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MARKET UPDATE

DATE: February 1, 2016

TO: Catalyst Investors

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SUBJECT: **Solar Market Research Note: Focus on C&I Developers**

EXECUTIVE SUMMARY

- **Strong solar industry fundamentals,** with rapid growth and improving base economics
  - Secular trend toward renewables
  - Federal and state government support
  - Decreasing input costs
  - Innovative financing structures
- **Attractive project-level unit economics**
  - Opportunity to generate low-double-digit IRR if held to maturity
  - Development business model is low risk – 20+ years of cash flows locked-in at construction commencement
  - Multiple arbitrage can be achieved at scale by selling assets to YieldCos or other large aggregators at lower cost of capital
- **Opportunities in commercial & industrial (C&I)** space to build development company with asset base as backstop to value – attractive levered risk-adjusted return with limited dry hole / construction risk
  - Compelling regional opportunity in Northeast, with lower solar penetration to-date, high energy costs, and strong state-level subsidies
  - Approval is sought to conduct additional research and expert interviews in the space in tandem with evaluating actionable opportunities, with an emphasis on C&I
- **While there are macro risk factors** including future loss of subsidies, input price risk, technology risk and interest rate risk, we think they are all well mitigated relative to the low risk of the micro business model

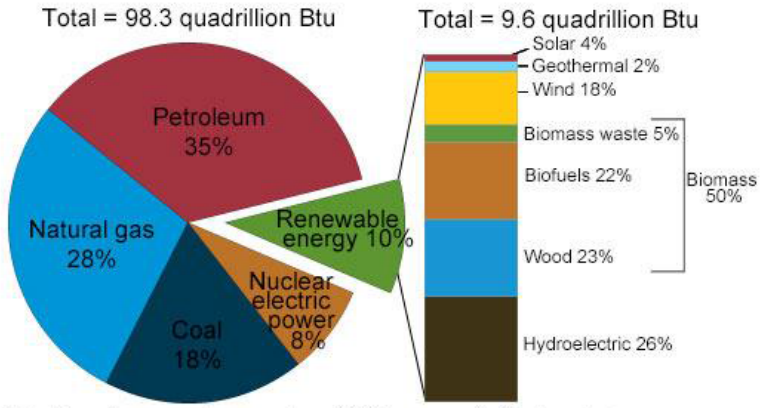
SOLAR MARKET OVERVIEW

Growth driven by secular trend toward renewables driven by environmentalism, falling input costs, innovating financing mechanisms, and favorable policy and regulation.

Secular growth in renewables

- US market <1% penetrated with huge potential – currently, 10% of US energy consumption comes from renewables, of which only 4% is solar

US Energy Consumption by Source, 2014



Source: EIA

- Solar & Wind represented 55% of new US electric generation capacity in 2014 (6GW installed) and 30% of global capacity additions
    - Solar alone increased from 10% of new US generation in 2012 to 29% in 2014 and 32% by 2015
    - The US installed a record 1.4GW of solar in Q3 2015, tracking toward 3GW in Q4
- 2015 solar capex (TAM) estimated at $20 billion, expected to grow 20% in 2016
- The drive toward carbon reduction and general environmentalism has resulted in "clean", or low carbon energy (including nuclear and hydropower) overtaking fossil fuel power in 2013

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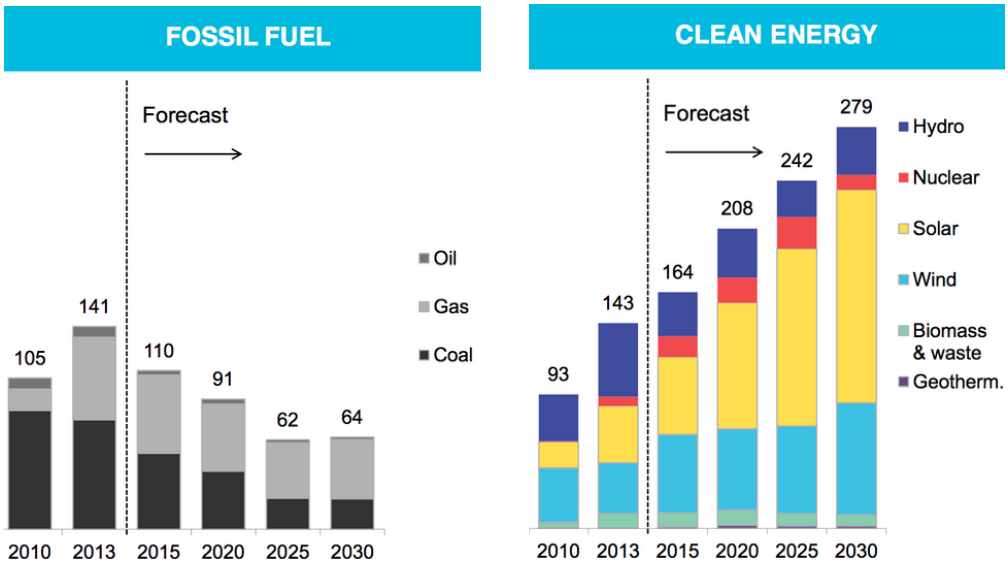
Power Generation New Capacity Additions: Fossil Fuel and Renewables (GW)



Source: EIA, Bloomberg NewEnergy Finance

Improving Unit Economics

- Solar currently cheaper than utility power for one third of US population – within five years, assuming a 5% decrease in install cost, 2.5% annual increase in electric rates, and including a drop in the ITC subsidy (see below) to 10%, solar would be cheaper than utility power for two thirds of the population
    - Growth driven by input costs declines as manufacturing achieves scale and sophistication:
        - $/W cost of PV has fallen from $300 in 1956 to $20 in 1973, $8 in 2005, and $2.75 by 2015, expected to reach ~$1.5 by 2040
        - "Swanson Effect" (after Richard Swanson, founder of SunPower Corporation) suggests that PV prices dropped by 20% for every doubling in manufacturing capacity

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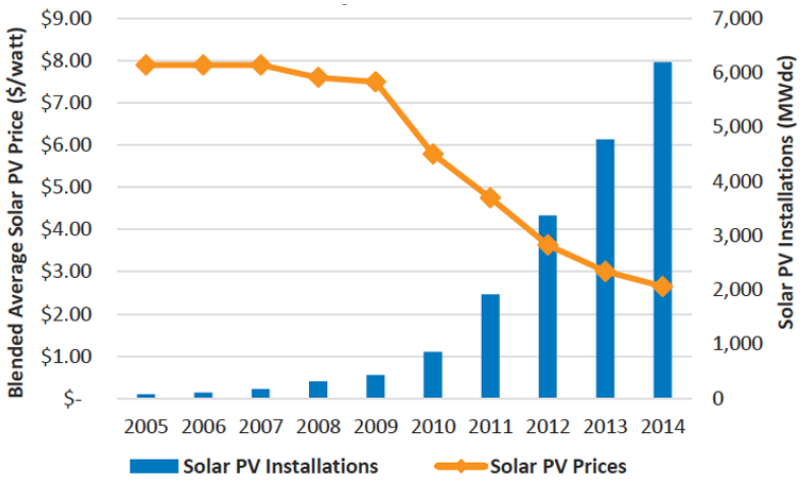
Falling PV Prices and Scale of Installations



Source: SEIA

- Attractive unsubsidized economics in many regions: in West, Southwest, and Northeast, solar only profitable with Federal ITC, continued decline of manufacturing and financing costs will improve economics without ITC

Financial innovation in renewables

- YieldCo Overview:
  - Corporations designed to pay a high dividend yield to investors by spinning off a portfolio of operating assets into a new subsidiary and raising additional equity through an IPO – extends the MLP and REIT corporate finance model to renewables
  - YieldCos typically yield 2-6%, target distributions of 80-85% of cash available for distribution, or "CAFD" (reverse of 1.2x distribution coverage ratio), target yield growth of 12-15% for 3-5 years, have a ROFO on Sponsor (if applicable) for 3-5 years, Incentive Distribution Rights ("IDRs", like carried interest), 20 Year Contracts, and 6-7x Debt / EBITDA
  - Potential for virtuous cycle:
    - Sponsor (often a solar panel company, utility or development company) sells assets to YieldCo, maintains control, and receives cash proceeds
    - New assets in YieldCo increase cash flow, distributions, and share price
  - Sponsor receives more IDRs, share price increases, and capital can be raised for new assets under more advantageous terms
  - YieldCo Strengths
    - Diversify sources of capital to include income-oriented investors
    - Unlocks incremental debt capacity (6-7x EBITDA vs. 3-4x)
    - Boost stock price by increasing transparency into underlying businesses (in theory)

        - Monetize portion of assets while retaining control and potential upside
        - Shareholder growth delivered by finance department amidst anemic sales volume prospects
    - YieldCo Weaknesses
        - Reduces long term financial flexibility for near-term benefit
        - Pressure to continually raise dividends per share ("getting on the treadmill")
        - Acquisition event risk ("feeding the beast" – impossible to forecast M&A and YieldCo / sponsor relationships)
        - Structure promotes increase in overall leverage
        - Complexity of overall entities increase with structural subordination, cash leakage, and debt covenants
- Tax Equity Overview:
    - Tax subsidies have long supported renewable energy, but project developers (who tend to be small and unprofitable and thus lack tax exposure) generally sell their ITC assets to financial firms better positioned to realize the benefits
    - Tax equity is typically given preference in the capital stack, as debt above tax equity in capital structure may increase tax equity's required yield by 500+ basis points – project-level debt is unusual in the current market, and most debt is back-levered at the sponsor level and sits behind tax equity in priority
    - 2014 Tax Equity deal volume was $4.5B for solar and $5.6B for wind
- Project Finance / Capital Structure Overview:
    - Renewable development is highly capital intensive, tax equity-dependent, and cash flow-driven – typically funded by non-recourse debt and equity
        - Tax Credits typically cover up to 40% of installed cost at a 10-14% cost of capital
        - Bank Debt typically limited to shorter maturities, carries high transaction costs, credit-tiered pricing, 1.25-1.5 DSCR, paying L+200 (or a ~5-7% rate) with 8 years amortization; Debt / Total Value is typically ~50-75% and Debt / CAFD ~6-7x
        - Financing costs expected to continue to fall with increased commercial bank interest; as market matures, insurers expected to follow suit, similar to Europe
    - Issues:
        - Tax structure may limit overall leverage
        - Tax equity may not be recaptured in the event of forbearance of payments or a buyout of the asset
        - Variation in project financing may limit ability to aggregate assets
        - High transaction costs
        - Limited flexibility
    - New Structures:
        - Securitization (SolarCity, SunRun, AES)
        - YieldCos (Terraform, NRG Yield, 8point3)

- Crowdfunding (Mosaic, Dividend Solar, Lending Club, Prosper, Open Energy)

Government Subsidies

Subsidy Overview:

- History of Solar Subsidies:
  - Energy markets evolved through history with government support (and in many cases, control), including oil, natural gas, and coal
  - Government has historically supported development of new energy industries including nuclear, hydroelectric, shale gas, biofuel, wind, and solar
  - In addition, policymakers are sensitive to regional constituencies (consumers and utilities) who may favor or oppose certain types of generation over others
  - After PV technology was developed in 1954, strong demand from NASA and the US Military led to gradual declines in PV cell price
  - 13 of the top 14 innovations in PV over the past three decades were developed with the help of federal funding, and 9 were fully funded by the public sector
  - Production Tax Credit (PTC): expired on January 1, 2015
    - Reduced federal income tax of renewable grid-connected asset owners based on electrical output (kWh), earned over time
- Investment Tax Credit (ITC): originally set to step down to 10% after December 31, 2016
  - Reduces federal income tax of renewable asset owners based on capital investment in renewable energy projects ($), earned upfront
  - Treasury Cash Grant Option (Section 1603) improves working capital and project turnover by obviating the need to sell the ITC right to a traditional tax equity investor (who would take a 10-20% haircut)
  - **ITC UPDATE AS OF DECEMBER 2015:** an extension of the solar ITC is included in the budget recently passed by Congress. There appears to be bipartisan support for this extension, which would be coupled with lifting the US petroleum export ban. These actions could both be interpreted as bullish for US solar. If successful, the 30% ITC would remain in place through 12/31/19, and tapering 4% annually thereafter to an ultimate floor of 10%. Analysts anticipate that if successful, this would result in 2017 new installed capacity increasing to 9GW, compared to 3.5GW with the current expiry, and a ~50-60% increase in annual installations.
- MACRS Bonus Depreciation
  - Despite 20-30+ year useful lives, solar assets are classified as five-year property by the IRS, and allowed to use the accelerated MACRS depreciation schedule
  - In addition, assets placed in service prior to December 31, 2013 benefit from 50% bonus depreciation, leading to ~75% of depreciation expense being realized in the first 2 years

- State Subsidies & Stacking
    - States may subsidize solar development in addition to the federal government – to proactively incentivize solar production, disincentivize non-renewable production, or correct for perceived imbalances between regions
        - Lifetime revenue potential naturally varies between states – based on solar resource availability and grid electric rates (Levelized Cost of Electricity or LCOE)
        - State subsidies create substantial variation in solar economics and include:
            - Infrastructure Policies (Interconnection Standards & Net Metering)
            - Market Creation Policies (Renewable Portfolio Standards / Solar Set-Aside & Third-Party Ownership)
            - Subsidy Stacking (market creation generally ineffective without preceding infrastructure policies)
- Incentive Mechanics
    - Feed-in-Tariff: offers long term contracted rate to electricity sellers, but perceived to distort energy economics – more common in Europe than US
    - Net Metering: allows utility customers with generation assets to sell any excess back to the utility, and the full value of this generated electricity (including the cost of grid infrastructure) is credited against their bill
        - Controversy: net-metered customers are not charged for grid infrastructure costs and shift their proportionate share onto non-net metered customers – despite placing greater demands on the grid
    - Power Purchase Agreement (PPA): long-term contracts where electricity seller (generator) and buyer (offtaker) agree on price and ancillary service charges for length of contract

BUSINESS MODEL OVERVIEW

The basic business model of solar and wind involves a high upfront investment in the installation, with very little ongoing costs thereafter. The business model is very similar to wireless towers, but without the opportunity for additional lease-up. At the time of construction, the solar or wind developer has 20+ years of contracted cash flow.

Wind and solar project models

- Wind
    - Large projects require high CapEx and EPC spend, pushing down cost of capital and increasing execution and dry hole risk
    - Wind speed is inconsistent, storage of wind-generated power is difficult, siting is challenging due to size of installations, limited viable areas, and NIMBY attitude
- Residential Solar
    - Substantial market opportunity, high growth, scalable business models, and less susceptible to ITC step-down due to local residential incentives

  - Lack of PPA conformity, mixed underlying credit quality, potential for increased O&M costs related to roof siting, more business model risk and less downside protection
  - SolarCity controls 34% of residential market followed by Vivint (pending acquisition by SunEdison) at 12%, Sunrun at 3%, and NRG Home Solar and Sungevity both at 2%
- Community Solar
  - Benefits of scale, PPA conformity, and reduced counterparty risk compared to residential, currently policy-dependent
- Commercial and Industrial (C&I) / Utility Solar
  - Similarity to towers: local market knowledge and potential for aggregation
  - Substantially more fragmented than residential solar market, ripe for mid-level consolidation
  - Large projects and limited corporate overhead
  - Opportunity to sell into REITs / large property owners / mid-tier retailers / multi-family
  - More efficient than residential-scale distributed generation (50% less underlying cost and carbon emissions per equivalent PV)
  - Large market opportunity and potential for outsized returns with "special situations" approach as recent valuations impacted by public market selloff
  - Opportunity to build platform but maintain some downside protection against subsidy

CATALYST INVESTMENT THESIS

Commercial and Industrial development platform

- Form C&I platform to site and build solar assets, Catalyst investment takes ownership in the operating company
- Turn over capital using warehouse debt facility, with each project underwritten to a 10%+ unlevered IRR up and [13-15%+ levered] if held to maturity (at current leverage, interest rates, and tax equity), with the opportunity for lowered cost of capital through scale (SPV or securitization)
  - Current levered IRRs in New Jersey and Massachusetts are 20-25+%
- Intention to capture value arbitrage between risk profile of undeveloped projects and those placed in service with long term PPAs
  - Limited dry hole / construction risk once project is signed
- Platform offers opportunity to grow into scale, and either form captive private YieldCo (receiving IDRs) or sell assets to existing YieldCos or other buyers
  - Cost of capital arbitrage when selling larger portfolios of assets
- Decision to retain or flip assets to another party is based on liquidity, but holding assets offers downside protection in stable PPA yield – in a downside case, S&M platform could be turned off if economics no longer work (if subsidy were removed) or the DevCo could develop projects for other sponsors and take a fee to cover overhead