Solar Run-Off Assets (SRO)

A Valuation Primer for Individual Assets

PREPARED BY

John Jaffray

January 2025

Summary

Operating solar assets (or **S**olar **R**un-**O**ff assets) are a stable source of cash flows for yield-seeking investors such as insurance companies, pension funds and high net-worth individuals. However, because the assets are so dispersed geographically and vary in size and type, they are difficult to acquire in any meaningful quantity. Where JJR comes in…

The valuation of solar cash flows takes into consideration all revenues, expenses and reserves – for the duration of the power purchase agreements (PPAs) and leases. In some cases, extensions and merchant prices come into consideration. Pricing can be expressed either in $/W or % IRR. From a return standpoint, a 15% IRR would be seen as a great value, and a 5% IRR would be seen as expensive (or a great sale price).

The diffusion makes the assets cheaper, when aggregated, highly attractive to those same institutions.

In addition, as the assets age, many owners seek to avoid the ongoing maintenance and wish to monetize their cash flows, which is where JJR comes in.

Revenues

Revenues are derived from PPAs, utility tariffs and renewable energy credit contracts or rights. These contracts vary in length from 5-20 years, and can stipulate prices, escalations and quantities.

Site Leases

Projects have “siting rights” that allow them to “be there” for a specified period of time and for a specified cost. Initial term typically matches the term of the PPA. Frequently, there are options to extend for varying annual periods.

Operations & Maintenance (O&M)

Most projects come with an O&M contract, typically renewing annually. Costs range between $.0050/kWh and $.0150/kWh with annual escalations.

Insurance

As with any asset, insurance coverages are required. Depending on the coverages taken, insurance costs should range between $6.00 and $15.00 per kW.

Reserves and CAPEX

Although solar assets have few moving parts, they do require on-going attention, particularly with the inverters. Inverters have warranties of 5-10 years, and those can be extended. An good benchmark for an annual CAPEX set-aside is approximately $6.00/kW per year.

Credit Quality and Credit Risk

Each asset has a different credit quality, with investment-grade counterparties valued the highest. Non-rated commercial counterparties are discounted.

Understanding Merchant Risk

Merchant risk is the revenue earned after the expiration of the underlying contracts and is perceived as higher risk, and the value is discounted. Assessing the value of the merchant revenues takes into consideration the projected price of power at that site and from the local utility provider and assumes an escalation rate that approximates the historical escalation in the area. In addition, government data from the US Energy Information Agency (EIA) is considered. Here is a sample of the analysis:

Tax - Property tax/production tax

Historical and Forward Price Analysis

Location: Indianapolis

	$/kWh	% increase	Forward Energy Prices					
2001	$0.0529		2017	$0.1054		2034	$0.2110	4.00%
2002	$0.0598	11.5%	2018	$0.1098	4.00%	2035	$0.2197	4.00%
2003	$0.0612	2.3%	2019	$0.1144	4.00%	2036	$0.2289	4.00%
2004	$0.0631	3.0%	2020	$0.1191	4.00%	2037	$0.2384	4.00%
2005	$0.0657	4.0%	2021	$0.1241	4.00%	2038	$0.2484	4.00%
2006	$0.0721	8.9%	2022	$0.1293	4.00%	2039	$0.2587	4.00%
2007	$0.0729	1.1%	2023	$0.1346	4.00%	2040	$0.2695	4.00%
2008	$0.0782	6.8%	2024	$0.1403	4.00%	2041	$0.2807	4.00%
2009	$0.0832	6.0%	2025	$0.1461	4.00%	2042	$0.2924	4.00%
2010	$0.0838	0.7%	2026	$0.1522	4.00%	2043	$0.3046	4.00%
2011	$0.0877	4.4%	2027	$0.1585	4.00%	2044	$0.3173	4.00%
2012	$0.0914	4.0%	2028	$0.1651	4.00%	2045	$0.3305	4.00%
2013	$0.0960	4.8%	2029	$0.1720	4.00%	2046	$0.3443	4.00%
2014	$0.0996	3.6%	2030	$0.1792	4.00%	2047	$0.3586	4.00%
2015	$0.0978	-1.8%	2031	$0.1866	4.00%	2048	$0.3736	4.00%
2016	$0.1001	2.3%	2032	$0.1944	4.00%	2049	$0.3891	4.00%
2017	$0.1054	5.0%	2033	$0.2025	4.00%	2050	$0.4053	4.00%
	Average	**4.2%**						

A Simplified Pricing Model

The model below represents a typical 500 kW operating solar acquisition. The cost is $2.15/Watt ($750,000). There are 6 years of operating cash flow (EBITDA), whereupon, in theory, the cash flows end. In this unlevered model, the purchase (or sale) value is expressed in IRR%, in this case 10.44%.

SFM Jan-19

Acquisition										
kW	500			**Debt**	note 1 $0	note 2 $0				
Cost	$1,075,000	$2.150		Debt/Equity	0.0%	0.0%				
Origination	$0	$0.000		Rate	6.00%	6.00%				
Closing	$0	$0.000		Term	15					
Total	$1,075,000	$2.150		**Tax Rate**	39.60%					
Less Debt:	$0			DSCR						
Net Equity	**$1,075,000**			LP Returns						
				1	*2*	*3*	*4*	*5*	*6*	
				2018	*2019*	*2020*	*2021*	*2022*	*2023*	
	Purchase Metrics									
	Gross EBITDA	*IRR*	*cost*							
EBITDA	$1,500,000	10.44%	-$1,075,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	
Debt Service			-	-	-	-	-	-	-	
Management Fee			0.0%	-	-	-	-	-	-	
Free Cash Flow				**$250,000**	**$250,000**	**$250,000**	**$250,000**	**$250,000**	**$250,000**	