



# WAPA Tribal Energy Series

## Pulling it All Together

Amy Hollander

Strategic Energy Planning

The 5 Step Planning Process

LCOE

Finance for Tribal Energy Projects

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DOE Office of Indian Energy Policy and Programs

DOE Office of Energy Efficiency and Renewable Energy  
Tribal Energy Program

Western Area Power Administration



# Strategic Energy Planning & The 5-Step Project Development & Finance Process

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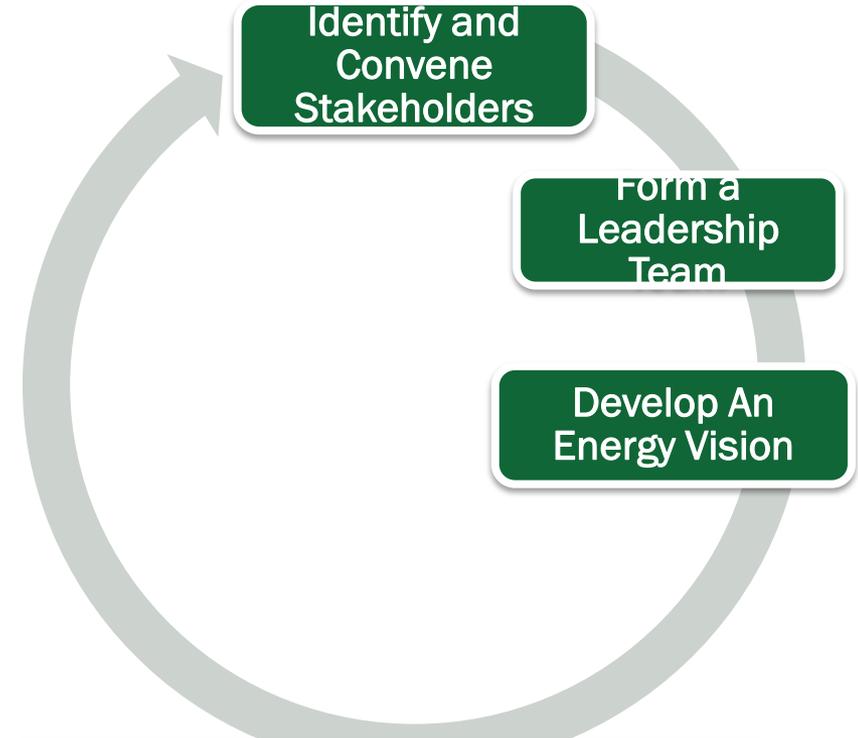
# Strategic Energy Planning

- **Definition**
- Stakeholder Inclusivity
- Leadership Team
- The Strategic Plan
  - Convene Stakeholders
  - Form Leadership Team
  - Develop Energy Vision
  - Assess Energy Needs and Resources
  - Develop Specific Goals
  - Prioritize Projects and Programs
  - Identify Financing Options
  - Compile Energy Plan
  - Measurement and Verification (M&V) and Plan Alterations

# Strategic Energy Planning: First Steps

## Stakeholders

- Tribal Members
- Tribal Council
- Tribal Government
- Tribal Utilities
- Tribal Enterprise Leaders
- Large Energy Users
- Local Utilities



**Key Success Component:  
Identify and select an  
energy “champion” to  
shepherd the process**

# Leadership Team

Not just people with the “right” idea, but those committed to the long-term task with personal and political influence

## ✓ Include

- Individuals with authority to direct resources
- Individuals with a passion for the “destination”
- Individuals with influence in the community and administrative abilities to keep the project alive
- Individuals with the technical ability
- Individuals who can “tell the story”

## ✗ Avoid

- Exclusively political appointees
- Exclusively technical staff
- Exclusively implementers

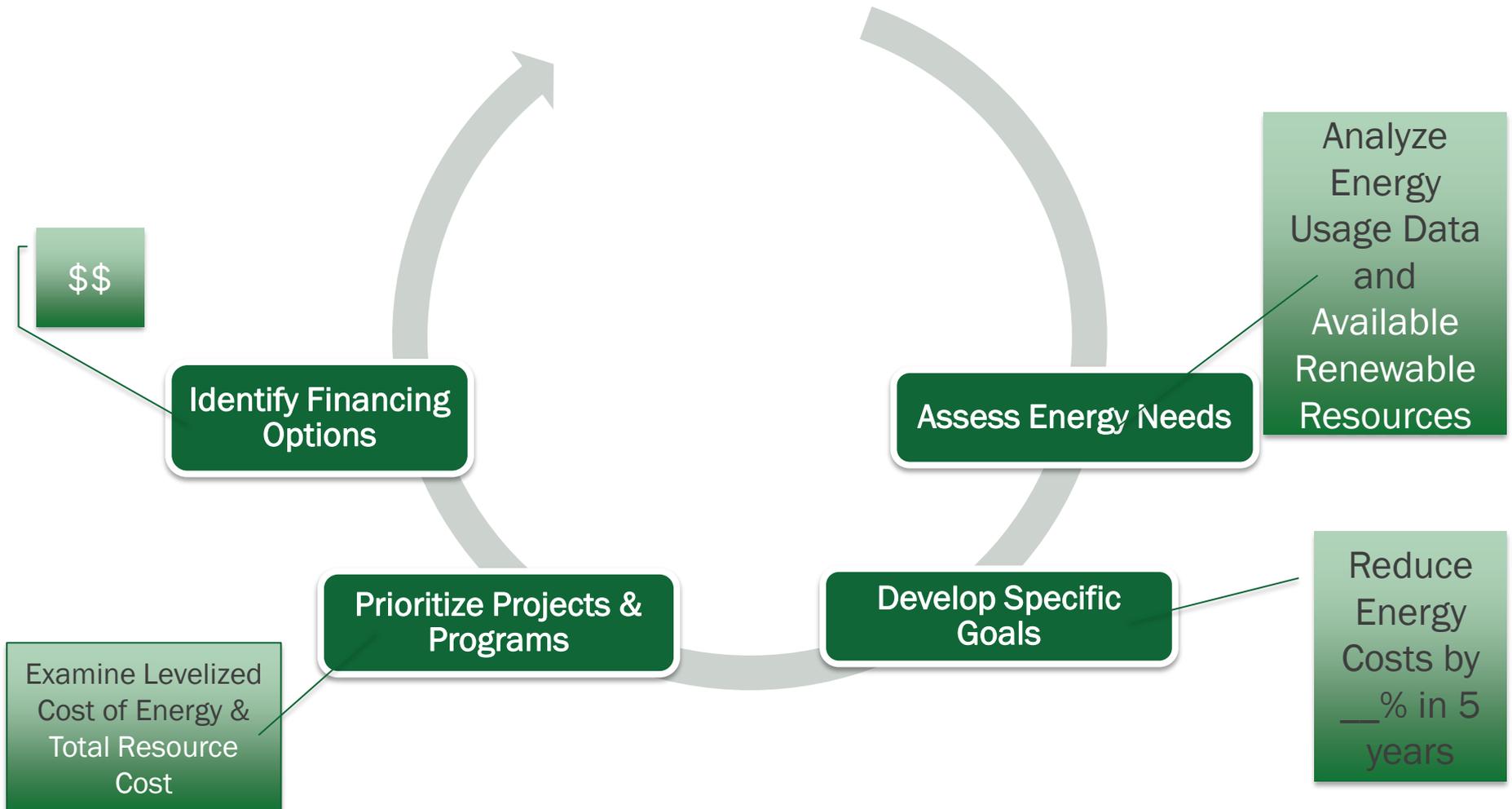
# Develop an Energy Vision

## Common objectives, such as:

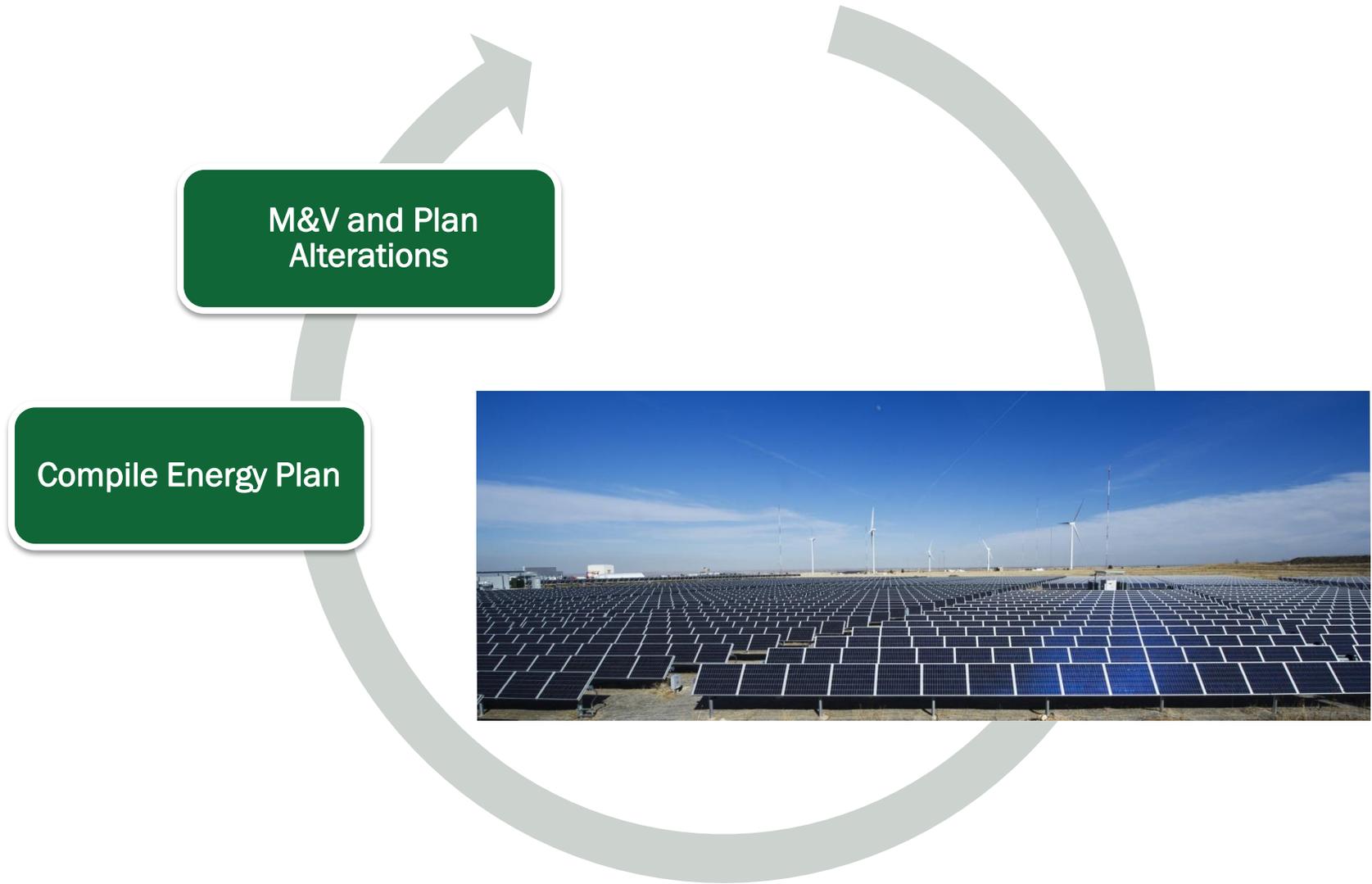
- Increase and ensure energy reliability
- Minimize environmental impacts
- Diversify energy supply
- Use local, renewable resources
- Strengthen, support economic development
- Build workforce/jobs
- Ensure energy affordability
- Generate revenue for Tribe
- Energy security/self-sufficiency
- Off-grid electrification
- Save money (offset energy costs)
- Keep money in Tribe
- Stabilize energy costs for Tribe and tribal members
- Deliver energy to rural areas



# Strategic Energy Planning: Priorities & Decisions



# Strategic Energy Planning: Energy Plan



# Energy Plan: Components

## Include

- Vision
- Objectives
- Goals
- Baseline
- Barriers

## Include

- Program Description
  - Demand side
  - Generation
- Recommendations & data
- Adoption by Tribal Council



Photo by NREL #19794

# Energy Plan: M&V and Plan Alterations

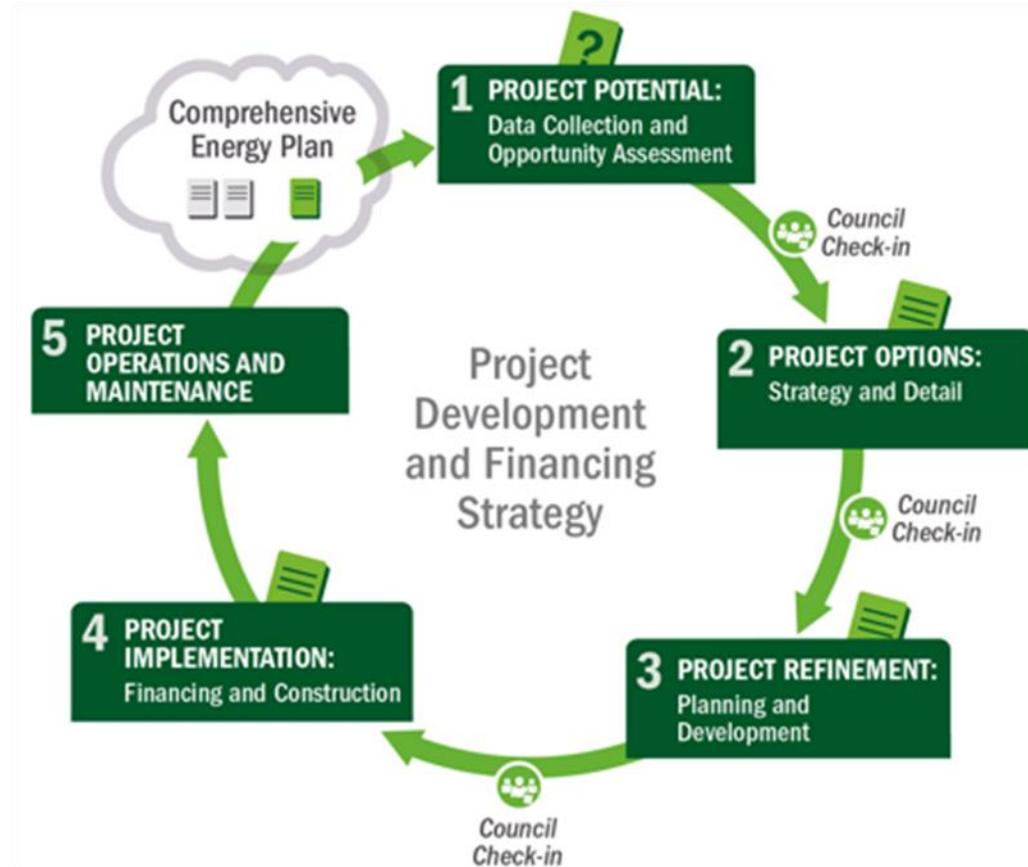
- M&V
- Evaluate
- Fine tune



Potawatomi Geothermal

# The Five Step Project Development and Financing Process

- Project Steps Defined using a wheel graphic
  - Potential
  - Options
  - Refinement
  - Implementation
  - Operations & Management
- Energy Plan and Council Check-in at every step



# Summary of Action Steps



**Step 1:** Gather all relevant data in order to make first pass at potential project, understand Tribal role options

**Step 2:** Estimate value to Tribe, consider ownership approach, begin to identify off-takers, partners, vendors, begin planning permitting and site use

**Step 3:** Finalize economic assumptions and tribal roles, finalize permitting, interconnection, transmission and off-take agreements, and determine financial partnerships, ownership structure

**Step 4:** Finalize agreements (including vendor contracting); financial close and construction; project commissioning, begin operation

**Celebrate!**

**Step 5:** Maintenance plan implementation (conduct or ensure ongoing O&M, R&R)



# Project Finance

Direct Ownership

Power Purchase Agreements

ESPCs

New Market Tax Credits

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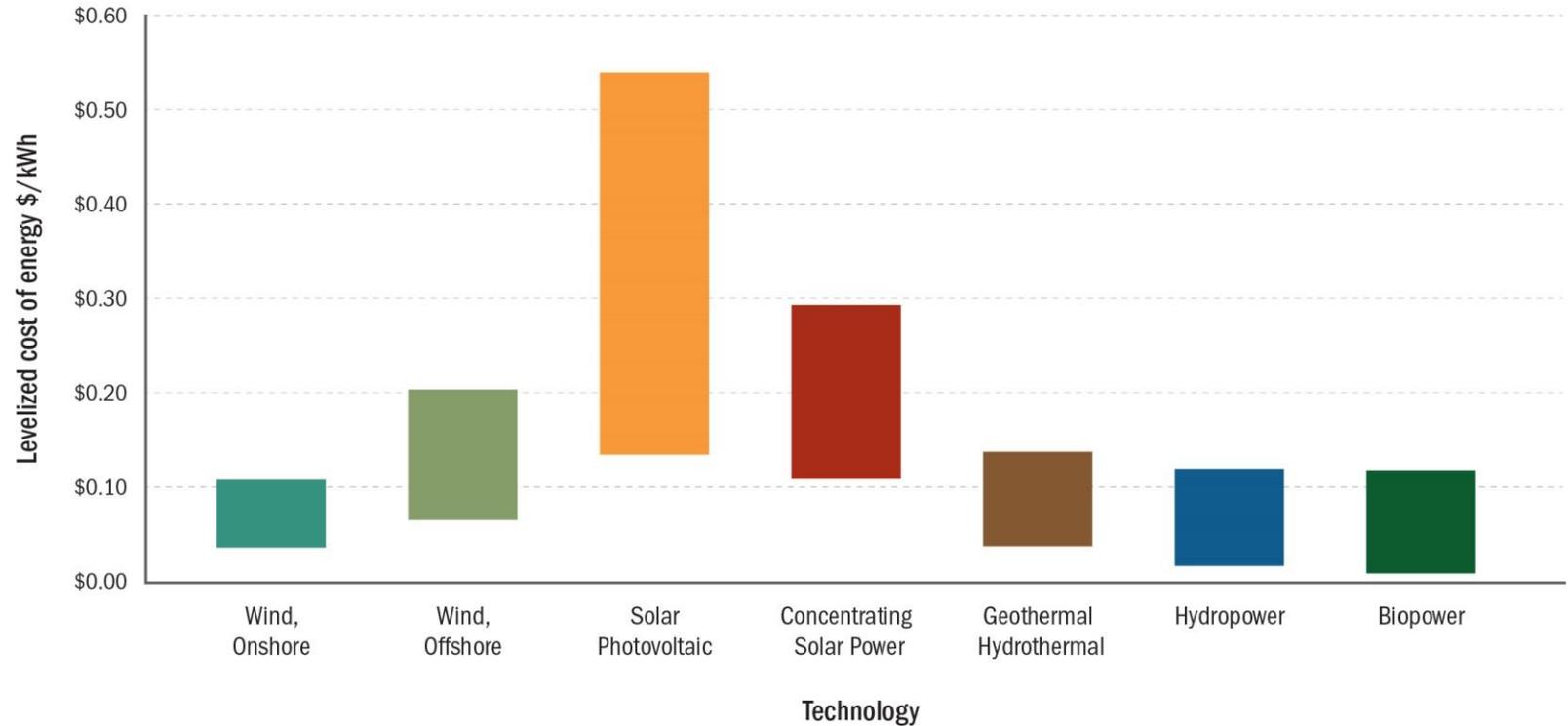
# Levelized Cost of Energy (LCOE)

Critical to making an informed decision to proceed with development of a facility or community energy project.

- Measures lifetime costs divided by energy production, captured in \$/MWh or ¢/kWh
- Calculates present value of the total cost of *BUILDING* and *OPERATING* a power plant over an assumed lifetime
- Allows the comparison of different technologies (e.g., wind, solar, natural gas) of unequal life spans, project size, different capital cost, risk, return, and capacities

# Levelized Cost Of Energy (LCOE)

## Lifetime or Levelized Costs of Renewables



Financing Type	Benefits	Challenges
<p><b>Direct Ownership</b></p> <p>Must have capital</p>	<ul style="list-style-type: none"> <li>• Tribe funds it</li> <li>• Initial investment in the project is recouped through lower electricity bills</li> </ul>	<ul style="list-style-type: none"> <li>• No Tax Incentives</li> <li>• Must take on O&amp;M Responsibilities</li> </ul>
<p><b>Power Purchase Agreements (PPA)</b></p> <p>Tribe is the host and buys energy from the system built by a tax investor.</p>	<ul style="list-style-type: none"> <li>• No Capital or O&amp;M</li> <li>• Will Benefit from Tax Incentives</li> <li>• Locked in Energy Price</li> <li>• Path to Ownership</li> </ul>	<ul style="list-style-type: none"> <li>• Tough economics for small projects but no lower electricity rates.</li> </ul>
<p><b>Energy Savings Performance Contracting (ESPCs)</b></p> <p>For Energy Efficiency Upgrades—a good first step.</p>	<ul style="list-style-type: none"> <li>• No up front Costs</li> <li>• ESCO pays for energy upgrades</li> <li>• Brings Energy Costs Down</li> <li>• Eventual ownership of energy efficient upgrades.</li> </ul>	<ul style="list-style-type: none"> <li>• Tribe pays their energy savings to ESCO financial partner.</li> <li>• Mainly used for energy efficiency.</li> </ul>
<p><b>New Market Tax Credits</b></p> <p>CDEs take time and planning to set up.</p>	<ul style="list-style-type: none"> <li>• Community Development Entity partners with Tax Credit Investor.</li> <li>• High return on tax breaks (Net 20%) = affordable renewables.</li> </ul>	<ul style="list-style-type: none"> <li>• Not tested on tribal energy but has worked for non-energy projects such as broadband internet.</li> </ul>

# Direct Ownership

## Advantages

- Maximum reduction in electricity bills
- Lower finance costs (or none depending on source)
- Full control over a project: design, operations, and risks
- Own renewable energy credits (RECs) and can choose to retain or monetize
- Might be only option for small projects

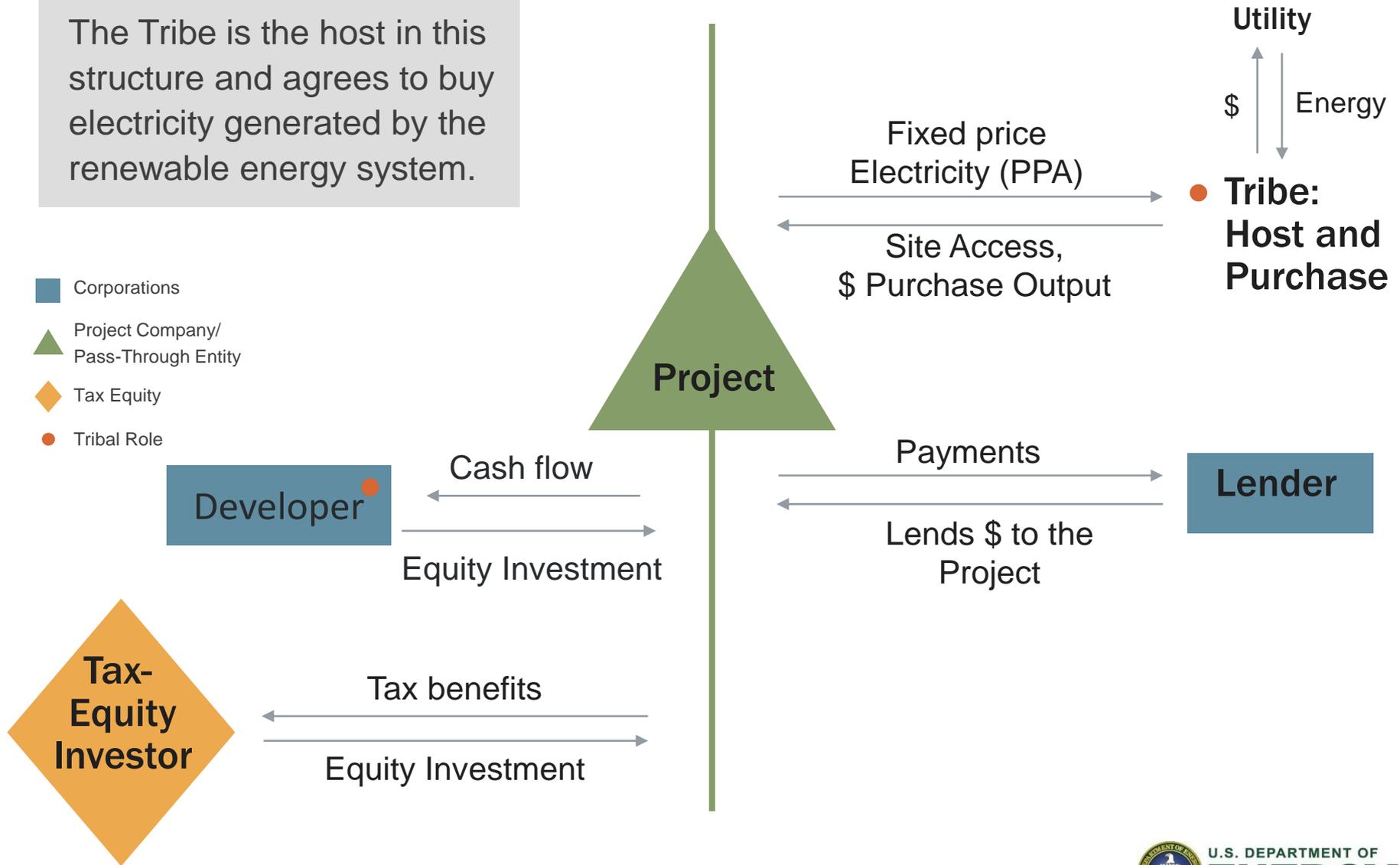
## Challenges

- Need the resources to pay for the project
- Don't benefit from available tax incentives given tax-exempt status
- Responsibilities of ownership (operations & maintenance)

# Third Party Power Purchase Agreement (PPA)

The Tribe is the host in this structure and agrees to buy electricity generated by the renewable energy system.

- Corporations
- ▲ Project Company/  
Pass-Through Entity
- ◆ Tax Equity
- Tribal Role



# PPA Considerations to Weigh



- May not be lower than current electricity rates
- Tough economics for small projects
- Higher transaction costs
- Renewable energy credit (REC) and project ownership requirements



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



# Energy Savings Performance Contracting (ESPCs)

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**. This would be done as a PPA, in conjunction with energy efficiency, to bring costs down.



Over 90 DOE-Qualified ESCOs, including:

Ameresco · McKinstry · Chevron · Siemens  
Honeywell · Tetra Tech · Johnson Controls · Trane

For full DOE Listing: [http://www1.eere.energy.gov/femp/financing/espcs\\_qualifiedescos.html](http://www1.eere.energy.gov/femp/financing/espcs_qualifiedescos.html)

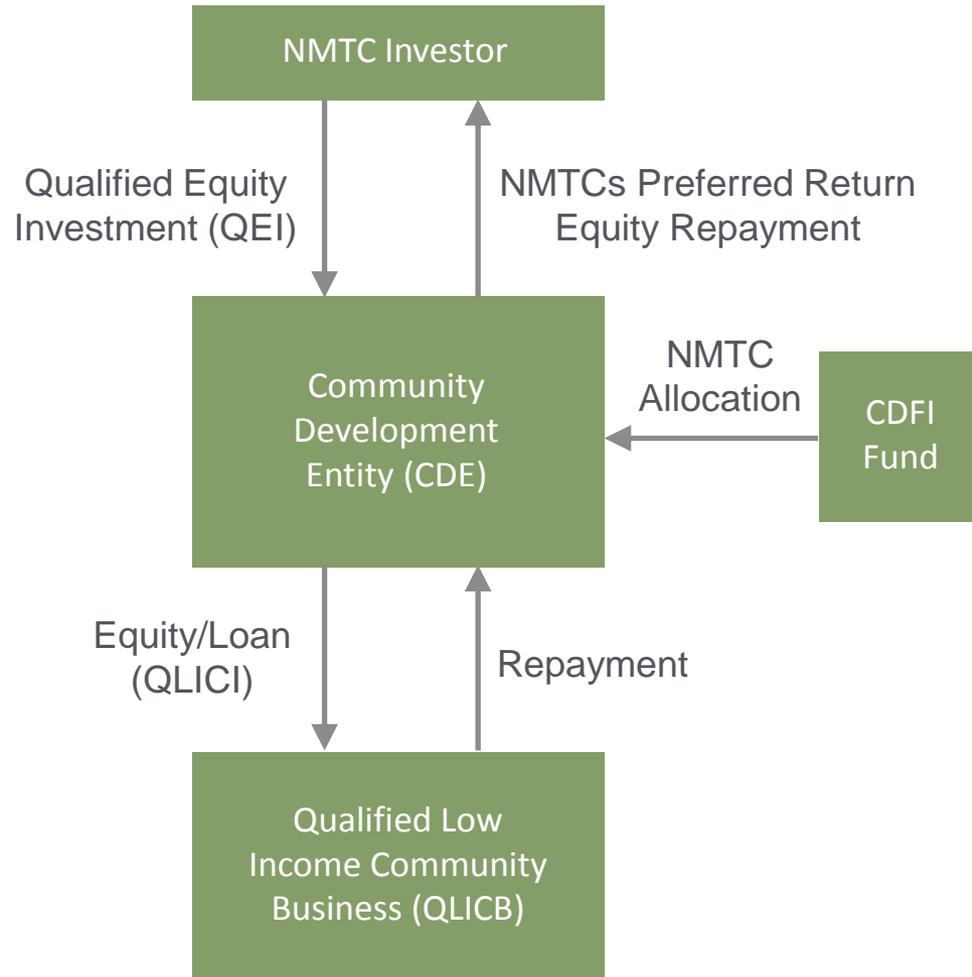
# New Market Tax Credits

- 39% tax break
  - 5% in first 3 years
  - 6% in last 4 years
  - Net value: 20% due to financing complexity, number of parties
- CDE can market credits to investors
  - Renewable energy project must be aligned with CDE mission
  - CDEs take time to establish
- Renewable examples
  - 1 MW PV City of Denver's buildings<sup>1</sup>
  - 1.65 MW PV in Salt Lake City<sup>2</sup>

Sources:

<sup>1</sup> <http://www.nrel.gov/docs/fy10osti/49056.pdf>

<sup>2</sup> <http://nationaldevelopmentcouncil.org/blog/?p=2242>



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# Useful Resources

## Resource

- U.S. Department of Energy Office of Indian Energy Resource Library  
<http://energy.gov/indianenergy/resources/energy-resource-library>
- Native Capital Investment, Inc.  
<http://www.nativecapital.com/community.html>
- Assessing Energy Resources:  
[http://www1.eere.energy.gov/tribalenergy/guide/assessing\\_energy\\_resources.html](http://www1.eere.energy.gov/tribalenergy/guide/assessing_energy_resources.html)

## Technology

- “Community Greening: How to Develop a Community Energy Plan,” National Renewable Energy Laboratory  
<http://www.nrel.gov/docs/fy10osti/45652.pdf>

## Policy

- “Guide to Tribal Energy Development,” U.S. Department of Energy Office of Energy Efficiency and Renewable Energy Tribal Energy Program  
<http://www1.eere.energy.gov/tribalenergy/guide/>