

Creative Financing & Funding for WTE Projects

SWANA Illinois Chapter Fall Oktoberfest Workshop/Annual Meeting



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Agenda

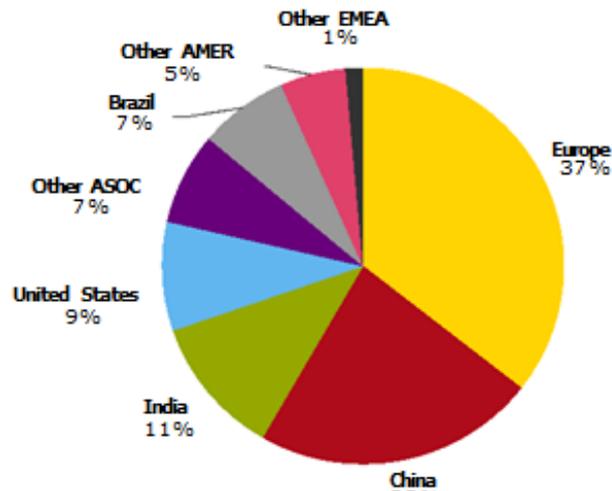
- Introduction
- Global WTE Trends
- MSW/ Waste Facts
- Sources of Cash & Tax Benefits
- Non-Traditional Debt
- Financing Structures, Tax Issues & Numbers
- Risk Mitigation
- Questions

Global Waste to Energy Investment Trends

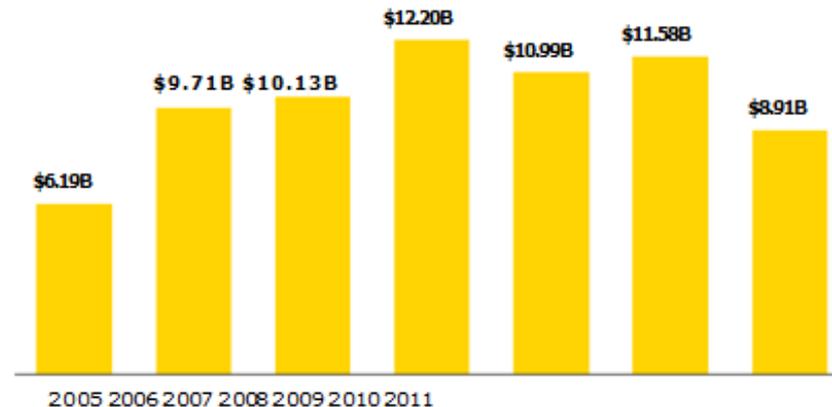
Global Waste to Energy Investment Trends

- ↳ Global investments in energy plants using biomass (i.e., solids) have hovered around \$9-10 B/year since 2007 – much more consistent than for biofuels (ie., liquids)
- ↳ Europe is the leader, followed by China
- ↳ China's NDRC is targeting to increase biomass power from <6GW in 2010 to 24 GW by 2020 (estimated cost ~\$70 billion)
- ↳ EU expects to double biomass capacity by 2020 to ~26 GW (~\$50 Billion)
- ↳ Brazil likely to spend at least \$55 billion for power & cellulosic fuels to use wood & sugar cane biomass

Global Asset Financing in Biomass and Waste-to-Energy (2005-2011)¹



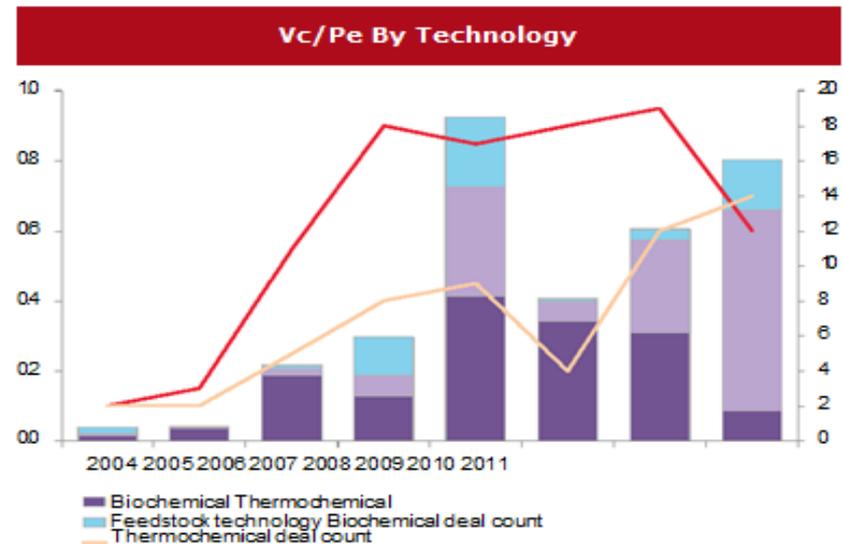
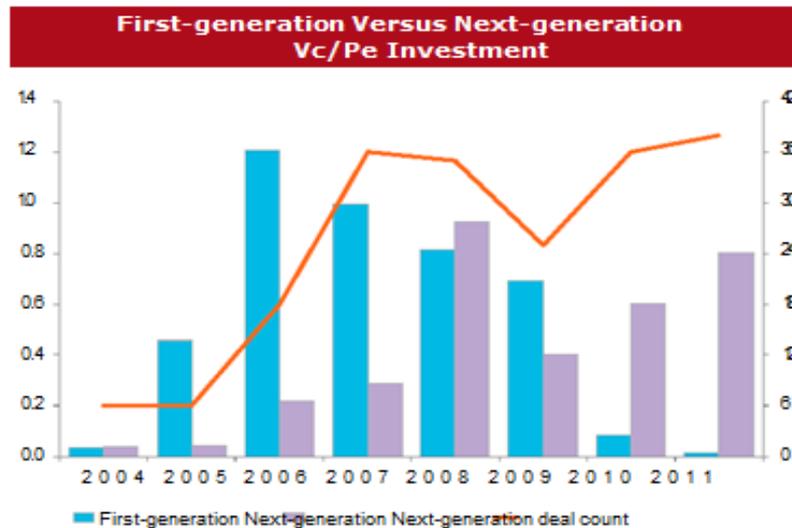
Cumulative Growth in Biomass and Waste-to-Energy Asset Financing¹



Historical Investment

Historical Investment

WTE Investment Trends, 2004-11 (\$billions)

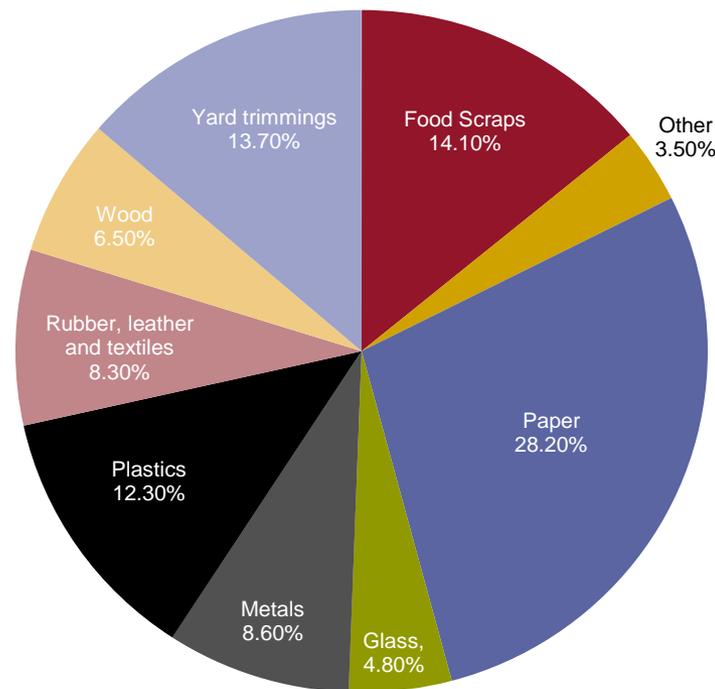


Almost by definition, very little VC/PE capital is going into first generation WTE.

Within the second generation technologies, VC/PE capital is increasingly focused on Thermo-chemical approaches (eg., pyrolysis & gasification) as opposed to Bio-chemical approaches (eg., enzymatic hydrolysis). This is partly in response to the fact that the former is generally better able to handle a wider range of feedstocks.

Waste Facts

- Each person in U.S. today generates 1,584 lbs. per year
 - Decreased from 1,643 lbs per person per year in 2008
- What is in our waste?
 - Recyclables
 - **Feasible now to recycle up to 50-60%**
- Energy content of remainder:
 - Coal at 9,000 BTUs per pound



Source: US EPA, 2012 data

Significant opportunity for the provision of non-traditional debt finance to the WTE sector

Five Key Reasons:

1. **High government debt**

- Development Banks will have less capital

2. **Weak European banking system**

- Retreat of the largest project financiers

3. **Basil 3 requirements**

- More conservative capital ratios for all banks

4. **Rapid reductions in the Levelized Cost of Renewable Energy**

- Driven by technological change

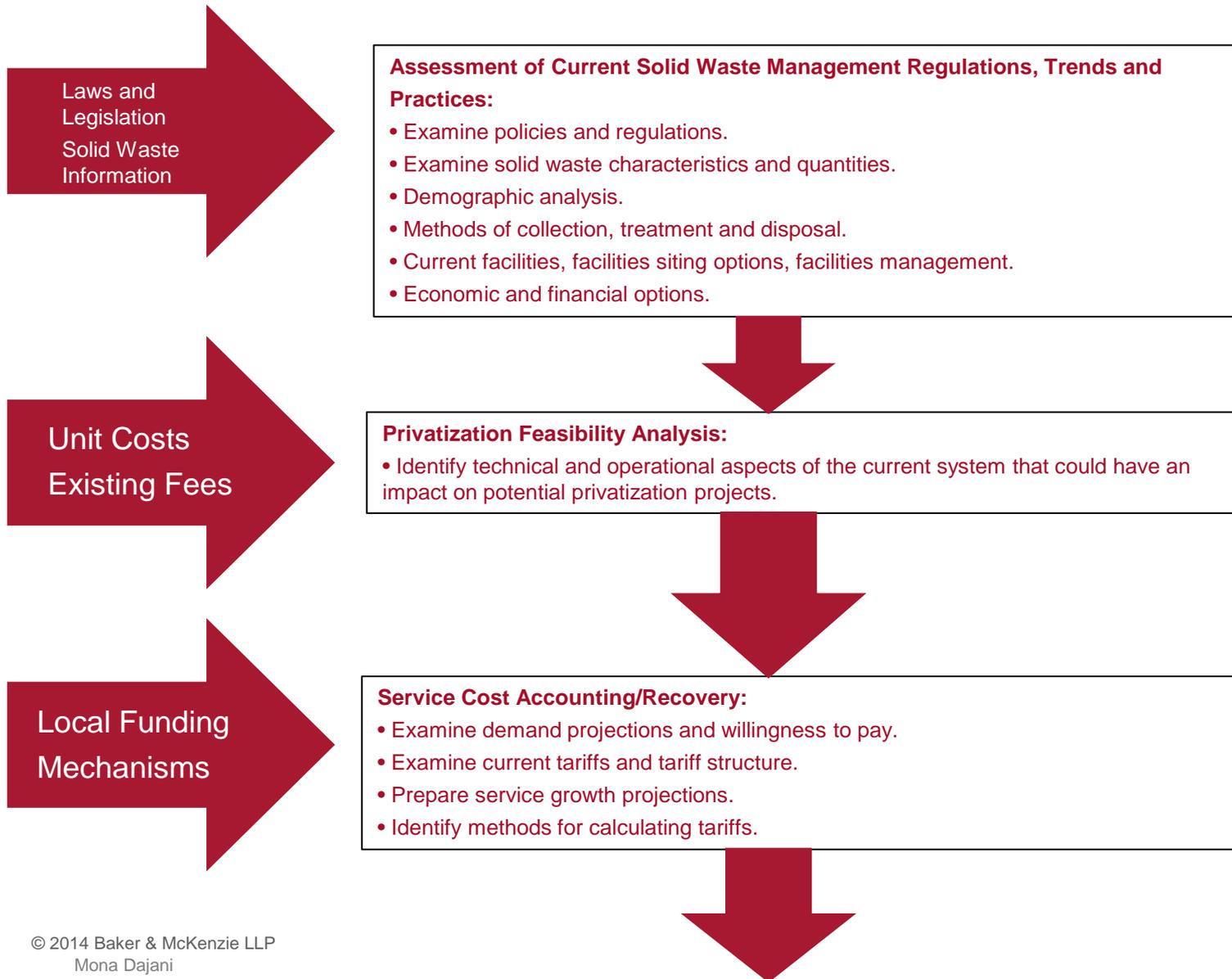
5. **Selected environmental regulations**

- Eg., RFS-2 in the United States – creates a market for products with technological risk.

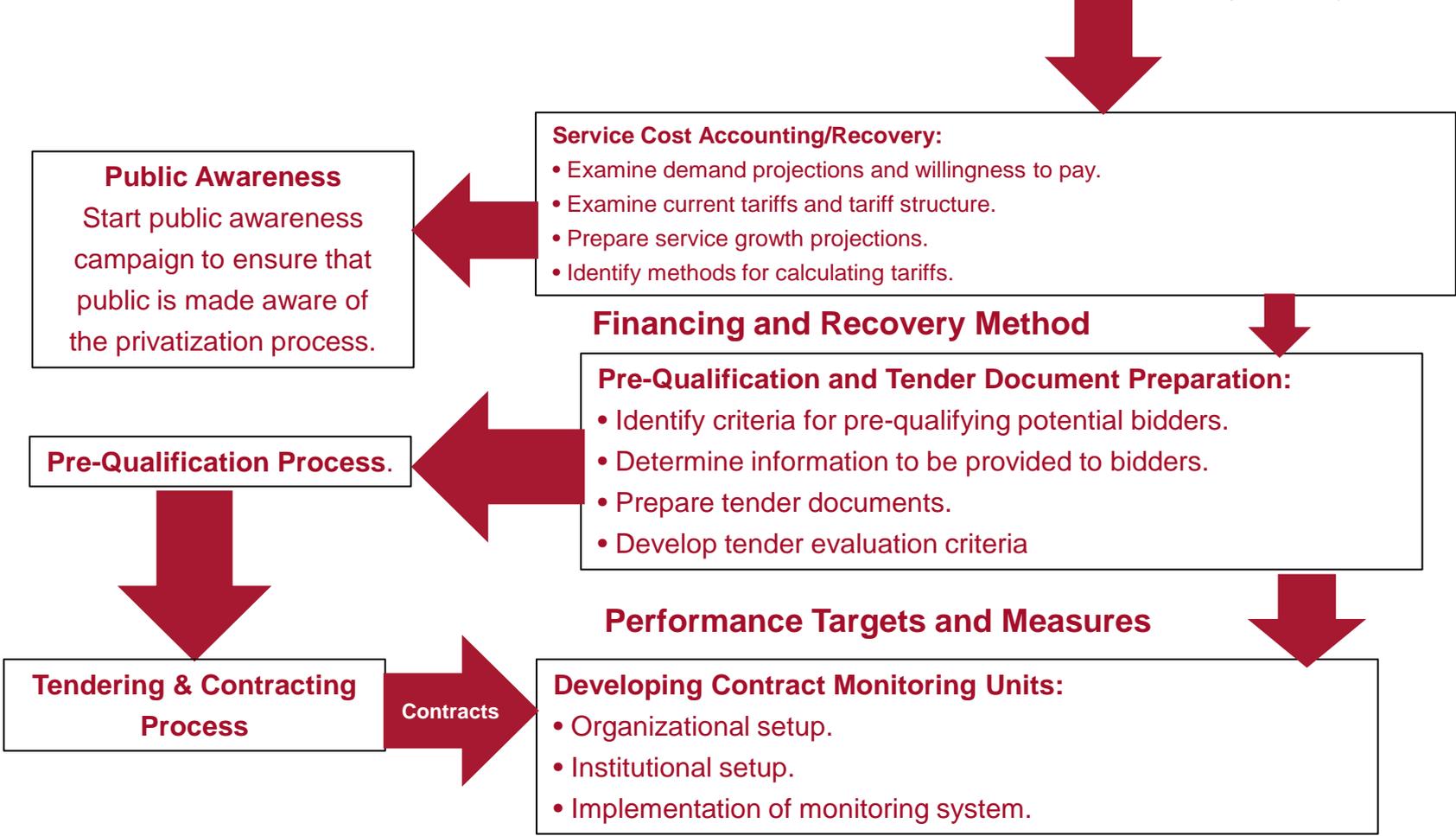
Sources of Cash and Tax Benefits

- Project Revenue
 - Energy Sales
 - REC Sales
- Federal Tax Credits / Loan Guarantee
 - PTC
 - ITC
 - DOE Loan Guarantee
 - USDA Incentives: Loans, Loan Guarantees, Biomass Crop Assistance, Rural Energy for America Program, Community Wood Program, Woody Biomass Grants
- Accelerated Tax Depreciation
 - MACRS
- State Incentives
 - Sales and Property Tax Rebates
 - Capital Cost Rebates
 - Other Incentives
- NMTC Financing, P3's, VCs, PE and Infra Funds (equity and debt)
- 144 A Bonds
- CREBS
- Tax Exempt Bonds

SOLID WASTE PRIVATIZATION PROCESS



SOLID WASTE PRIVATIZATION PROCESS (cont.)



What do Investors Want?

- Risk Mitigation:
 - Experienced Management Team with demonstrable Track Record
 - Realistic valuations
 - Fully financed business plans / limited capital intensity
 - Limited technology or market development risk
 - Structured securities with seniority in capital structure
- A validating investment from a strategic or a deeply experienced VC
- Strong management teams with proven execution track records
- Continued financial and business support from existing investors
- A realistic exit plan which includes strategic acquirers

What Do Lenders Want?

- Financeable PPAs
 - Reasonable Performance Requirements and Penalties
- Reasonable limits on utility curtailment or pay – Change of Law Protection – Reasonable Leeway on Development Milestones
- Force Majeure and Uncontrollable Permitting Delays
- Revenue During Startup Period
 - Lender Rights to Cure Defaults and Reasonable Cure Periods – Utility Consent to Assign PPA to Lender as Loan Collateral
- Transfer Rights
- Utility Continuity of PPA Terms on Foreclosure
- Portfolio Finance Issues
- Efficient Dispute Resolution

In traditional infrastructure development, emphasis is on the Project Sponsor to mitigate risks

Challenges Faced by Project Sponsor's

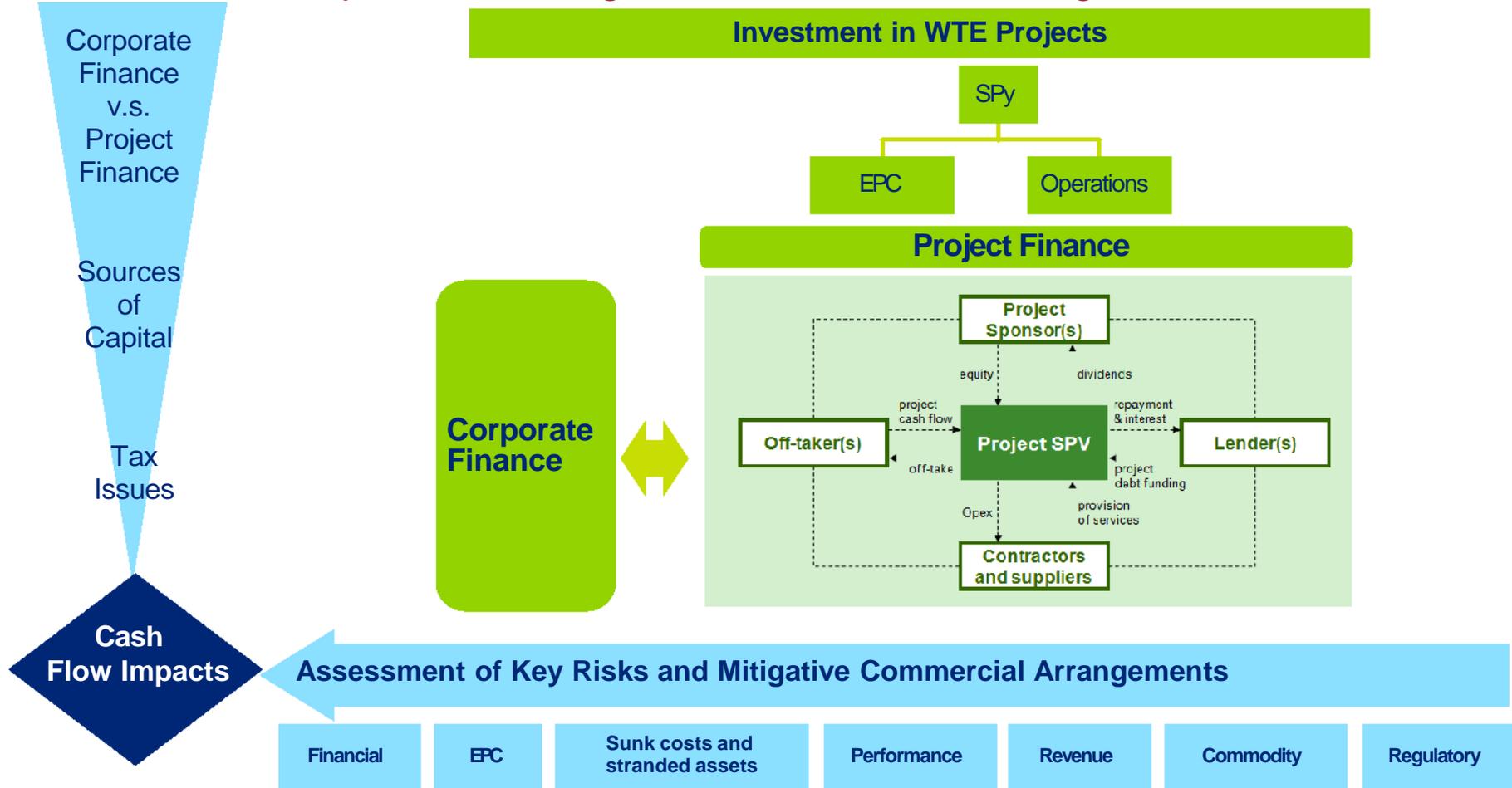
- Approval processes
- Opposition from local stakeholders (NIMBY)
- Locked in engineering, procurement and construction contracts with fixed price arrangements
- Labor and material risk
- Embedded 'optionality' and long term credit exposures
- Integration into the power system
- Pricing on power
- Availability and performance

Challenges with the Capital Markets

- Lenders and investors require term contractual arrangements
- Will rely on the financial capacity of the sponsors to absorb any market risk inherent in the project
- Canadian lenders and investors have not had as much experience with renewable energy
- Venture capital interests are in the development of technology
- Government support is needed in the form of grants, loans, guarantees and tax concessions

Risk mitigation is best achieved by assigning key risks to suitable counterparties

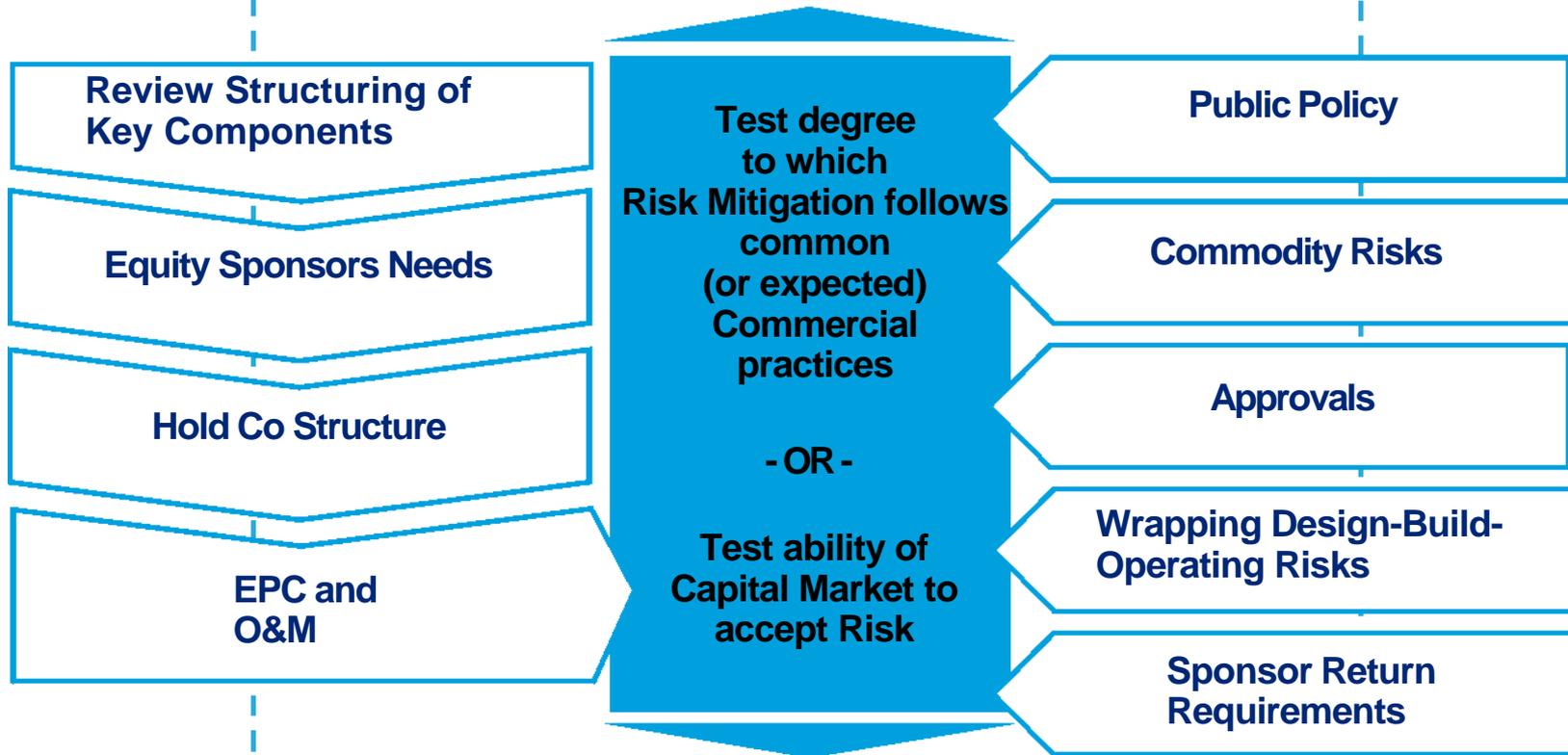
WTE projects have unique scale and technology issues that pose a challenge to conventional risk mitigation



Lenders are typically last in and need to understand that the project can work under best and worst case conditions

A well defined business case that follows a carefully laid out commercial risk mitigation structure is a key success factor

Detailed Risk-Adjusted assessment of financial impacts from a Commercial perspective



PPA + Design-Build-Operate Contracts are needed to mitigate or wrap the Risk

Risk Mitigation Options

	RE Project Risks	Risk Mitigation	Investors Action/ Attention	
Holistic Management of Risk	Project/Pre-construction		Track Record of project team; Get involved with developer early/ introduce partners Debt- Equity as required/ structure, underwrite and syndicate/develop lending off take Project community/ participate/understand other transactions/ value chains	
	Pre-Project			
	Conceptualization	Contingent grants		
	Implementation			
	Infrastructure Construction Risks			
	Construction	Insurance - CAR/EAR	Experienced contractors, EPC turnkey	
	Counterparty	Surety Bonds	Independent Tech Reviews. Completion guarantees	
		Performance guarantees		
		Liquidation damages		
	Operational Risks			
	Performance	Insurance	Proven Tech, Operator incentives, Independent Review	
	Counterparty	Surety Bonds		
		Performance guarantees		
		Liquidation damages		
	Fuel/ Feedstock Supply/ Weather	Weather Insurance/ Derivatives/ Hedges	Fixed off take and supply contracts	
	Credit Risks	Guarantees		
		Credit derivatives/Swaps		
	Generic - All Phases			
Policies Subsidies, Funding FIT, etc.	Insurance/Hedges			
Financial (Interest/ Tax, etc)	Derivative Products			
Political	Political Risk Guarantees			
	MFI Guarantees			
	Export Credit Guarantees			
Force Majeure	Insurance/Hedges			
	CAT bonds			
Carbon Financed	Market			
	Market	Derivatives/Hedges	Fixed off take and supply contracts, regulations	
	Delivery			
	CER Proposal	Insurance/Guarantees		
CER Delivery	Insurance/ Carbon delivery & Permit delivery Guarantees			

Technologies and Risk

Alternative	Risks/Liability	Risk Summary
Mass Burn/WaterWall	Proven commercial technology	Very Low
Mass Burn/Modular	Proven commercial technology	Low
RDF/ Dedicated Boiler	Proven commercial technology	Low
RDF/Fluid Bed	Proven technology; limited U.S commercial experience	Moderate
Pyrolysis	Previous failures at scale, uncertain commercial potential; no operating experience with large - scale operations	High
Gasification	Limited operating experience at only small scale; subject to scale-up issues	High
Anaerobic Digestion	Limited operating experience at small scale; subject to scale-up issues	High
Mixed-Waste Composting	Previous large failures; No large-scale commercially viable plants in operation; subject to scale-up issues	Moderate to high
Chemical Decomposition	Technology under development; not a commercial option at this time	High

Source: Gershman, Brickner & Bratton, Inc. September 2012



THANK YOU!

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