Typically requires a minimum expenditure threshold (around $1 million of projects bundled)
- Building owner receives the majority of the economic savings only after the contract is fully paid off

Monetizing Green Attributes: Renewable Energy Certificates (RECs)

- 1 REC created when 1 MWh of renewable electricity is produced
- Used to track renewable energy production for state renewable portfolio standards (RPS)
- Utilities will purchase RECs to fulfill state RPS requirements
- Voluntary REC markets

Renewable Energy Certificates (REC)



Source: http://www.epa.gov/greenpower/gpmarket/rec_chart.htm

REC Advantages and Disadvantages

Advantages

- Creates an additional source of revenue for renewable projects, based on the projects' "green attributes"
- Can make the difference between installing the project or not.
- Allows entities to "green up" their use of electricity.

Disadvantages

- Not available everywhere
- Compensation depends on a market price which might be too low to make a difference in getting project installed.
- Finding a buyer in marketplace can be difficult without a broker or without selling to a third-party at a discount
- Project lenders may value these at a low price (even zero) without a long term contract in place which is often unavailable

REC Video

https://www.youtube.com/watch?v=opJMrzNauFQ