

Solar Access to Public Capital Project and Securitization Discussion



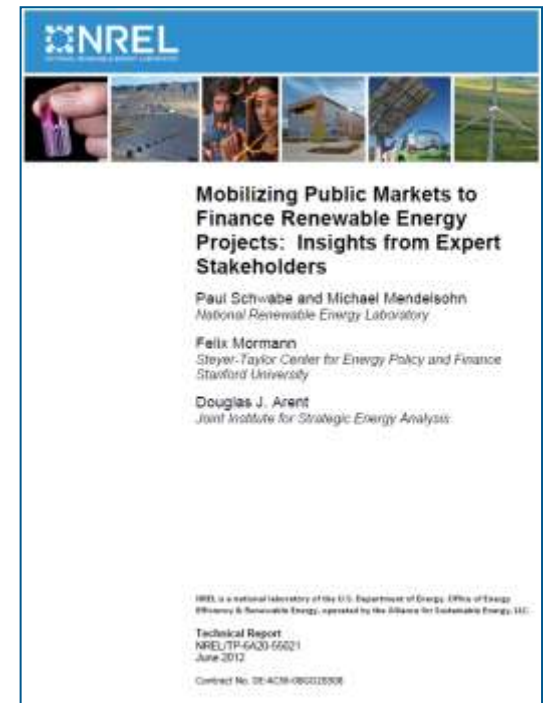
**NASEO 2013 Annual Meeting &
Getting to Zero National
Forum**

September 16, 2013

Paul Schwabe, NREL

NREL Can Help Build Industry Consensus on Securitization

- Objective national laboratory without profit motivation to organize the industry
- NREL will act as facilitator, analyst, and honest broker
- SAPC participants to define direction & emphasis of effort
- 3 year funding award from DOE to advance securitization
 1. *Lead and convene industry working groups*
 2. *Securitization analysis*
 3. *Data collection*
- SAPC creation based on 40+ stakeholder assembly, investigating public financing mechanisms

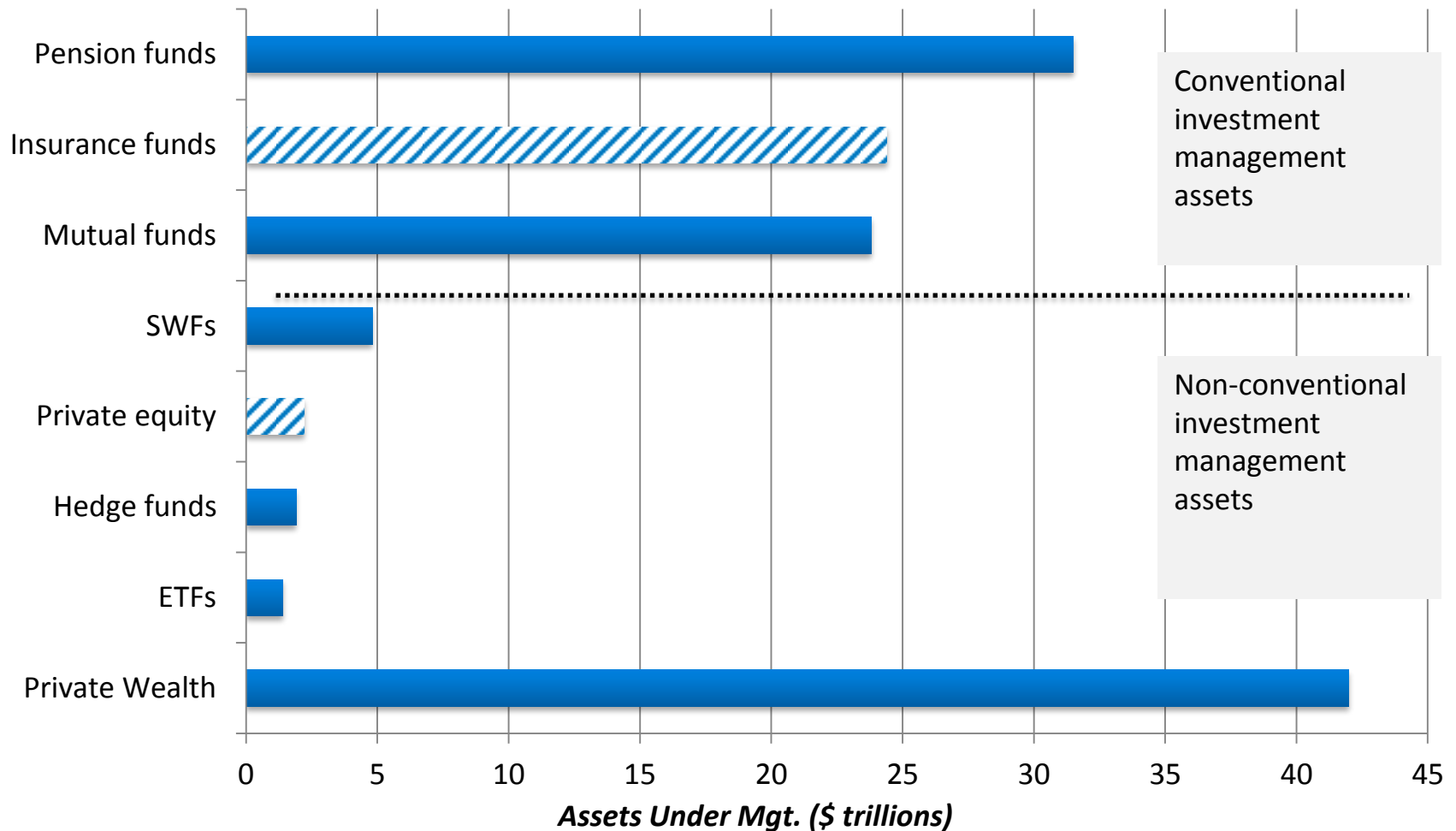


Download: <http://www.nrel.gov/docs/fy12osti/55021.pdf>

SAPC Working Group – Goals & Description

- **Goal:** Expand availability and lower cost of solar financing by improving access to public capital through multiple financing vehicles and applied to several solar sectors
 - Asset-backed Securities (ABS)
 - Real Estate Investment Trusts (REITs)
 - Master Limited Partnerships (MLPs)
 - Other debt products
- **How:** By standardizing aspects of project development and providing information to facilitate the securitization process. **Products include:**
 - Standardized origination and other contracts
 - System performance and customer credit metrics
 - Rating agency criteria and evaluation

Value: Expand the availability of capital



SWF = Sovereign Wealth Funds

ETFs = Exchange Traded Funds

Source: The CityUK

Value: Cost of Capital Improvements

	Cost of Capital (Indicative)
<i>Tax Equity</i>	
Utility-Scale, unlevered	7-10%
Levered	12-18%
<i>Public Capital Vehicles</i>	
Mortgage-backed Securities	3-7%
ABS (non-mortgages)	3-7%
Debt products	3-7%
MLPs	5-9%
REITs	7-12%

Source: Mendelsohn, Feldman, (forthcoming), “*Financing U.S. Renewable Energy Projects Thru Public Market Financing vs. Traditional Tax Equity: A Comparative Analysis*”

Approach

- **Task 1:** Lead and Convene **Securitization Working Group** – standardize documents and best practices, and address other barriers.
 - *Solar Access to Public Capital (SAPC) working group*
- **Task 2: Analysis** – Assess public capital application to solar, and opportunities/constraints of existing and proposed policies, and evolving market conditions.
- **Task 3: Dataset Development** – Develop solar performance and customer default data so new investors can understand investment risks
 - *O-SPaRC (Open Solar Performance and Reliability Clearinghouse)*

Current SAPC Participating Organizations


<u>Development</u>	<u>Legal</u>	<u>Investment / Market Maker</u>	<u>Advisory/ Analytics</u>
<i>Altus Power</i>	<i>Bingham McCutchen</i>	<i>B of A Merrill Lynch</i>	<i>DOE</i>
<i>Borrego Solar</i>	<i>Chadbourne & Parke</i>	<i>CalCef</i>	<i>Kroll Bond Ratings</i>
<i>BrightGrid</i>	<i>K&L Gates</i>	<i>Capital Fusion Partners</i>	<i>kWh Analytics</i>
<i>CleanPath</i>	<i>McCauley Lyman</i>	<i>Clean Power Finance</i>	<i>RMI</i>
<i>Enfinity</i>	<i>Orrick, Herrington...</i>	<i>CSFB</i>	<i>SEPA</i>
<i>OneRoof Energy</i>	<i>Sidley Austin</i>	<i>Credit Agricole</i>	<i>Standard and Poor's</i>
<i>Recurrent</i>	<i>Stoel Rives</i>	<i>EcoPower Capital</i>	<i>SunSpec Alliance</i>
<i>Rosendin Electric</i>		<i>Rabobank</i>	
<i>SolarCity</i>		<i>SCS Renewables</i>	
<i>Sungevity</i>		<i>Union Bank</i>	
<i>SunPower</i>			
<i>SunRun</i>			
<i>Tioga Energy</i>			

Current Template Contracts

- **Contracts will be compared and synthesized to produce the SAPC standardized contracts**

<i>Residential</i>	<i>Commercial</i>
<i>SolarCity – Zero down lease</i>	<i>Altus Power PPA</i>
<i>SolarCity – Partial pre-pay lease</i>	<i>K&L Gates Distributed PPA (and lease)</i>
<i>SolarCity – Zero down PPA</i>	<i>SolarCity Commercial PPA</i>
<i>SolarCity - Partial down PPA</i>	<i>Solar Tech PPA (and lease)</i>
<i>Sunrun – Lease agreement</i>	<i>Tioga Energy Sure Path PPA</i>
<i>Sunrun – PPA</i>	
<i>Clean Power Finance - Lease</i>	

SAPC Zero Down Lease Contract Standardization

Developer Logo Here  **Contract Name:** Solar Lease

SUMMARY

PROPERTY ADDRESS	OWNER NAME (S)	PROPERTY ADDRESS	PROPERTY ADDRESS
			CA-018-888184

Estimated Solar Energy Production:

First Year Annual Production:	4,800 kWh
Initial Term Total Production:	306,000 kWh

Payment Terms

Amount Due at Contract Signing:	\$0
Amount Due when Installation Begins:	\$0.00
Amount Due following 8-16g Inspection:	\$0.00
Estimated Price per kWh First Year:	0.16
Annual Increase:	0.05
Estimated First Year Monthly Generation Bill:	\$600.00

SolarCity Developer's Promise to You:

- SolarCity Developer** will insure, maintain, and repair the System (including the inverter) at no additional cost to you as specified in the agreement.
- SolarCity Developer** will provide 24/7 web-enabled monitoring at no additional cost to you, as specified in the agreement.
- SolarCity Developer** will provide a money-back production guarantee, as specified in the agreement.
- SolarCity Developer** will warranty your roof against leaks and restore your roof at the end of the agreement as specified in the agreement.

Your Payment and Transfer Choices (During the Term):

- If you move, you may transfer this agreement to the purchaser of your Home, as specified in the agreement.
- If you move, you may prepay the remaining payments (if any) at a discount.

Flag: Choice at the End of the Initial Term:

- SolarCity Developer** will remove the System at no additional cost to you.
- You can upgrade to a new System with the latest solar technology under a new contract.
- You may renew your agreement for up to ten (10) years in two (2) five (5) year increments.
- Otherwise, the agreement will automatically renew for an additional one (1) year term at 10% less than the then-current average rate charged by your local utility.

Comment [p1]: Do we do a global search and replace from developer to "solar" in some other wording?

Format: Mark: Port: (Default) -Body (Color): #

(a) (i) Return any documents we send you for signature (like Incentive Claim Forms) within seven (7) days of receiving them; and

(a) (ii) Optional Reason Method of Maintenance: **Insurers are made available, at your own, functioning, wired internet connection site and available wired internet port and resident AC power outlet within eight (8) feet of the System's ACDC Inverter(s).** See Section 3.3 of the Limited Warranty for details.

(b) System Construction, Repair, Insurance and SolarCity Developer's obligations:

SolarCity Developer agrees to (i) each of the next 7 subsections to the **Warranty** can be customized by the developer based on consumer, marketplace and business practices;

(1) Schedule the installation of the System at a mutually convenient date and time;

(1.1) construct the System according to written plans you review;

(1.1.1) provide you with a verifiable meter to accurately measure the output of power the System delivers to you;

(1.1.2) notify you if the System design has to be materially changed so that you can review any such changes;

(7) Hold us after purchase during the construction of the System;

(7.1) Insure the System pursuant to the Limited Warranty and reasonably cooperate with you when scheduling repairs;

(7.1.1) create a secure stream of operation and maintenance payments to provide enough cash flow to our financing transactions to pay for the Limited Warranty obligations and the repair and maintenance of the System in accordance with this Lease and (b) SolarCity Developer agrees to opening and

(7.1.1.1) put a lien on your Home or Property;

(10) Home Renovations or Repairs

If you want to make any repairs or improvements to the Property that could interfere with the System (such as repairing the roof where the System is located), you may only remove and replace the System pursuant to the Limited Warranty.

(a) Automatic Payments, Fees, Late Charges

In addition to the other amounts you agree to pay in this Lease, you agree to pay the following: **Each of the next 4 subsections below that can be customized by the developer based on consumer, marketplace and business practices:**

(1) Automatic Payment Discount: All prices include a \$15 monthly discount for using automatic payment. You will not receive a \$15 monthly discount if you do not make automatic Monthly Payments through your checking or savings account.

(1.1) Renewal Check Fee: \$15 for each lower amount as required by law for any check or withdrawal that is returned or refused by your bank.

(1.1.1) Late payment: Accrue interest at lowest amount (20% annual) of the maximum \$10000 as specified by law.

(1.1.2) Product Change Fee: If after you sign this Lease, but before we begin installation, you decide you would prefer an alternative SolarCity Developer product or PPA, or a private SolarCity Developer you will pay a \$10 change fee.

(c) Insurance

SolarCity Developer shall insure the System against all damage or loss unless (i) that damage or loss is caused by your gross negligence, or (ii) you intentionally damage the System.

(d) Estimated Taxes

You agree to pay any applicable state or local taxes on the Monthly Payments due under this Lease. If this Lease contains a purchase option at the end of the Lease Term, you agree to pay any applicable tax on the purchase price for the System. You also agree to pay as invoiced any applicable personal property taxes on the System that your local jurisdiction may levy. The

Comment [p10]: User selected: whether or not web-based monitoring is used.

Comment [p15]: User selected: include or not Monthly Account: User generated (Amount).

Comment [p20]: User selected: include or not Monthly Account: User generated (Amount).

Comment [p11]: User selected: (1) (1) SAPC standard.

Comment [p12]: User selected: include or not Monthly Account: User generated (Amount).

Comment [p13]: User selected: Other: system maintenance.

Comment [p13]: User selected: web enabled meter.

Comment [p22]: User selected: include or not Monthly Account: User generated (Amount).

Comment [p14]: User selected: (1) (1) SAPC standard.

Comment [p15]: User selected: (1) (1) SAPC standard.

Comment [p23]: (1) Uniformly insure the system. Suggested rate as a hard cap.

Other: members are intended to be SAPC standard.

Other: contract language: SolarCity agrees to carry insurance that covers all damage to and theft of SolarCity Solar Facility. You will not be responsible for insuring the Solar Facility. SolarCity agrees to provide evidence of SolarCity's insurance policy for the Solar Facility upon request. If SolarCity does not maintain insurance that covers all damage to SolarCity Solar Facility, it will be responsible for the consequences of that maintenance/loss insurance.

Warranty section explains obligations in more depth. Cash and lien and etc. follow up offline.

Comment [p12]: User selected: Cash proceeds or fee, also may change with business model.

Comment [p14]: User selected: (1) (1) SAPC standard.

Comment [p14]: Lease damage or destruction to the System, you will not be entitled to receive or retain any financial proceeds. To make sure we bear the risk of loss, our sole obligation to you will be to repair or replace the System to the extent required by the Warranty.

Comment [p10]: Consider whether this is a purchase. If yes, create an escrow account for the Developer and may result in the filing agencies requiring seller Reserve Accounts or other sources of liquidity in event of the amount that might eventually be required by agreed cash flow install.

PV Performance and Credit Data Key Requirement for Securitization

The New York Times | International Herald Tribune

GLOBAL EDITION
Business Day

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Solar Industry Anxious Over Defective Panels

Lc
of
-

Due To Limited Data, Default Rates May Be Difficult To Determine

The rooftop solar industry has only been operating on a significant scale for the past three or four years. The drastic increase in such installations can be seen in the chart. Because the solar industry is still in the nascent stages of development, there is limited data from which to draw conclusions regarding the likelihood of offtaker defaults under a lease or PPA agreement. Given that the length of these agreements may run up to 20 years, we believe that

Minimal Recovery Rates Are Expected

KBRA anticipates that recovery rates on defaulted PPAs or leases may be minimal because of technological advancements that render older panels obsolete. Therefore, recoveries in securitization transactions may be limited to legal action against the consumer, with little or no credit applied to removal of the panels for sale in the secondary market. In addition, there are significant costs associated with the removal of the panels such as labor and the recapture of tax incentives, which may deter project developers from reselling the systems. Rather than remarketing panels from a defaulted party, KBRA believes that a project developer will likely modify the terms of the PPA or lease agreement in order to incentivize a new or existing offtaker to continue to purchase the system's electricity. This strategy is more likely when retail electricity rates decline

Concurrent NREL Data Initiative

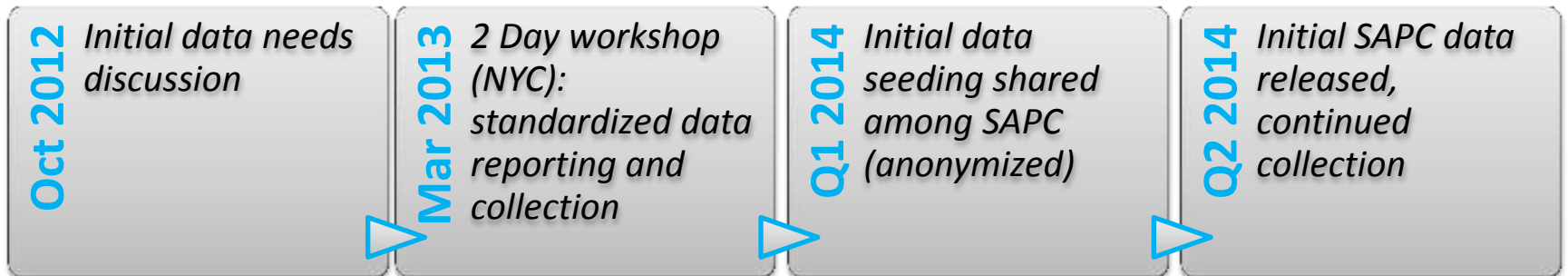


SAPC Progress Timeline

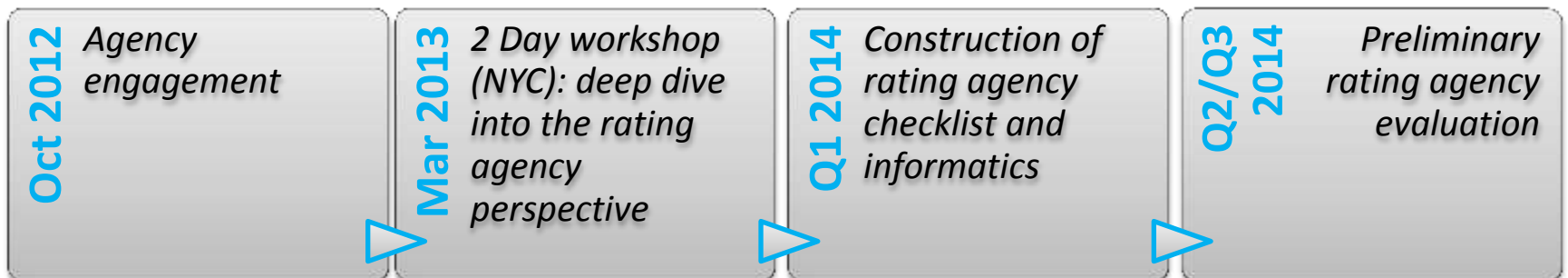
Contracts:



Data:

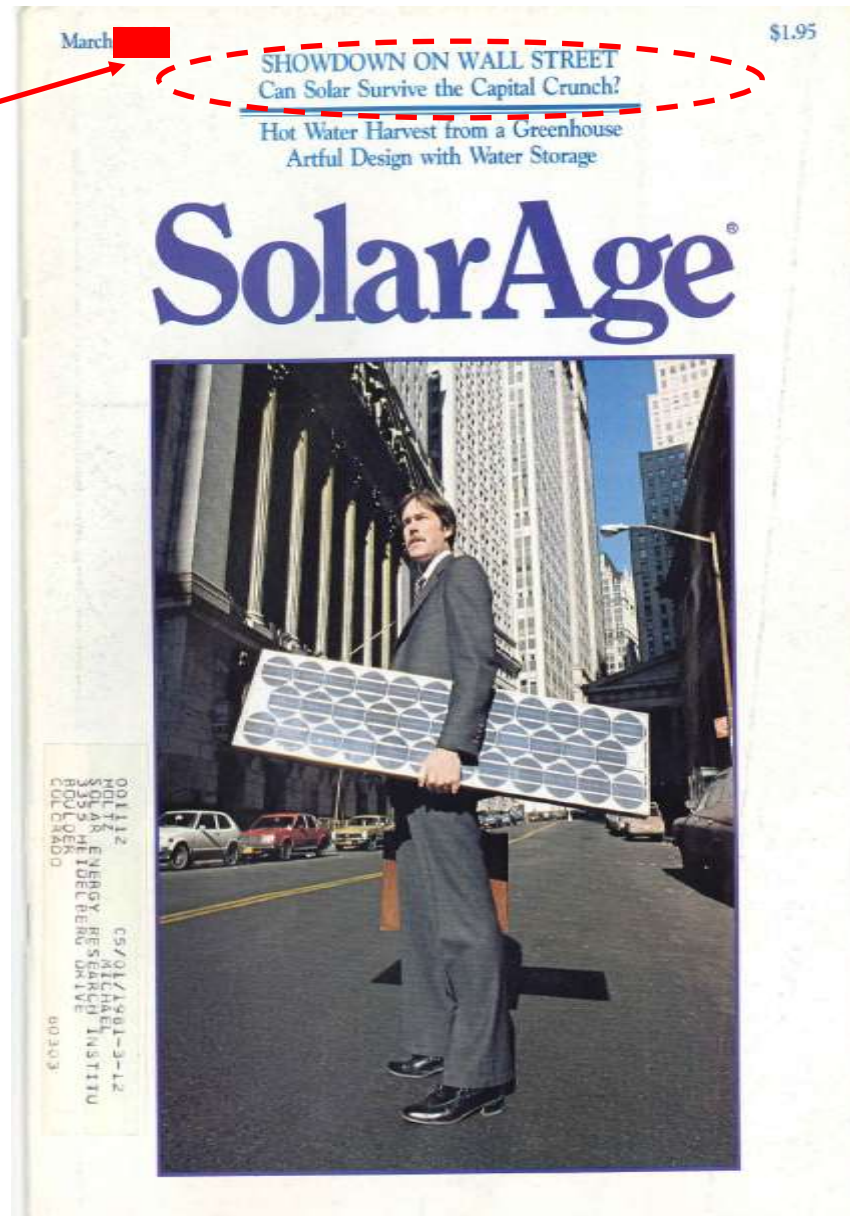


Rating Agency Mock Evaluation:



Solar Access To Capital: A Longstanding Industry Issue

Bonus Question:
What year?



Contact

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