Financing Renewable Energy Projects in Indian Country

Presenter:
Jeffrey Bedard, NREL

DOI/BIA Utility-Scale
Solar Energy Development Workshop

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Context

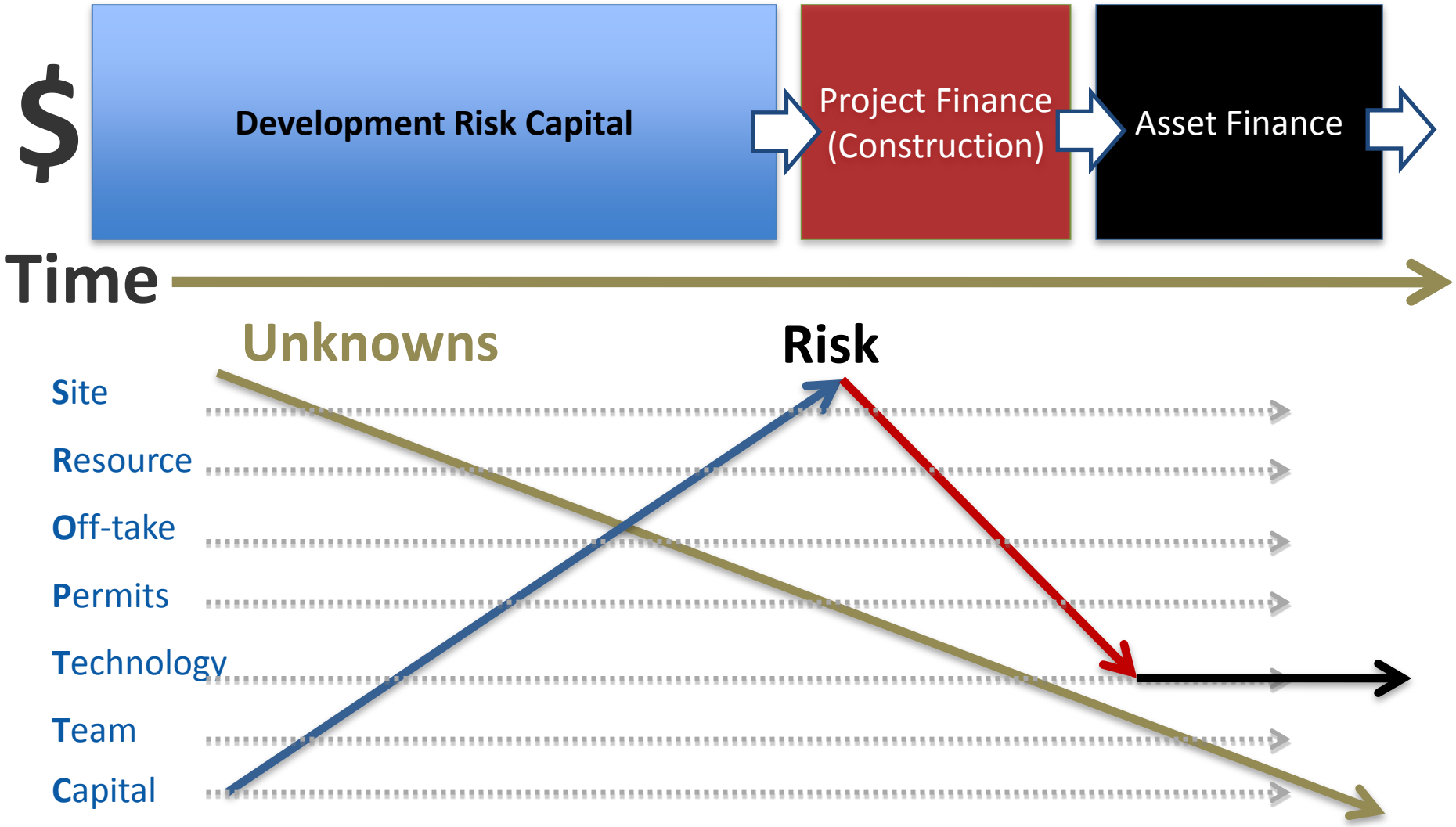
Technically, Indian lands have enough renewable energy resource to produce:

- 1 Billion megawatt-hours (MWh) of wind (about 148,000 homes)
- 7 Billion MWh of solar photovoltaics (PV)
- 4 Trillion 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*

Project Development Framework



	Project Debt			Tax Equity		Lease Equity	DOE
	Bank	Private Bond	Term Loan	Levered	Unlevered		
Investor Universe	Commercial Banks	Private or 144A Offering	Institutional investors w/energy focus	Financial investors and some corps. with tax appetite.		Lease equity market, institutional	DOE supports 100% or 80%
Target Rating	"Investment Grade" no rating needed	BBB-/NAIC 2	B is doable; BB is preferred	NA (Investment Grade Offtaker)		NA (Invest. Grade Offtake)	NA
Market Capacity	Up to $1 Billion; up to 1.0XDSCR in Low Case	+$1.0 Billion	$750 Million	Sized to target IRR		Sized to 20-49% of Capital Stack	No Limit
Indicative Pricing	L+250-350 2007: 100-150 +fees 1.5-2.0%	7% Area; T + 5%-6% Fixed	L+250-500; 425 - 450 Libor floor;	11-13.5; IRR by Flip	9-10.5% IRR by Flip	9.0-12.5% after tax yield	T+75-100 bps
Tenor	5-7 years typical, up to 15	Term of PPA (20-25); Prepayment Penalty	Up to 7 years	Target IRR reached by year 10 with PTC; 6-7 with ITC		80% of Useful Life	Up to 30 years
Sizing Profile	DSCR Requirements 1.30-1.40X; lockbox; PPA 'Tail'; EPC with credit support; LIBOR Swaps; Reserves		1% amortization with cash sweep	Downside flip dates: +3 years in downside; +6 years in severe downside		1.30-1.40 "RSCR" Like Project Debt	Driven by required Ratings

Tax Equity Financing Structures

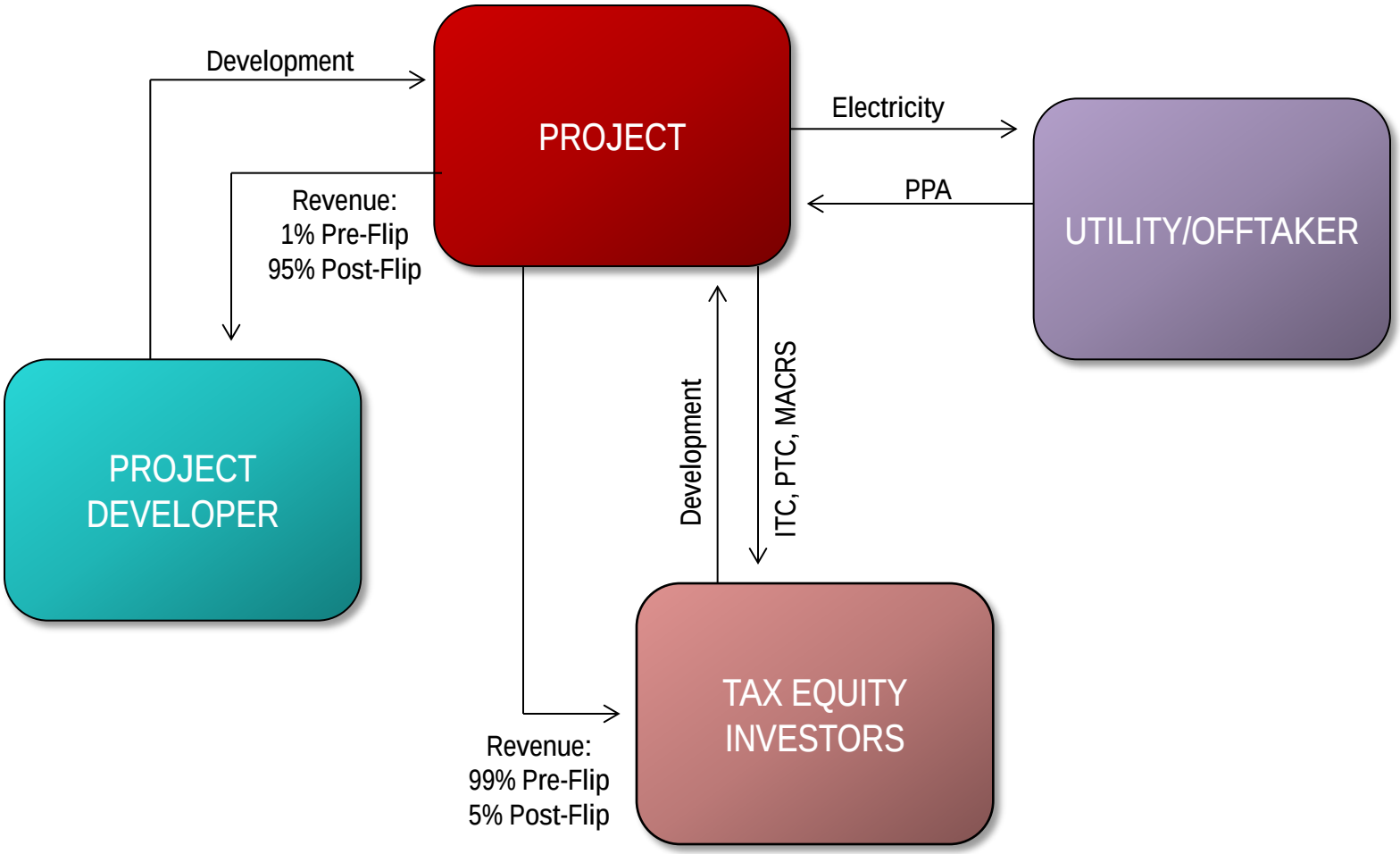
Options	How Tax Equity Return is Earned
Partnership Flip	Tax Equity invests capital to achieve target IRR. Upon achievement to target IRR ownership interest automatically "flips" down to contract percentage.
Sale Leaseback	Tax Equity buys project and leases it back to developer for a term of years.
Inverted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

Capital/Cash Flows & Deal Structuring

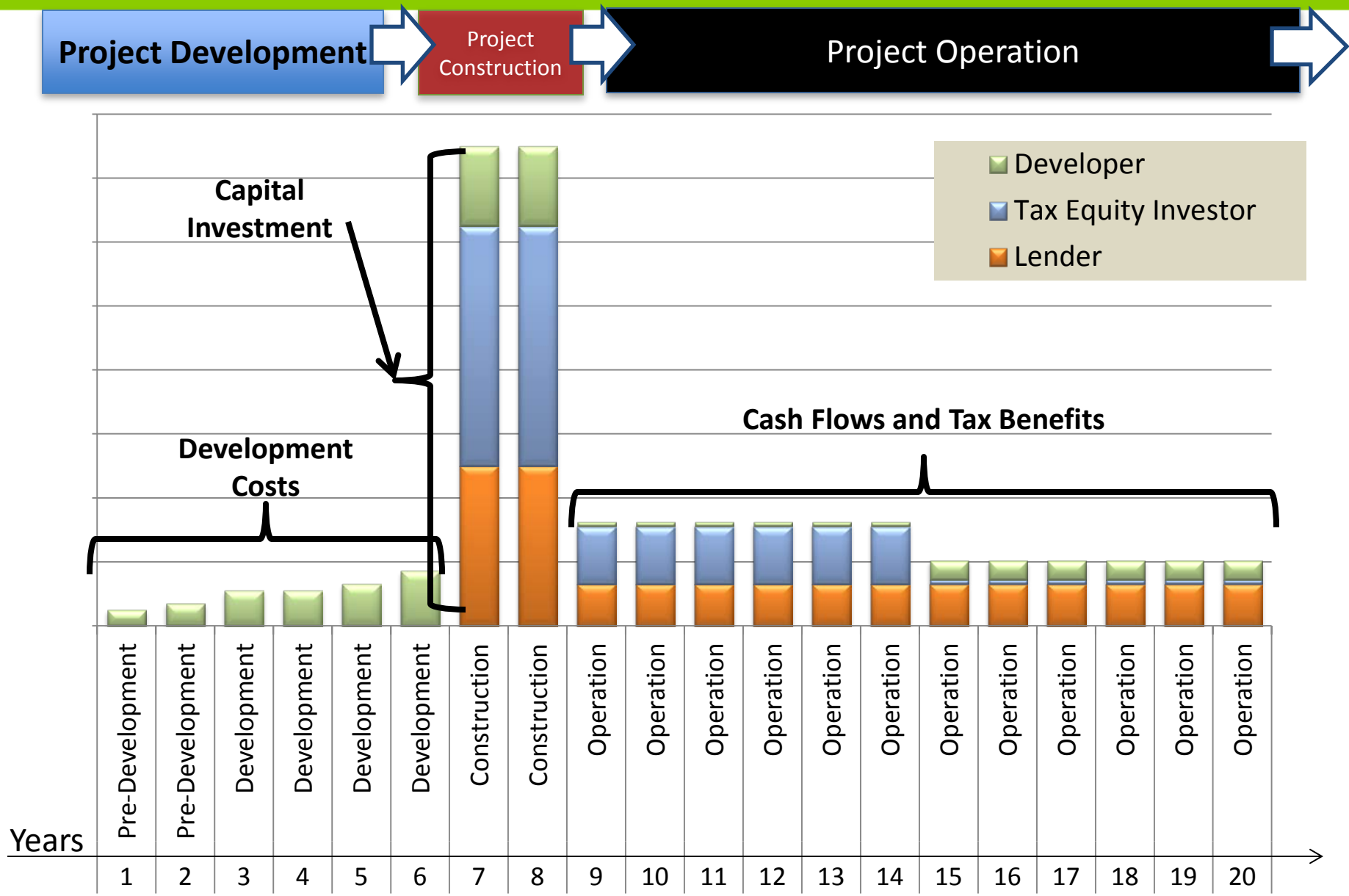
- ***Partnership Flip Example – Anatomy of a Deal***
  - A illustration of participants roles in a partnership flip transaction
  - A PPA is assumed to be in place – for kWh sales and/or REC sales
  - We will visualize the cash flows for each participant

- ***Key Contract: Power Purchase Agreement (PPA)***
  - A long term, financeable commitment to buy project output – in kWh's and/or attributes (like Renewable Energy Credits, REC's)
  - Allows developer to monetize tax or other policies

Financing Option: Partnership Flip



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



Partnership Flip Illustration

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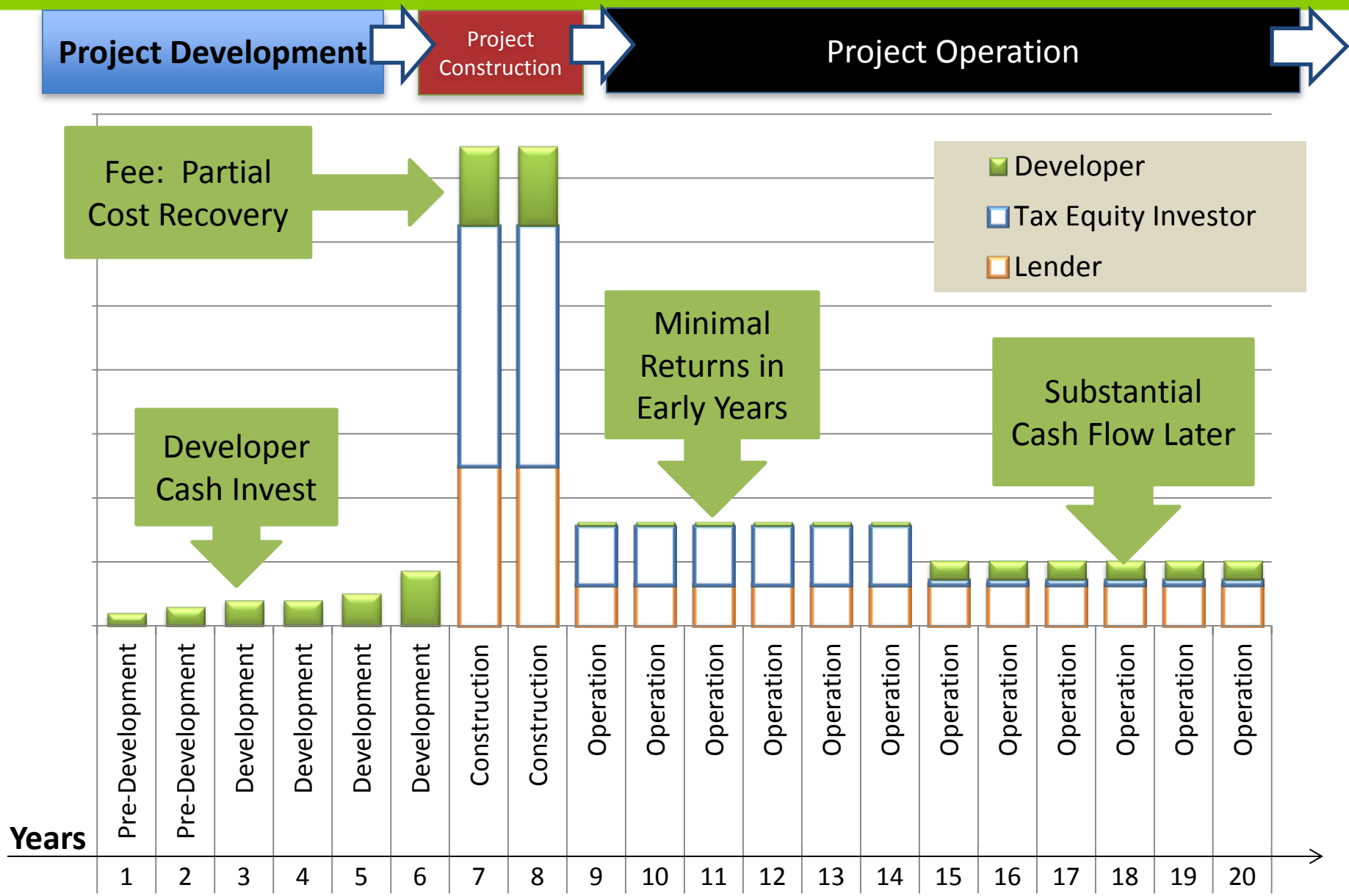

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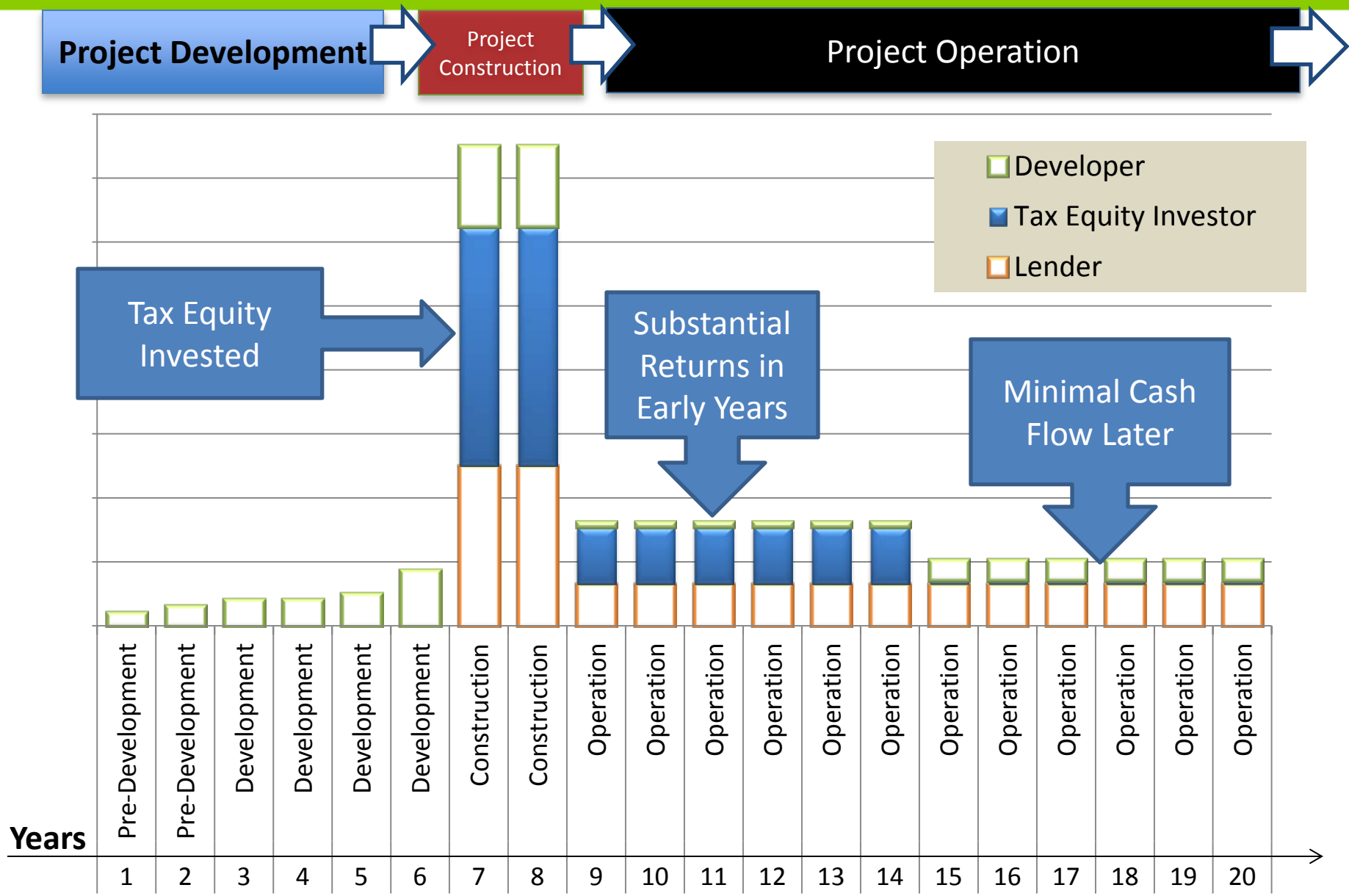

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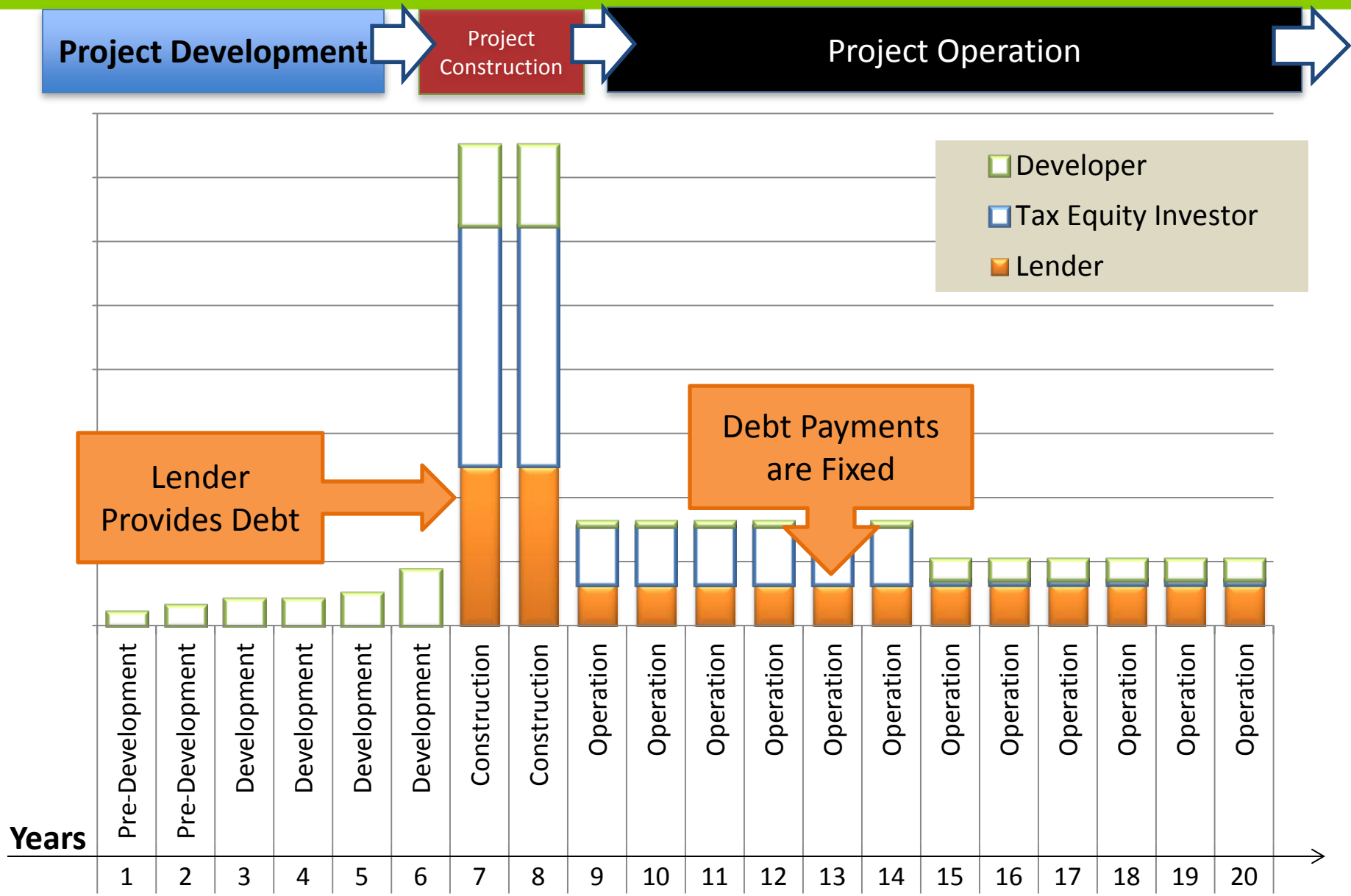

Partnership Flip Illustration

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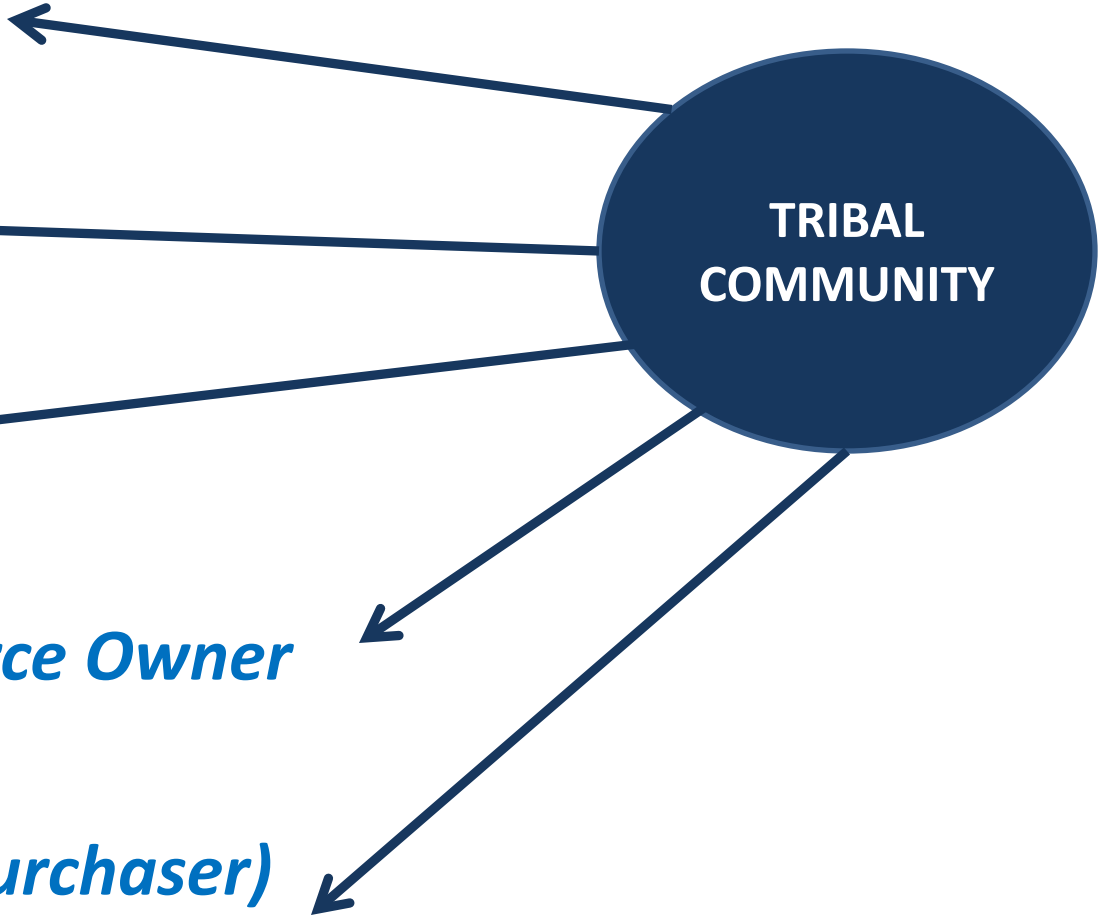
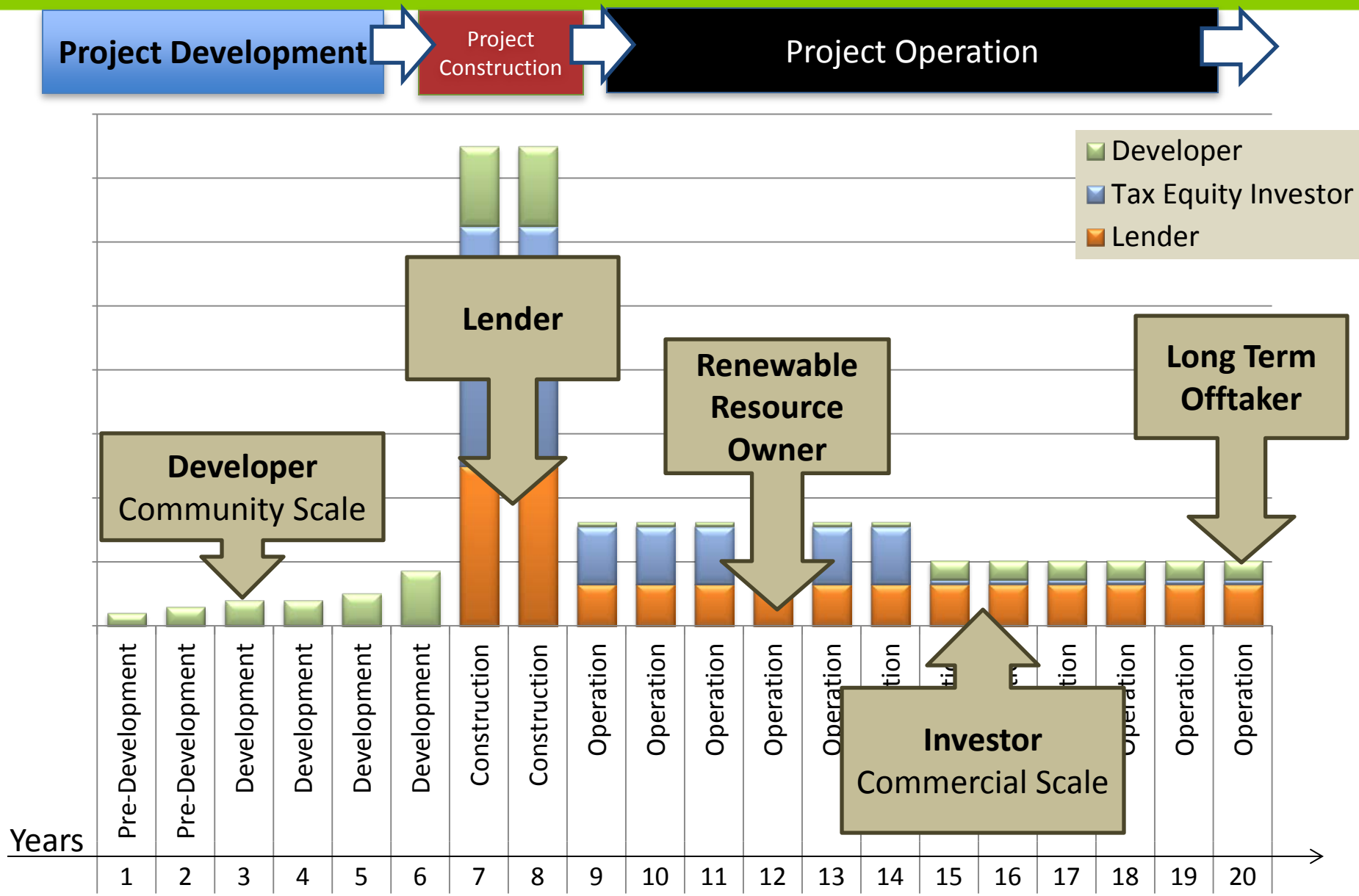
Financial Players in a Project

- *Project Developer*
- *Lender*
- *Investor*
- *Renewable Resource Owner*
- *Offtaker (power purchaser)*




Project Development
Project Construction
Project Operation
Developer
Tax Equity Investor
Lender
Lender
Renewable Resource Owner
Long Term Offtaker
Developer
Community Scale
Investor
Commercial Scale
Years
Pre-Development
Pre-Development
Development
Development
Development
Development
Construction
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CASE EXAMPLE – PPA THIRD PARTY FINANCING

PROJECT: Boulder County (CO) exercised a third party PPA option by making investments to lower solar project costs.

MARKET BARRIERS: Cost of electricity; price stability; energy demand and net-metering

LOCAL GOVT ROLE: Sponsor, Investor/Financier, Off-taker

TRANSACTION SUMMARY: This structure takes advantage of a governmental entity's ability to issue tax-exempt debt or to tap other sources of funding to buy-down the cost of the project.

POTENTIAL OUTCOME: Prepayments can improve economics for both parties and provide greater price stability over the life of the contract.

Project Name	Boulder County Solar Project
Size (DC) Type	615 kW 2,000 kW; 570 kW rooftop, 45 kW ground
Developer	Bella Energy
Owner	Rockwell Financial
PPA Terms	20 years, fixed-price 6.5 ¢/kWh for first 7 years, renegotiate price and buyout option at beginning of year 8

Source: http://www.nrel.gov/docs/fy10osti/46668.pdf

CASE EXAMPLE – PPA THIRD PARTY FINANCING

PROJECT: Denver International Airport installed a 2-megawatt solar array to provide up to half of the electricity to power the people mover transit system.

MARKET BARRIERS: Cost of electricity; price stability; construction risks

GOVERNMENT ROLE: Sponsor, Off-taker

TRANSACTION SUMMARY: MMA Renewable Ventures (MMA) financed and owns the project and sells the electricity it produces to the airport under a long-term power purchase agreement.

OUTCOME: DIA reduced electricity costs**;** Xcel Energy uses the RECs to fulfill its state RE obligation by 2020; MMA Renewable Ventures sells the RECs to Xcel; receives a rebate from Xcel; receives a large tax federal break; and generates guaranteed revenue from the electricity the array produces.

Project Name	Denver Airport Solar Project
Size (DC) Type	2,000 kW; Ground-mount, single-axis tracking
Developer	World Water & Solar Technologies
Owner	MMA Renewable Ventures
PPA Terms	25 years, fixed-price 6 ¢/kWh for first 5 years, buyout option at beginning of year 6 or price increases to 10.5 ¢/kWh

Source: http://www.nrel.gov/docs/fy10osti/46668.pdf; and http://thegreenwombat.com/2007/10/01/denver-airport-goes-solar/

THANK YOU

To contact speaker:

Jeffrey Bedard: Jeff.Bedard@nrel.gov