



# Access to Capital Markets for Renewable Energy Projects

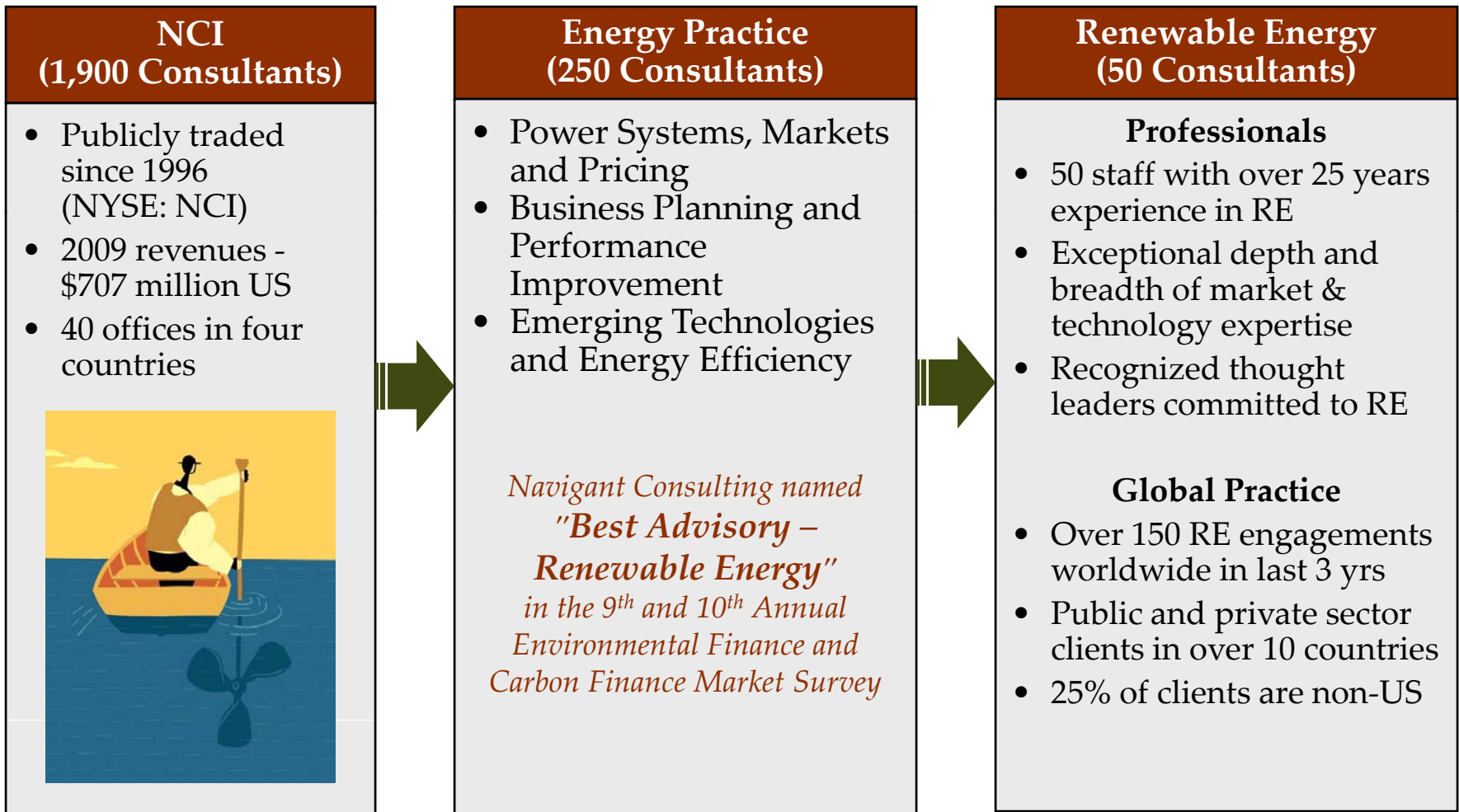
NEB Energy Futures Conference, Ottawa

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[www.navigantconsulting.com](http://www.navigantconsulting.com)

NAVIGANT  
CONSULTING

**Navigant Consulting is a specialized consulting firm and global leader in renewable energy technology and strategy.**



In solar and wind, we serve financial investors, utilities, private companies and governments in due diligence, corporate strategy and policy.

### Clients and Service Offerings

Financial Investors	Utilities	Private Corporations	Government / Agencies
<p><u>Due Diligence</u></p> <ul style="list-style-type: none"><li>• Project due diligence</li><li>• Manufacturing due diligence</li><li>• Risk analysis</li><li>• Market due diligence</li><li>• Management team due diligence</li><li>• <i>Have conducted ~40 due diligences over last 3 years</i></li></ul>	<ul style="list-style-type: none"><li>• New business models</li><li>• Entry strategy</li><li>• Technology and market assessments</li><li>• Solar program development and implementation</li><li>• RPS compliance</li></ul>	<ul style="list-style-type: none"><li>• Corporate strategy</li><li>• Profit pool and value chain analyses</li><li>• Mergers and acquisitions</li></ul>	<ul style="list-style-type: none"><li>• Policy support</li><li>• Public funding opportunities</li><li>• Economic development support</li></ul>

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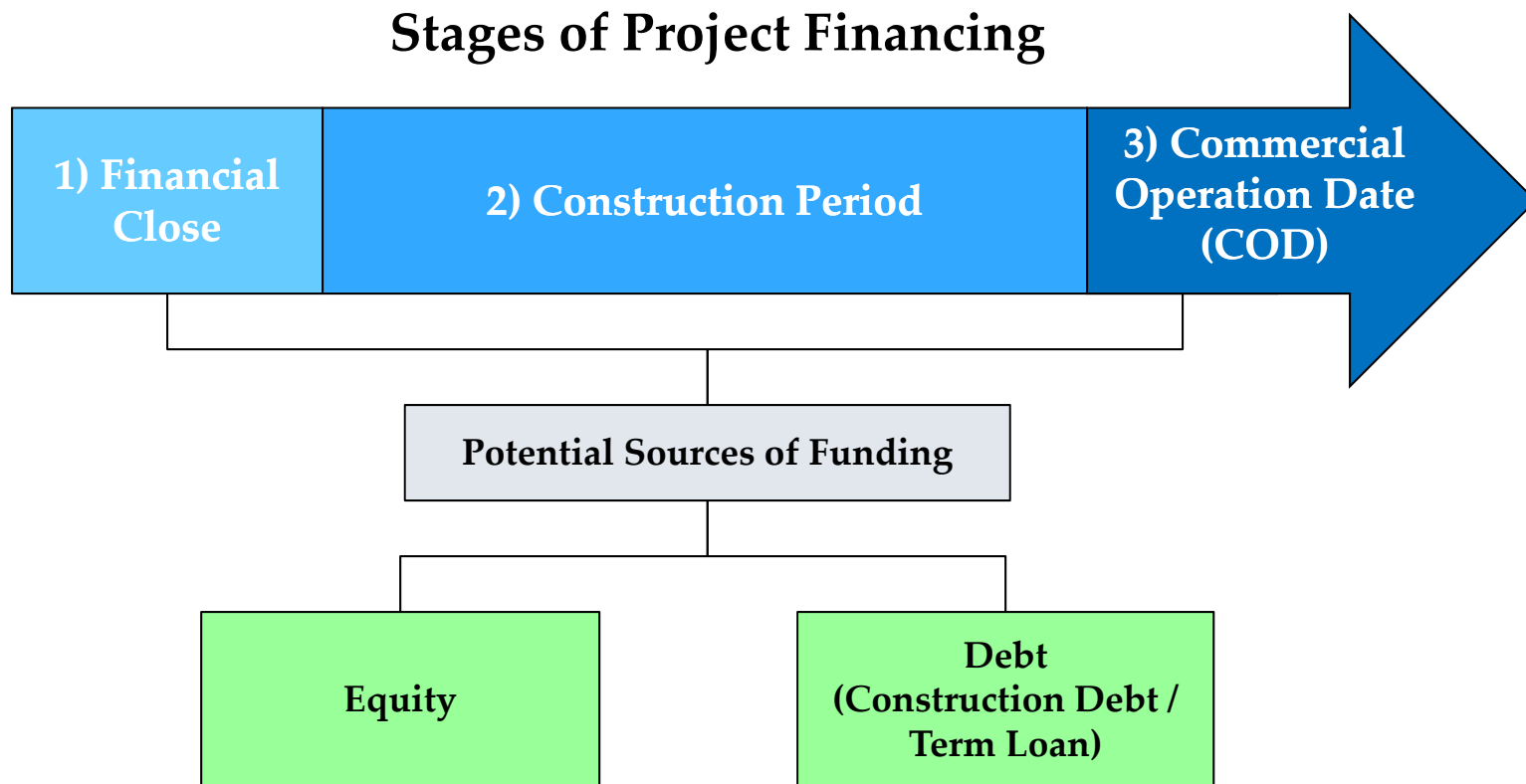
Funding Sources for Renewable Energy Projects

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De-Risking Renewable Energy Projects

## Stages of Project Financing

The three main stages of project financing are the financial close, the construction period and the commercial operation date (COD).



## Financial Investors

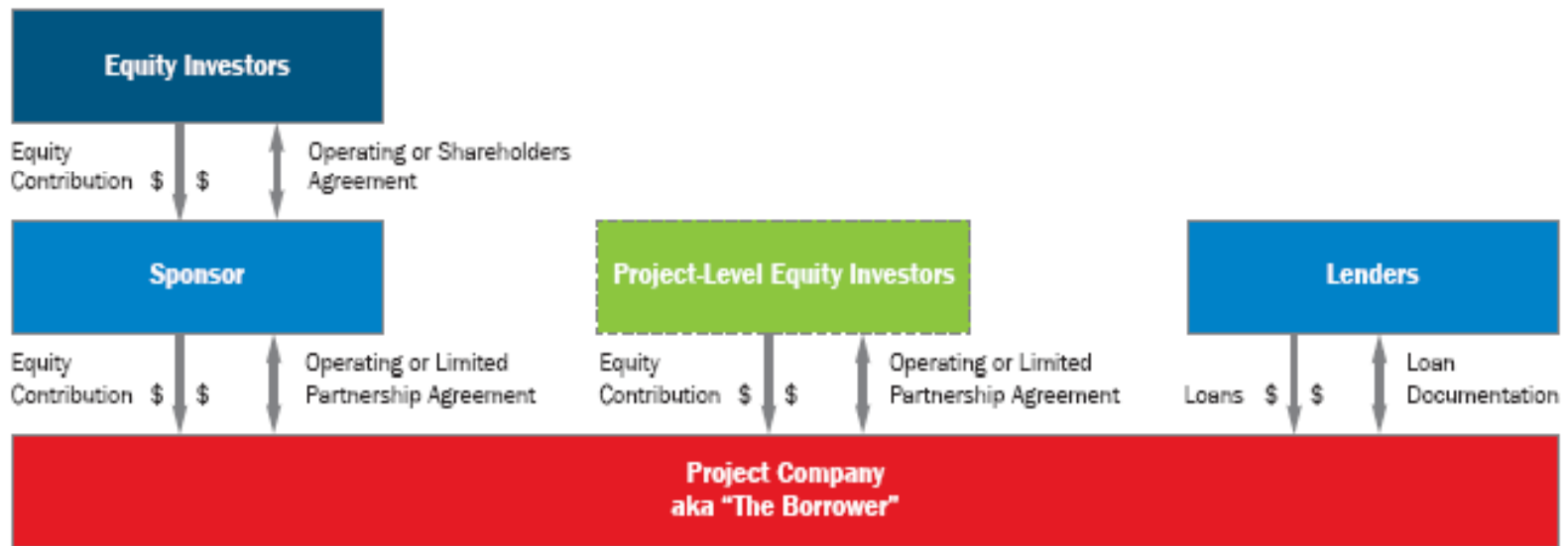
There are a variety of sources of debt and equity for renewable energy projects in Canada.

	Sources	Typical Pricing (Q1/2010)	Typical % of Project Cost	Comments
Debt	<ul style="list-style-type: none"> <li>• US / European banks</li> <li>• Canadian banks</li> <li>• Government agencies</li> <li>• Private/public bond issues</li> <li>• Life Ins. Companies</li> <li>• Limited Partnerships</li> <li>• Vendor financing</li> </ul>	<ul style="list-style-type: none"> <li>• 5-7%</li> <li>• 100-300 basis points above LIBOR</li> </ul>	<ul style="list-style-type: none"> <li>• 60-80% for OPA contracts</li> </ul>	<ul style="list-style-type: none"> <li>• Minimum thresholds for large institutions can be &gt;\$100 million</li> <li>• Boutiques handle smaller transactions</li> </ul>
Equity	<ul style="list-style-type: none"> <li>• Pension Funds</li> <li>• Private Equity Firms</li> <li>• Income Trusts</li> <li>• Investment arms of various Operating Companies</li> </ul>	<ul style="list-style-type: none"> <li>• 8-15% after tax</li> </ul>	<ul style="list-style-type: none"> <li>• 20-40% for OPA contracts</li> </ul>	<ul style="list-style-type: none"> <li>• Minimum thresholds for large institutions can be &gt;\$100 million</li> <li>• Boutiques handle smaller transactions</li> </ul>

## Typical Project Financing Structure

Financing structures can be fairly complex; activities centre on the project company (red) which is an entity that owns all of a project's assets, legal rights, and obligations.

## Typical Project Financing Structure



## Illustrative Solar Deals

European and US banks such as Nord Bank (Germany), Dexia (Belgium) and Union Bank (US) have provided finance for some recent solar deals in Ontario...

Illustrative Solar Projects		
	“First Light”	“Arnprior Solar Project”
Equity Sponsor	• SunEdison, Others	• EDF
Lender	• Nord L/B	• Dexia • Union Bank
Developer	• SkyPower • SunEdison	• EDF (Electricite de France)
Modules	• First Solar	• First Solar
Location	• Stone Mills (near Kingston), Ontario	• Arnprior (near Ottawa), Ontario
MWs	• 9	• 20
Status	• Online 9/09	• Online 12/09
Program	• RESOP	• RESOP

## Illustrative Wind Deals

...while Canadian firms Manulife and Northland Power are active on the wind side.

	Illustrative Wind Projects	
	“Raleigh Wind Farm”	“Jardin d'Eole Wind Farm”
Equity Sponsor	• Brookfield Power Fund	• Northland Power Income Fund
Lender	• Manulife	• Northland Power Income Fund, Others
Developer	• Invenergy	• Northland Power
Turbines	• 52 GE 1.5xle	• 85 GE 1.5 MWs
Location	• Raleigh (near Chatham), Ontario	• Matane, Quebec
MWs	• 78	• 128
Status	• Under construction; obtained financing Jan 2010	• Online 12/09
Program	• RESOP	• Quebec Clean Power Call

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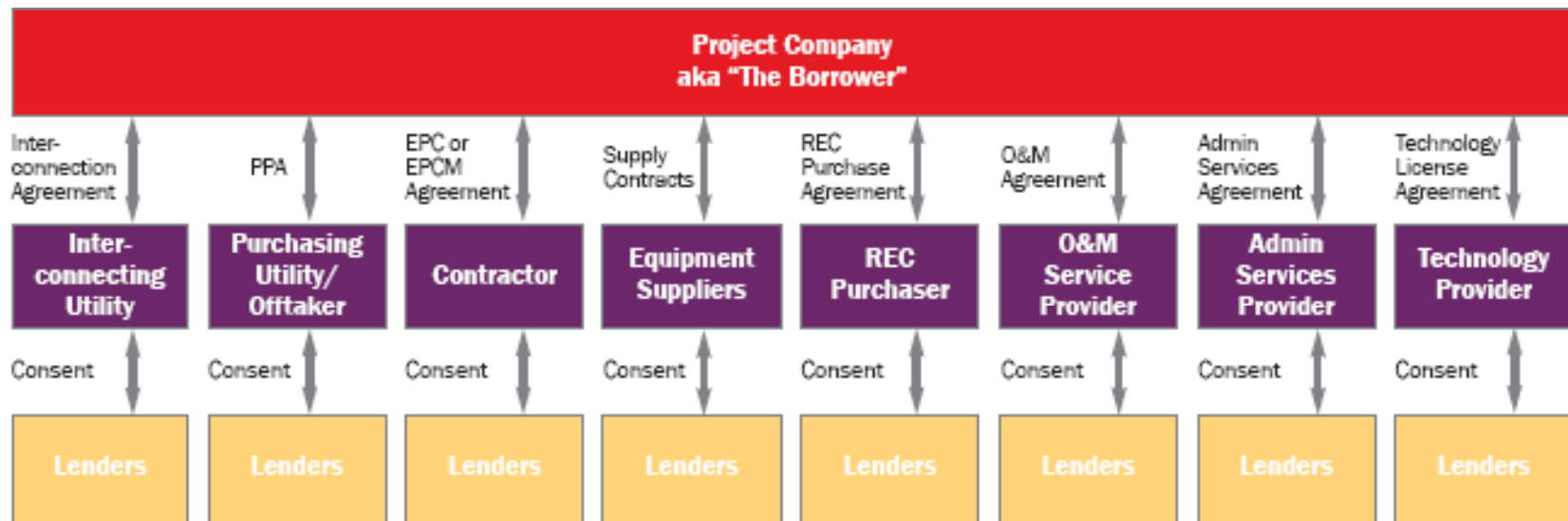
Funding Sources for Renewable Energy Projects

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De-Risking Renewable Energy Projects

**Financiers are very interested in developmental, operational and contractual capabilities, arrangements and risks for the project company**

- Primary due diligence focus of financiers; lenders may provide “consent” for specific contractual arrangements
- Many opportunities for “de-risking” a renewable energy project; developers need to do their homework



## Risk Categories

**Investment risk for renewable energy projects in Ontario is fairly low.**

Risk Category	Risk Level	Comments
Counterparty Risk	<ul style="list-style-type: none"> <li>• Very Low</li> </ul>	<ul style="list-style-type: none"> <li>• OPA is rated AA (low) by DBRS</li> <li>• <i>Most Canadian renewable PPAs provided by similarly-placed entities</i></li> </ul>
Technology Risk	<ul style="list-style-type: none"> <li>• Low for proven technologies</li> <li>• <b>Moderate</b> for new technologies</li> </ul>	<ul style="list-style-type: none"> <li>• Land-based wind and crystalline silicon solar are proven technology (25+ year track record)</li> <li>• Off-shore wind and thin film solar are new technology and have limited track record</li> <li>• Product quality can vary (China)</li> </ul>
Construction Risk	<ul style="list-style-type: none"> <li>• Low</li> </ul>	<ul style="list-style-type: none"> <li>• Wind and solar are relatively straightforward compared to other energy technologies</li> </ul>
Resource/ Output Risk	<ul style="list-style-type: none"> <li>• Low for Solar</li> <li>• <b>Moderate</b> for Wind</li> </ul>	<ul style="list-style-type: none"> <li>• Avg. annual output can be difficult to estimate</li> <li>• Solar has a lower standard deviation (4%) and less downtime due to maintenance than wind</li> </ul>
Financial Risk	<ul style="list-style-type: none"> <li>• Low to <b>Moderate</b></li> </ul>	<ul style="list-style-type: none"> <li>• For lenders, with DSCR&gt;1.4-1.5 (P50), risk is low</li> <li>• For equity investors, risk is low to moderate</li> <li>• After 1<sup>st</sup> year, IRR is very predictable</li> </ul>

**In project due diligence, there are a number of technical items that must be examined...**

Due Diligence Item	De-Risk Requirement
Interconnection	<ul style="list-style-type: none"> <li>• Connection Impact Assessment with utility</li> <li>• System Impact Assessment with system operator</li> </ul>
Permitting, env. review, community opposition	<ul style="list-style-type: none"> <li>• Simplified Renewable Energy Approval Process</li> <li>• Agricultural land restrictions</li> </ul>
Resource assessment / output assessment	<ul style="list-style-type: none"> <li>• Wind / solar assessment completed</li> <li>• Output forecast completed (uptime est. / de-rate factor)</li> </ul>
Conceptual design / technology / vendors	<ul style="list-style-type: none"> <li>• Technology with track record</li> </ul>
O&M Plan	<ul style="list-style-type: none"> <li>• O&amp;M agreement with established O&amp;M provider</li> </ul>
Domestic Content	<ul style="list-style-type: none"> <li>• Domestic content rules met</li> <li>• Final sign-off does not occur until project is completed</li> <li>• (<u>No</u> Domestic Content Requirement for RESOP)</li> </ul>
Schedule Review	<ul style="list-style-type: none"> <li>• Schedule is doable; EPC contractors are available</li> <li>• When does the contract expire if COD is not met?</li> </ul>

**...and a number of financial items.**

Due Diligence Item	De-Risk Requirement
Contract with OPA	<ul style="list-style-type: none"> <li>• Application</li> <li>• Transmission capacity available or Capacity Allocation Exempt</li> <li>• Contract offered</li> </ul>
Capital Cost / O&M Cost	<ul style="list-style-type: none"> <li>• Contracts with EPC company and O&amp;M company</li> <li>• Equipment warranties</li> <li>• All costs have been considered: site prep, equipment, installation, interconnection</li> </ul>
Tax Considerations	<ul style="list-style-type: none"> <li>• Tax benefits can or cannot be taken</li> </ul>
Financial Model / Coverage and Leverage Ratios	<ul style="list-style-type: none"> <li>• DSCR &gt; 1.4 - 1.5 for P50 and &gt;1.2 - 1.3 for P90</li> <li>• Have all available benefits (revenue/43.2 tax benefit/Aboriginal involvement) been captured?</li> <li>• Allowance for operating costs not covered by contracts or warranties (e.g. inverter replacement for PV projects)</li> </ul>

# Access to Capital Markets for Renewable Energy Projects

Questions?

## Contact Information



The illustration shows a 3D maze with green walls and a white path. One person in an orange shirt is walking up a set of white stairs that lead out of the maze. Another person in a white shirt is standing on the path, looking back. The background is split into yellow and green sections.

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