Developing & Financing Renewable Energy Projects in Indian Country

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TRIBAL LEADER FORUM
EXPLORING THE BUSINESS LINK OPPORTUNITY:
TRANSMISSION & CLEAN ENERGY DEVELOPMENT IN THE WEST
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Presentation Overview

- Context & Objective
- Overview of Renewable Energy:
  - ***Project Development***
  - ***Project Financing***
- Questions

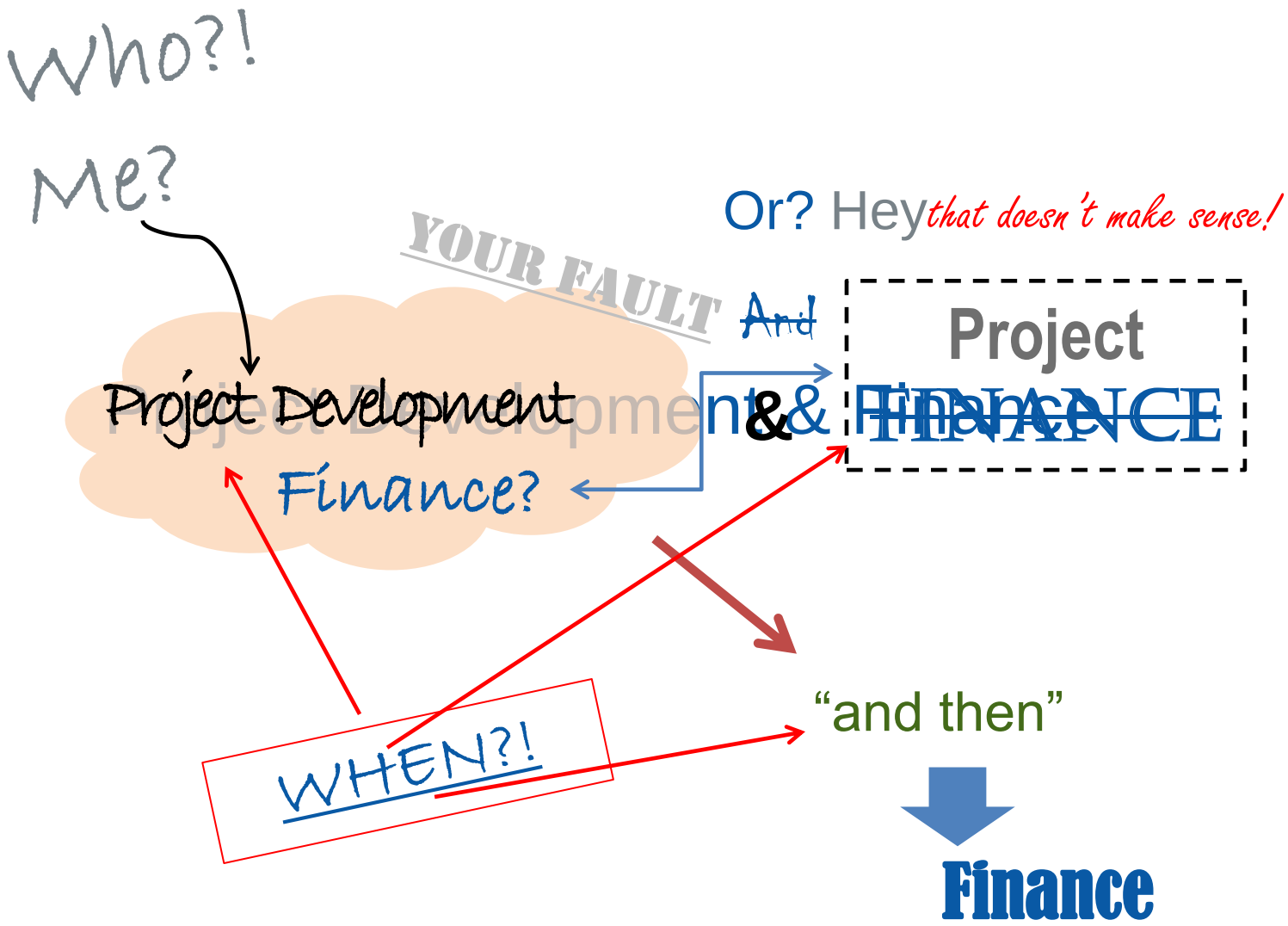
Context

Indian lands have enough renewable energy resource to produce:

- 1.3 million megawatt-hours (MWh) of wind (about 148,000 homes)
- 9.2 million MWh of solar photovoltaics (PV)
- 4 million MWh of biomass

There are a number of barriers constraining this potential including:

- Infrastructure & transmission;
- Project development capacity;
- Project financing options;
- Permitting barriers;
- Expertise;
- Other


Who?!
Me?
YOUR FAULT
Or? Hey that doesn't make sense!
Project Development
Finance?
And
&
Project
Finance
WHEN?!
"and then"
Finance

Key Concepts

- ***Project Context & Motivation***
  - What is your interest in the project (e.g. revenue, self-reliance,)?
  - What are the basics of your energy environment (e.g. utility relationship, governance structure, energy sources and costs, key decision makers)?
- ***Project Development Framework***
  - How will this work and how long will it take?
  - What are the stage gates for moving projects forward?

- Use this process to organize the project and determine viability.
- Bankable projects can move on to determine the potential for different financing options.

Project Motivation

Baseline	Economics	Policy	Technology	Consensus
Energy Resource/Needs	**Fundamental Drivers**	**Conditions for Success or Constraint**	**What, When, Where, How**	**Among Decision Makers & Stakeholders**
Current Use: Electricity Fuels Future Needs	Energy cost projections Ratepayer perspective Social: costs/ benefits (jobs) Environmental: costs/benefits	Types: Regulatory Legislative Tribal Topics: Energy Standards Economic Development Interconnection Transmission access	Tested/Viable Appropriate for location Access to resource Volume of resource Integration concerns	Stakeholder identification Community strategies Identify key decision makers

CONTINUOUS PROCESS

Project Development Framework

Site	Resource	Off-take	Permits	Technology	Team	Capital
No Site, No Project	Engineering Assessment	Off-take Contract – (Revenue)	Anything that can stop a project if not in place…	Engineered System	Professional, Experienced, Diverse	Financing Structure

Site

Purpose:

Understanding site availability and characteristics.

Considerations:

- Site control
- Size and shape
- Distance to *usable* transmission
- Upgradeable
- Road access for operations and maintenance

Site	Resource	Off-take	Permits	Technology	Team	Capital

Resource

Purpose:

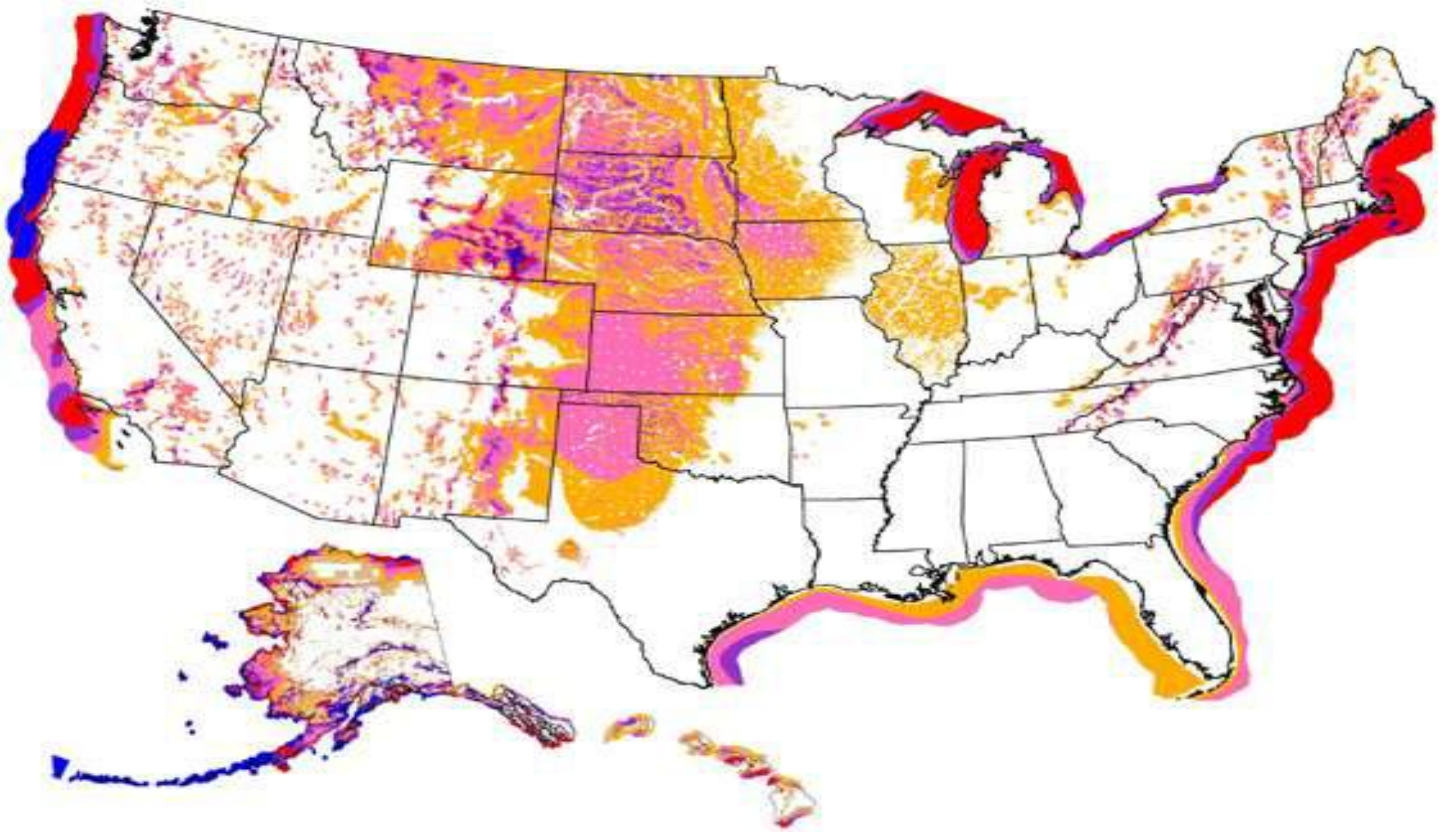
Understanding what renewable resources are available and usable on site.

Considerations:

- Resource availability
- Resource variability
- 24-hour resource profile
- Weather dependence
- Technology suitability

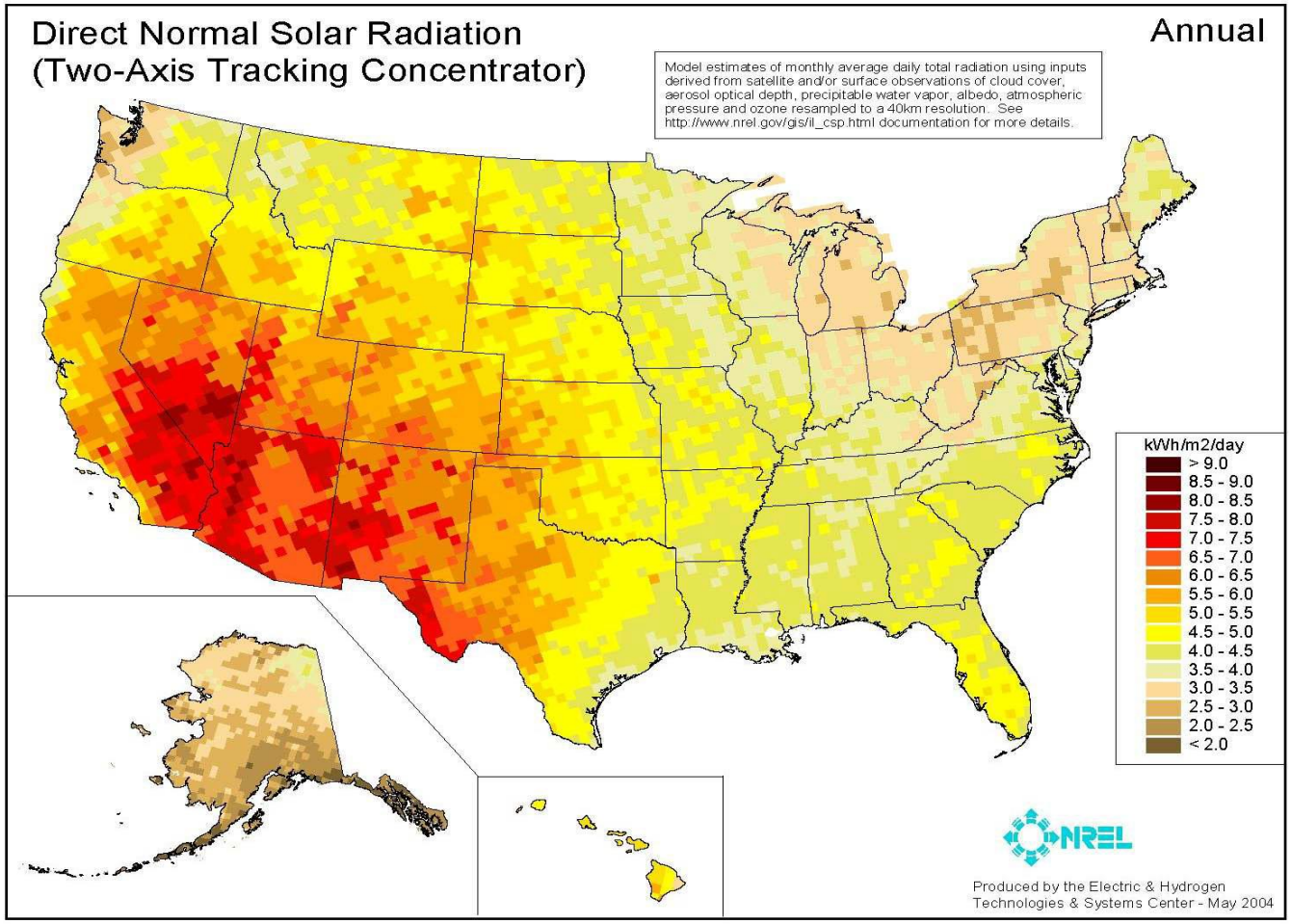
Site	Resource	Off-take	Permits	Technology	Team	Capital

Resources: Wind Map of the U.S.



Source: National Renewable Energy Laboratory.

Resources: Solar Map of the U.S.



Source: National Renewable Energy Laboratory.

Off-take

Purpose:

Understanding the power buyer and utility interactions.

Considerations:

- Utility operations
- Regulatory governance (e.g. PUC)
- Interconnection agreement
- Parameters
- Pricing and terms

Site	Resource	Off-take	Permits	Technology	Team	Capital

Permits

Purpose:

Understanding necessary regulatory requirements for the project.

Considerations:

- Interconnection
- Environmental (NEPA, EIS)
- Cultural
- State use permits

Site	Resource	Off-take	**Permits**	Technology	Team	Capital

Technology

Purpose:

Identifying specific technology type to develop the resource.

Considerations:

- Engineering design plans
- Construction plans
- Technology specifications development for bid

Site	Resource	Off-take	Permits	Technology	Team	Capital

Team

Purpose:

Ensure all relevant players (internal and external) are engaged in the project at the right time, levels, and roles.

Considerations:

Engage:

- Tribal Leadership (Decision Makers)
- Project & Business Management (Professionals & Staff)

Employ:

- Legal & Financing
- Technical & Construction
- Power Marketing

Expertise

Site	Resource	Off-take	Permits	Technology	Team	Capital

Source:http://www.flickr.com/photos/ncai/6438420941/sizes/m/in/set-72157628239128231/

Capital

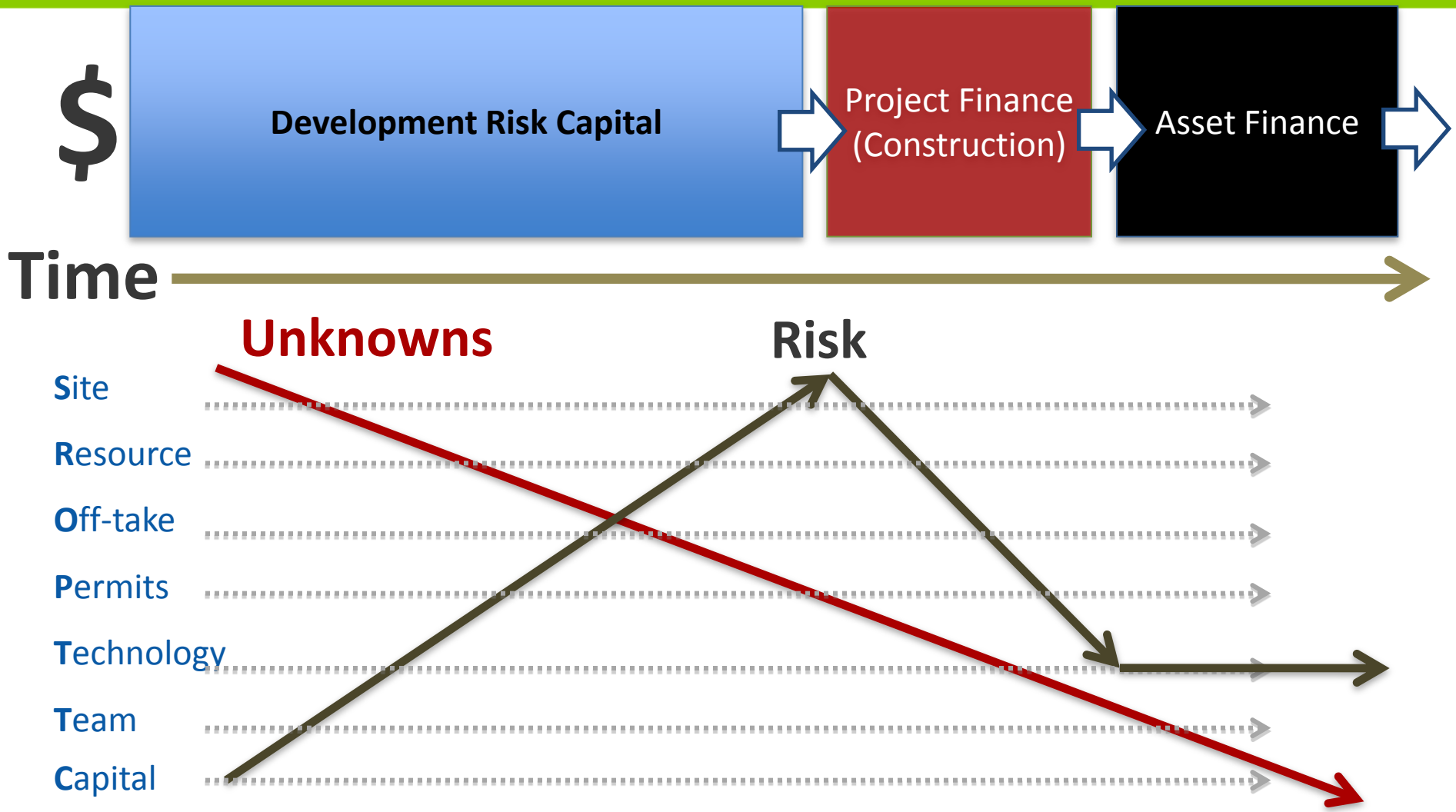
Purpose:

Identifying and developing the right capital investment vehicles for the project to be realized.

Considerations:

- Role of the Tribe: Owner or Partner
- Renewable energy attribute (REC) sales

Site	Resource	Off-take	Permits	Technology	Team	Capital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Development Risk Capital
Project Finance (Construction)
Asset Finance
Time
Unknowns
Risk
Site
Resource
Off-take
Permits
Technology
Team
Capital

CASE EXAMPLE – PROJECT DEVELOPMENT

- The **Campo Band of Mission Indians of the Kumeyaay Nation** has a successful wind project and is working on another
- 50 MW project with 25 turbines constructed in 2005, online in 2006
- Production of 175 million megawatt hours in 2011
- Largest commercial wind facility in Indian Country
- Campo Government is lessor of the land where the facility is located .
- Working with Invenergy to build a new 160 MW wind energy project to serve San Diego and help CA comply with it's Renewable Portfolio Standard

Source: Campo's Renewable Energy: Security, Independence, and Economic Development. DOE Tribal Energy Meeting 11-15-2011. Monique La Chappa and Melissa Estes

Two Paths

DIRECT OWNERSHIP

Community Scale Project

Example: ***Install solar system for electricity cost management on a Government center, casino, hotel, or school.***

- Save money
- Reduce electricity costs
- Energy independence
- Cost avoidance
- Retail electricity price
- Capital budgeting

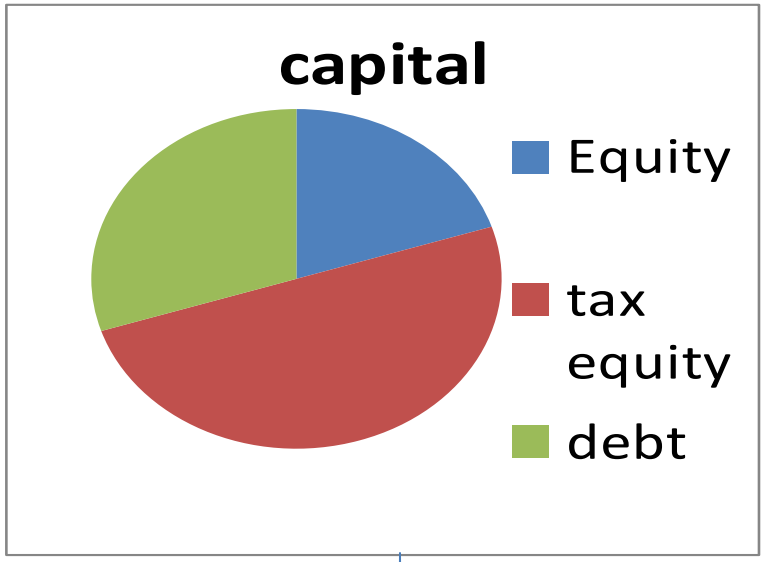
THIRD PARTY PARTNERSHIP

Commercial Scale Project

Example: Install utility scale solar or wind for revenue generation through a contracted sale with a utility or large electricity user

- Selling electricity to make money
- Levelized cost of energy (LCOE)
- Wholesale electricity prices
- Investment opportunity

Renewable Energy Finance



$100M+ Federal Renewable energy venture investment

Pre-Development → Development → Construction → Operation

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Development Risk Capital | Project Finance | Asset Finance

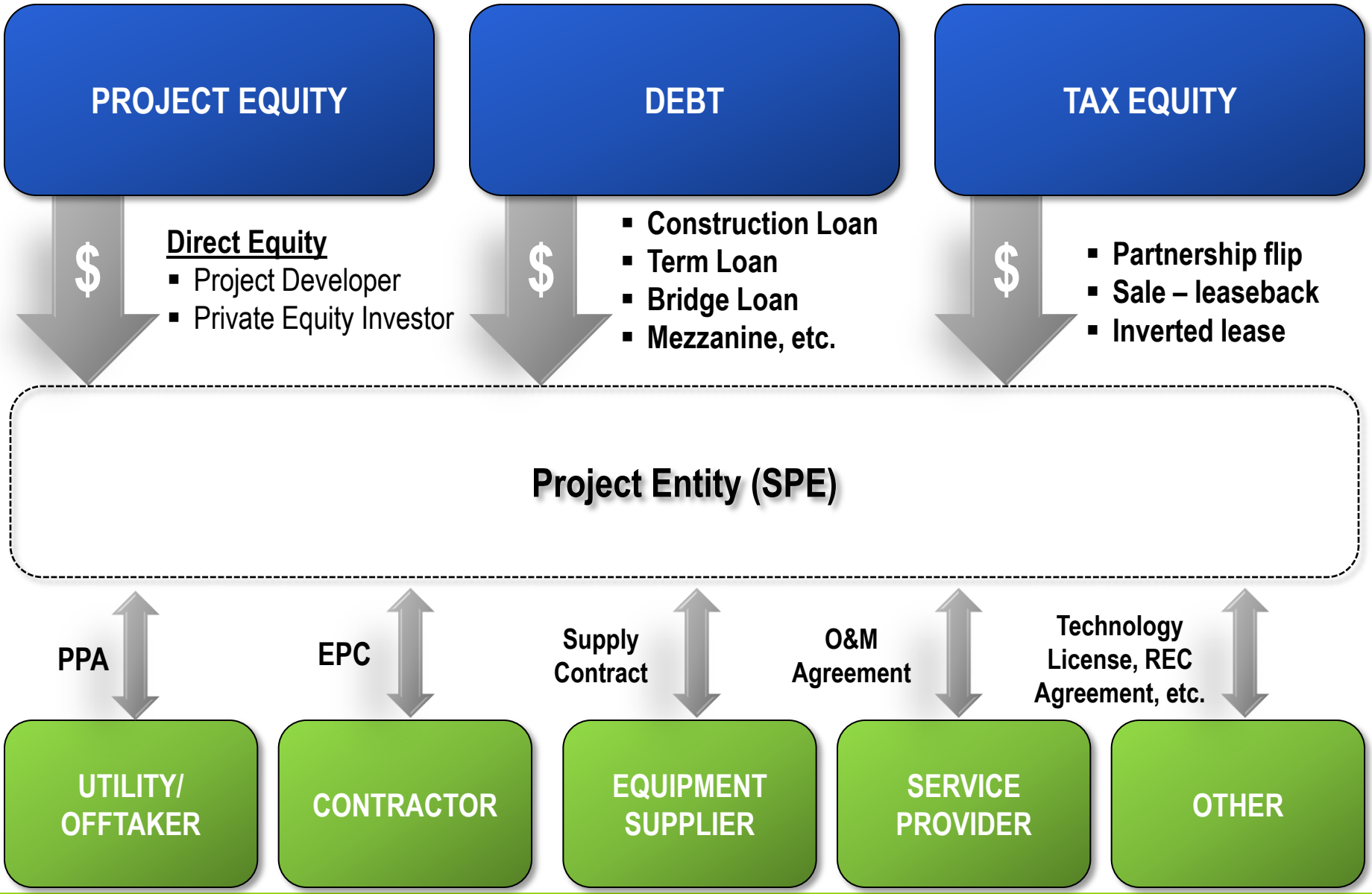
Financing Structures

Options	How Tax Equity Return is Earned
Flip	Tax Equity invests capital to achieve target IRR. Upon achievement to target IRR ownership interest automatically "flips" down to contract percentage.
Sale Leaseback	Tax Equity buys project and leases it back to developer for a term of years.
Inverted Lease	Tax Equity invests capital for a preferred return that includes a "pass through" of credit by operation of tax election.

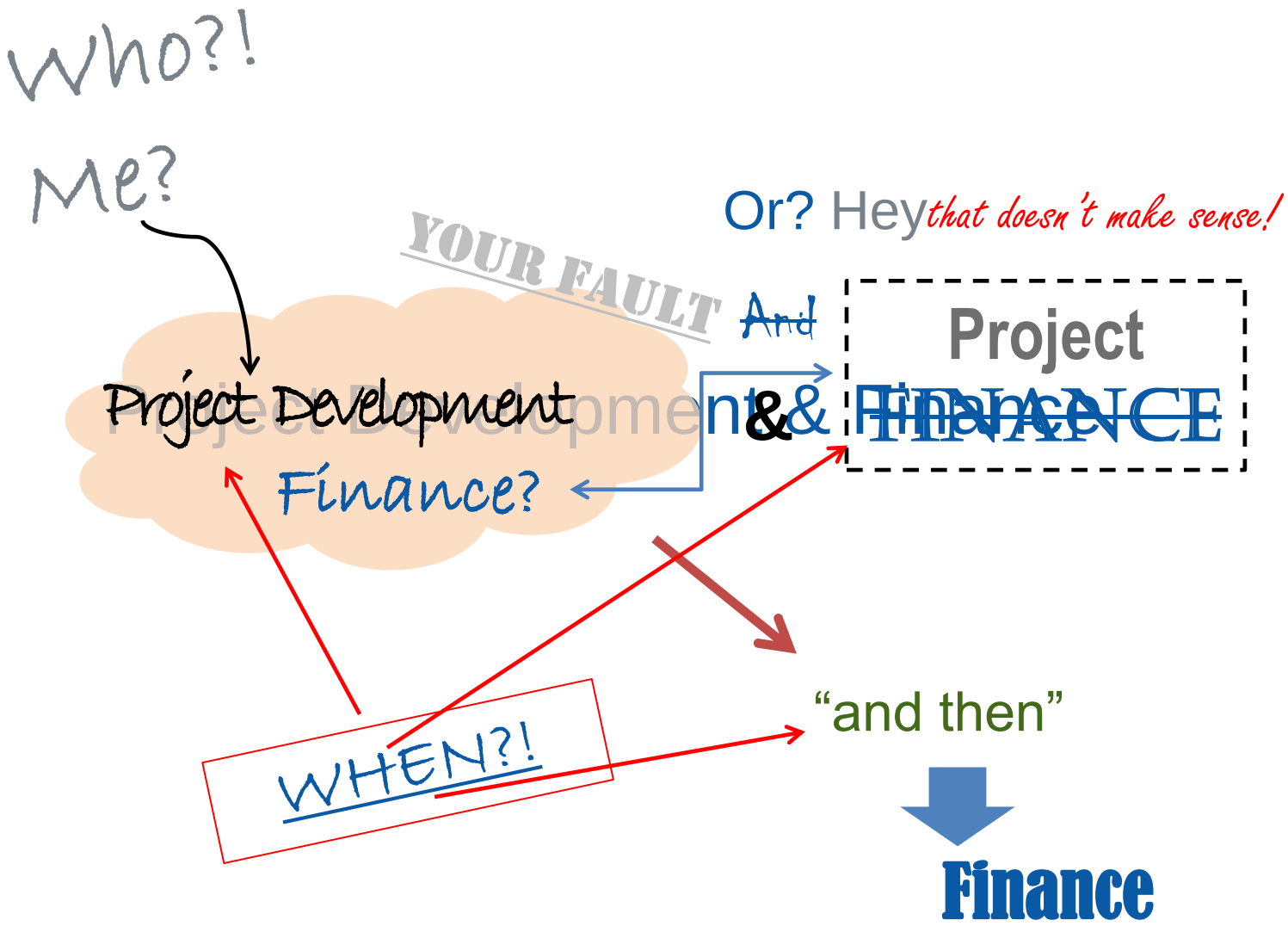
Renewable Energy Technologies & Financing Structures

Solar **Wind** **Biomass** **Geothermal**

One Size (Financing Structure) Does Not Fit All (Technologies)



Source: Graphs adapted from 'Renewable Energy Project Finance in the U.S.: An Overview and Midterm Outlook' (Mintz Levin Green Paper , 2010)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QUESTIONS

THANK YOU

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Useful Resources

PROEJCT DEVELOPMENT & FINANCE "GENERAL"

- For General Project Development & Finance: http://www.nrel.gov/applying_technologies/financing.html
- *Tribal Business Structure Handbook (*Nilles, Kathleen, NAFOA): www.nafoa.org

PROJECT DEVELOPMENT "RESOURCES" (Slide 14)

- Renewable Energy Atlas: http://maps.nrel.gov/re_atlas
- In My Backyard (IMBY): http://www.nrel.gov/eis/imby/
- PV Watts: http://www.nrel.gov/rredc/pvwatts/

PROJECT DEVELOPMENT "OFF-TAKE" (Slide 15)

- Power Purchase Agreement Checklist: http://www.nrel.gov/docs/fy10osti/46668.pdf
- Renewable Portfolio Standards: http://apps1.eere.energy.gov/states/maps/renewable_portfolio_states.cfm

Useful Resources (Cont'd.)

PROEJCT DEVELOPMENT "PERMITTNG" (Slide 16)

- Federal Energy Management Program Environmental Siting Guide: http://www1.eere.energy.gov/femp/technologies/derchp_envsiting.html
- http://www1.eere.energy.gov/tribalenergy/guide/permitting_licensing.html.
- http://www1.eere.energy.gov/tribalenergy/guide/regulatory_agencies.html.

PROJECT DEVELOPMENT "TECHNOLOGY" (Slide 17)

- General resource/technology page at: http://teeic.anl.gov/er/index.cfm
- For renewable energy resource assessment: http://www1.eere.energy.gov/tribalenergy/guide/assessing_energy_resources.html.

PROJECT DEVELOPMENT "CAPITAL" (Slide 18)

- For General Project Development & Finance: http://www.nrel.gov/applying_technologies/financing.html

TRAINING PROGRAM OVERVIEW

Training Program Objective & Approach

- Provide easily accessible, multi-format information to Tribes regarding renewable energy project development processes and financing options on Tribal lands.

- Train Tribal leaders and executives on the options for renewable energy development on Tribal lands by:

  - Outlining the project development framework;
  - Describing renewable energy technologies and where they may best be developed; and
  - Presenting the various financing structures as practical for projects on Tribal lands.

Program Structure & Offerings

LEADERSHIP SERIES

Module 1:
Project Development Overview

Module 2:
Financing Options Overview

Delivery:

- Half Day In-Person

PROFESSIONAL SERIES

Module 1:
Project Development Framework

Module 2:
Financing Options (4 courses)

Delivery:

- Webinars
- In-Person Trainings

Timeline for Delivering the Training Series