Solar Tax Equity Primer

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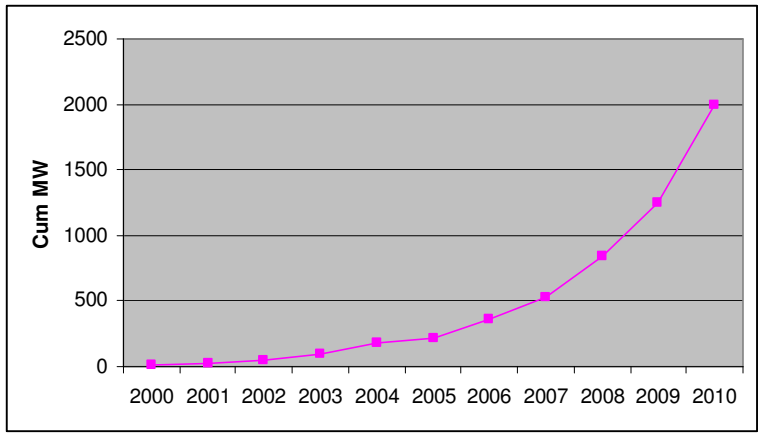
Executive Summary

- There are currently 13,100 megawatts (MW) of large-scale solar projects scheduled in the US by the end of 2012, with many more smaller projects also scheduled.
- These projects are typically financed through project finance strategies that combine debt financing, tax equity investments (described later in this presentation), and owner/sponsor equity investments.
- There are currently opportunities in the US solar energy project market that could provide investment returns and tax efficiencies to US taxable corporations with stable long-term taxable income.
- The market for this opportunity in tax equity investments is estimated to be $3 billion in 2010, and growing for the next few years.
- Traditional structured finance technology (eg. securitization) may be applied to the solar finance market to secure efficient financing in the future.
- Opportunities to invest at attractive projected returns may decrease as the sector grows more mature.

The US Solar Market

- The US solar market grew from almost nothing in 2000 to a cumulative 2 GW (2000 MW) in grid-tied photovoltaic (PV) installations by 2010.



http://irecusa.org/wp-content/uploads/2010/10/Sherwood-IREC-Oct2010.pdf

- The US solar PV market ranks #4 in the world, after Germany, Spain, and Japan.
- Globally, renewable energy produced 19% of the 2009 total energy consumption, of which solar energy is a very small fraction. Grid-tied solar PV, however, increased the fastest of all renewable technologies, with a 60-percent annual average growth rate for the five-year period from 2004 to 2009.
- http://www.ren21.net/Portals/97/documents/GSR/REN21_GSR_2010_full_revised%20Sept2010.pdf

Reasons for Growth in US Solar

- Factors contributing to the growth of the US solar markets are:
  - Heightened awareness about global climate changes and the negative impact of fossil fuel energy.
  - Concerns about US national security issues post-9/11/2001 given reliance on oil from the Middle East.
  - Federal legislation supporting renewable energy. Energy Policy Act (EPACT) of 2005 directs the federal government to increase its renewable energy use, with a goal of using
    - (1) 3 percent or more in fiscal years 2007 through 2009,
    - (2) 5 percent or more in fiscal years 2010 through 2012,
    - (3) 7.5 percent or more by 2013.
  - Job creation potential driving government support.

- To encourage developments in the solar energy market, federal and local governments have implemented many incentives, mainly in terms of favorable tax treatments.

- There is an established market of participants that take advantage of these favorable tax treatments – tax investors – that are now seeking opportunities in the solar market.

http://irecusa.org/wp-content/uploads/2010/10/Sherwood-IREC-Oct2010.pdf

Legislative Support

- The US federal government has various mechanisms in place to encourage efforts that contribute to general welfare in the US.
  - The Energy Tax Act of 1978, established the federal Investment Tax Credit to aid the financing and build-out of renewable energy projects.
  - The federal Production Tax Credit was enacted in 1992, and is a per-kilowatt-hour credit for electricity provided by renewable energy (solar is currently excluded).
  - The Modified Accelerated Cost Recovery System (MACRS) enables commercial and industrial owners to accelerate the depreciation of the renewable energy equipments.
  - The Emergency Economic Stabilization Act (2008) extended the solar ITC by 8 years to 2016.
  - The American Recovery and Reinvestment Act (2009) and the extension law that was passed in December 2010 allow for a cash grant in lieu of the ITC for new renewable energy projects which start construction by the end of 2011.

- In addition, various states and local municipalities have mechanisms in place to promote renewable energy initiatives.

Tax Equity Investments

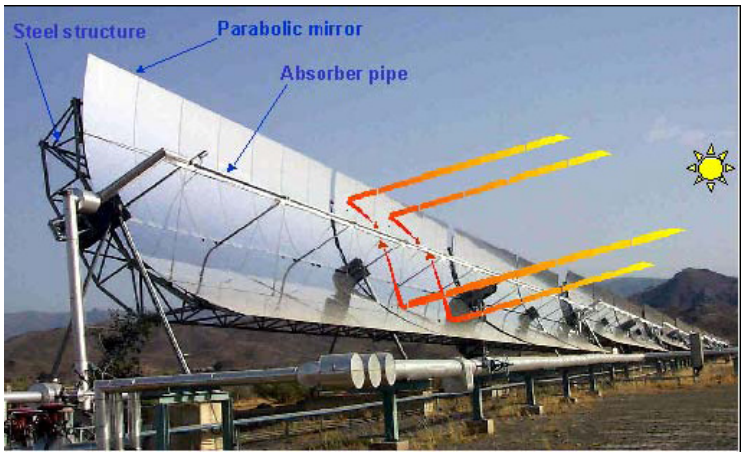
- Tax equity investments provide investment returns and tax efficiencies to US taxable corporations with stable long-term taxable income.
- While tax equity investors have existed since the late ’70s investing in low income housing developments for example, it was not until 2005 that renewable energy tax equity became popular.
- The US federal government offers tax incentives on solar projects in the form of tax grants (to expire at the end of 2011), and investment tax credits (ITC).
- Some states and local municipalities provide additional incentives to investors in the form of production-based incentives (PBI), feed-in-tariffs (FIT) and/or solar renewable energy credits (SREC).
- Traditionally, there were more than 25 tax equity investors actively investing in solar and other renewable projects. Since the credit crisis in 2008, the number of investors remaining active have decreased significantly, although there are also new entrants to the market.
- There are pipeline projects seeking tax equity investors. Tax equity investments can yield 8~14% to the investor today.
- Opportunities to invest at attractive projected returns may decrease as the sector grows more mature.
  - Under the current legislation, ITCs for solar projects will decrease from the current level of 30% (of the project amount) to 10% in 2016.
  - Traditional structured finance technology (eg. securitization) may be applied to the solar finance market to secure efficient financing in the future.

Tax Equity Investors

- Prior to the mid-'80s, Tax Equity Investors were mostly corporations (eg. Philip Morris) with a large enough tax base to sufficiently use the Tax Credits.
- More recently, as the market has grown and matured, multiple financing structures have been developed in order to attract various investors to projects, manage project risk, and allocate Tax Benefits to entities that can use them most efficiently.
  - In the late '90s~2003, large companies with strong balance sheets interested in actively developing and owning wind power projects ("Strategic Investors") entered the space.
  - During 2003~2007, large, but more-passive investors principally interested in investing in wind projects for the Tax Benefits ("Institutional Investors"). Multiple European s a commercial banks pursued the project debt financing opportunities in the United States market.
  - In 2008/2009, few players had sufficient tax credit appetite. Wells Fargo, JP Morgan, Deutsche Bank, Bank of America, US Bancorp and others were among the few that remained active.
  - In 2010, there are roughly 12~14 Tax Investors.
  - There are new entrants in the tax investment market, such as Chinese solar panel manufacturers and their US subsidiaries, who invest as part of their strategy to increase their market share of panel installation.
  - Large corporate consumers of electricity, such as Microsoft and Google have also entered the tax equity investor market.
  - Hitachi and its US subsidiaries are rumored to be one of the newest entrants in the market.

Solar Energy

Solar equipments produce electricity, which are then sold to utility companies or end-users, typically through a solar power purchase agreement or a sale leaseback arrangement.

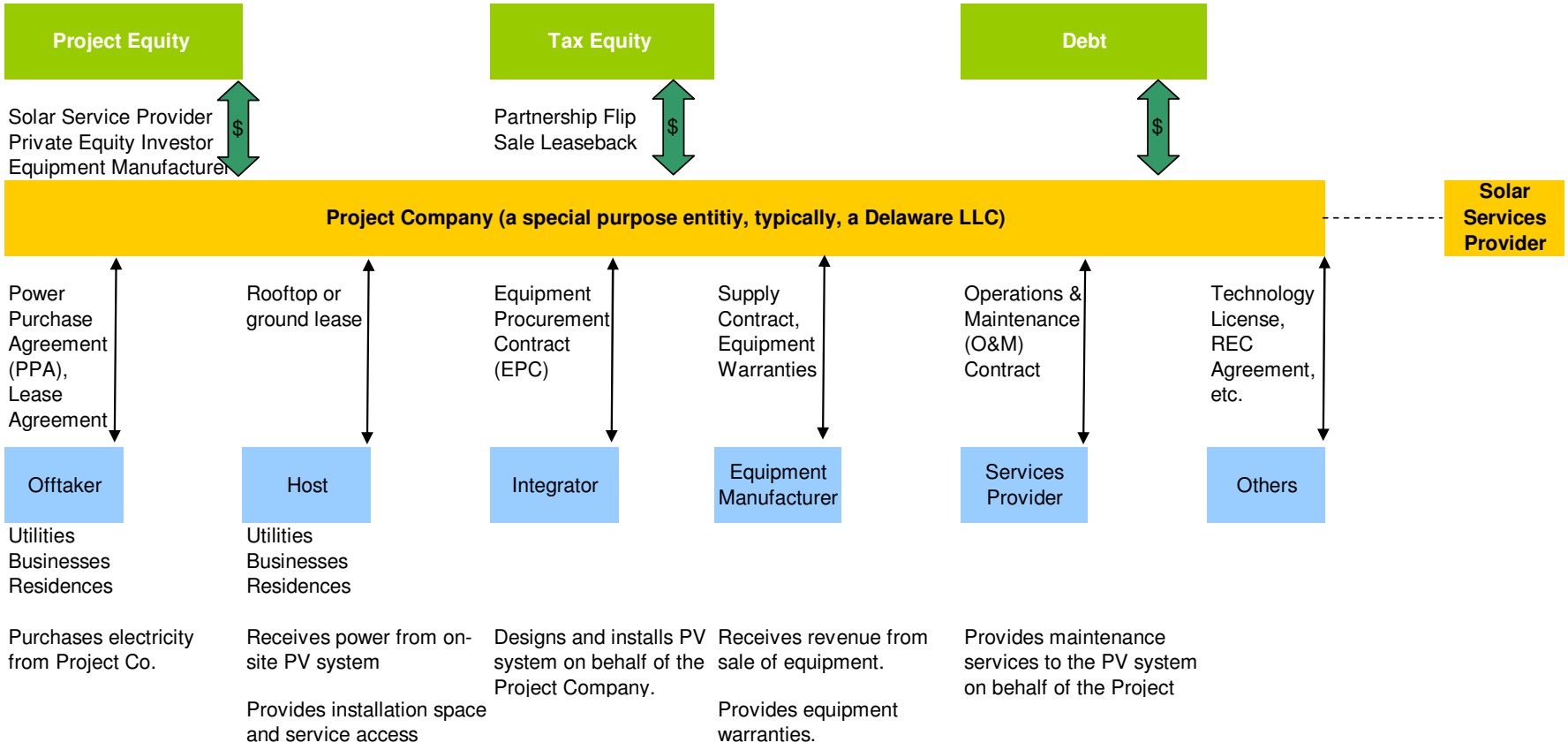


Solar Power Purchase Agreements
or Sale Leaseback Agreements

Power Purchaser

- The power purchaser can be:
  - Utilities (eg. PG&E)
  - Companies (eg. IKEA, Walmart)
  - Individuals (for residences)

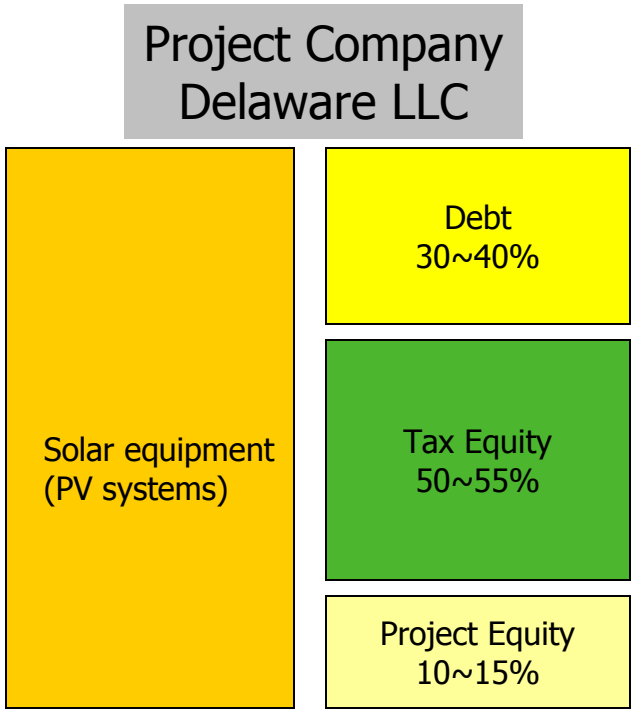
Typical Project Finance Structure



The Solar Services Provider coordinates, financing, design and construction of the PV system at the Host's site.
The Solar Services Provider processes all incentives, including grants, ITC, (Performance Based Incentives) PBI, and SRECs.
The Solar Services Provider monitors the PV system perfomance.

Sources and Uses of the Project Company

- The solar services provider will typically establish a special purpose entity / Delaware LLC as the Project Company.
- The Project Company is the legal entity which will enter into the various contracts.
- Capital investments are sourced and used in the following manner:



•The debt is typically recourse to the sponsor for smaller projects (~1 MW), and non-recourse for larger projects. Fixed rate of 6.5%~7.5%.

•Tax equity is currently 9~13% IRR un-levered, 13~20% levered.

•Project equity is currently 7~20% IRR.

Returns to the Project Company

- There are three sources of revenue to the project company.
  - Revenue from sales of electricity according to the power purchase agreement.
  - Other production-based incentives (PBI) offered by state and local municipalities.
  - Sales of solar renewable energy credits (SREC).

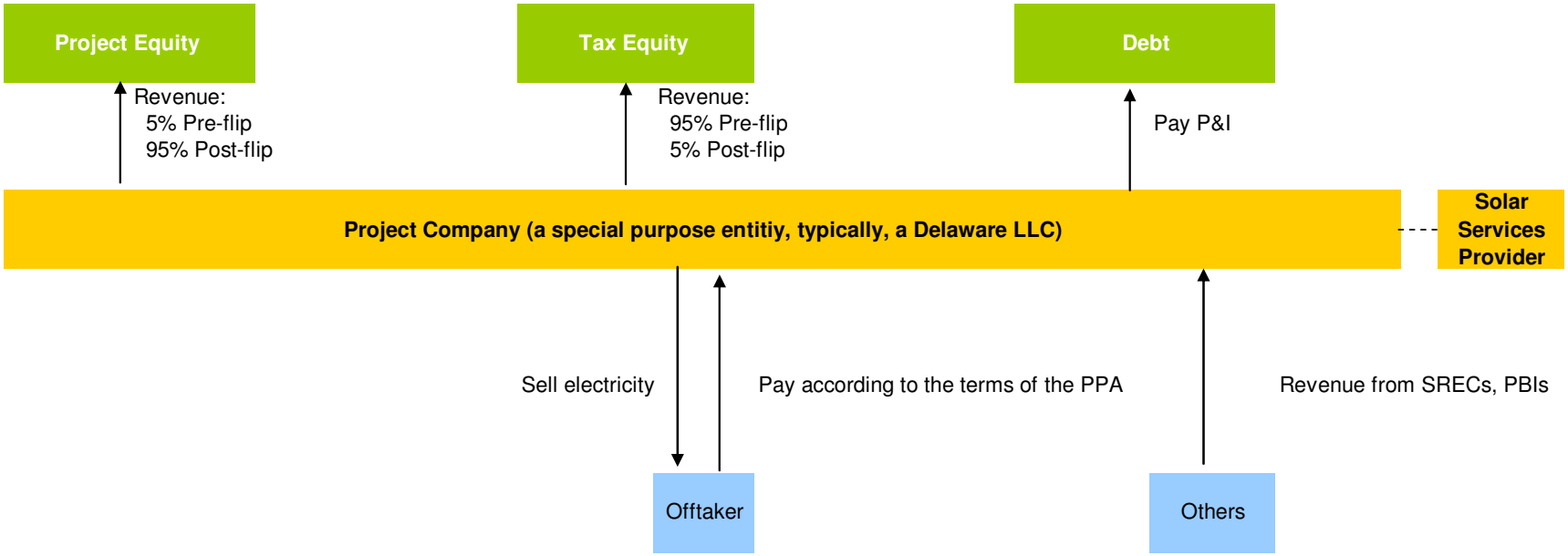
- There are two sources of tax benefits to the project company.
  - Investment Tax Credits ("ITC") that can be deducted from taxable income. The ITC is calculated as 30% of the cost of eligible solar property.
  - Accelerated depreciation (over 5-years). Depreciation is calculated on 85% of the cost of eligible solar property.

Risks

- Among the various risks to a potential solar projects and its participants are:
  - Legislative / regulatory/tax risks
  - Credit risk of the power purchaser
  - Performance risk of the solar service provider and other service providers to the project company.
  - Climate risk

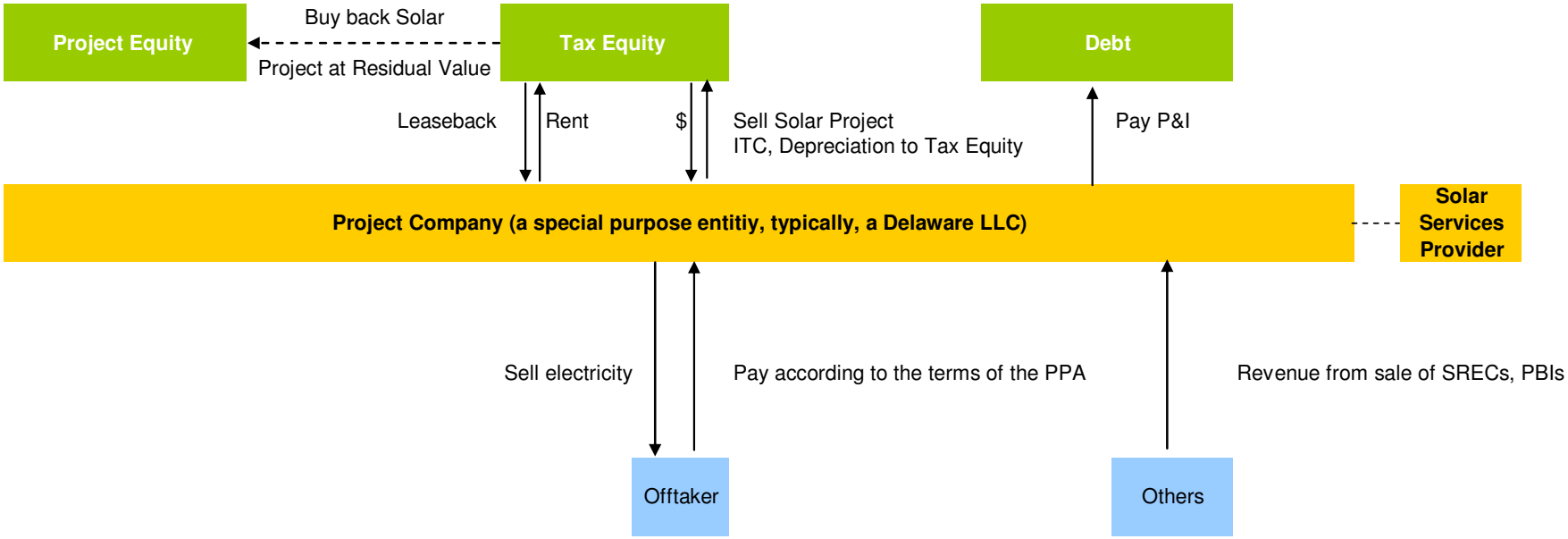
Appendix: Partnership Flip Structure

- Revenue generated by the Project Company from the sale of electricity, performance based incentives, and SRECs are distributed according to a partnership agreement. In this example, the allocation is 95% to tax equity and 5% to project equity until a threshold tax equity target return is reached, after which, the allocation reverses to provide 5% to tax equity and 95% to project equity.



Appendix: Sale Leaseback Structure

- The project is sold to the tax equity, who then leases the solar system back to the project company in exchange for rent. At the end of the lease period, either the tax equity remains the owner of the solar system, or the project equity can buy the solar systems back at residual value.



Appendix: Tax Equity Investors

2007	2008	2009	2010
Bank of America	Bank of America	Bank of America	Bank of America
GE EFS	GE EFS	Citibank	Citibank
HSH Norbank	HSH Norbank	Credit Suisse	Credit Suisse
JP Morgan	JP Morgan	GE EFS	GE EFS
Key Bank	Key Bank	JP Morgan	Google
Morgan Stanley	Morgan Stanley	Key Bank	JP Morgan
New York Life	New York Life	Morgan Stanley	Key Bank
Northern Trust	Northern Trust	Northern Trust	MetLife
Union Bank	Sempra Energy	Union Bank	Morgan Stanley
Wells Fargo	Sun Trust	U.S. Bank	Northern Trust
ABN Amro	U.S. Bank	Wells Fargo	PG&E
AIG	Union Bank		PNC Bank
Citibank	Wells Fargo		Sun Trust
Fortis			U.S. Bank
John Hancock			Union Bank
Lehman Brothers			Wells Fargo
Merrill Lnch			
Northwestern Mutual			
Prudential			
Wachovia			

Source: Mintz Levin

Appendix: Debt Providers to US Renewable Energy

US Debt Market for Renewable Energy

2007	2008	2009	2010
Banco Santander	Banco Espirito Santo	Banco Espirito Santo	Banco Santander
Bayern LB	Banco Sabadekk	Banco Santander	Bank of Montreal
BBVA	BBVA	BNP Paribas	Barclays
Dexia	BTMU	BTMU	BBVA
Fortis	Calyon (Credit Agricole)	Calyon (Credit Agricole)	BTMU
HSH Nordbank	Citibank	CoBank	Caja Madrid
JP Morgan Chase	Dexia	Credit Suisse	Citibank
Mizuho	HSH Nordbank	Dexia	Credit Agricole
Natixis	ING	Helaba	Credit Suisse
Nord LB	Lloyds TSB	HSH Nordbank	Deutsche Bank
Prudential	Morgan Stanley	John Hancock	Dexia
RBS	Nord LB	Key Bank	Helaba
Union	Prudential	LBBW	ING
	RBS	Lloyds TSB	John Hancock
	Scotia Bank	Nord LB	Key Bank
	UniCredit	Prudential	LBBW
	Union Bank	RBS	Morgan Stanley
		Scotia Bank	Natixis
		Societe Generale	Prudential
		UniCredit	Rabobank
		Union Bank	RBS
		WestLB	Societe Generale
			UniCredit
			Union Bank
			WestLB

Source: Mintz Levin

Appendix: Sample Solar Service Providers in the US

Solar Finance Provider (Sample)

Residential	Commercial/Industrial/Utilities
Solar City	Tioga Energy
Sun Run	MEMC
Sungevity	First Solar
	Photon Energy Services
	Solar Power Partners
	Clean Source Power
	Recurrent Energy
	MMA Renewable Ventures
	Green Rock Energy
	Green Energy Finder
	PVOne
	SunPower Corp
	Envision Solar
	Chevron Energy Solution
	Regenesis
	Soltage
	El Solutions
	Helio Micro Utility
	MP2 Capital

Appendix: State Rankings in Solar Installation

Grid-Connected PV Cumulative Installed Capacity through 2009

		MW	Market Share
1	California	$ 768.00	61%
2	New Jersey	128.00	10%
3	Colorado	59.00	5%
4	Arizona	46.00	4%
5	Florida	39.00	3%
6	Nevada	36.00	3%
7	New York	34.00	3%
8	Hawaii	26.00	2%
9	Connecticut	20.00	2%
10	Massachusetts	18.00	1%
	All Other States	83.00	7%
	Total	1,256.00	100%

Source: IREC Solar Market Trends Report

Appendix: Shifting Demands

- Shifts in solar PV demand are due largely to two factors:
  - Renewable Portfolio Standards (RPS) solar carve-outs (Massachusetts, North Carolina)
  - Growth of utility-scale market (Florida)

	PV Demand 2008	PV Demand 2009
1	California	California
2	New Jersey	New Jersey
3	Colorado	Florida
4	Nevada	Arizona
5	Hawaii	Colorado
6	New York	Hawaii
7	Arizona	New York
8	Connecticut	Massachusetts
9	Oregon	Connecticut
10	Pennsylvania	North Carolina

Source: GTM Research