




A CRITICAL REVIEW OF THE TIMING OF US SOLAR DEVELOPMENT

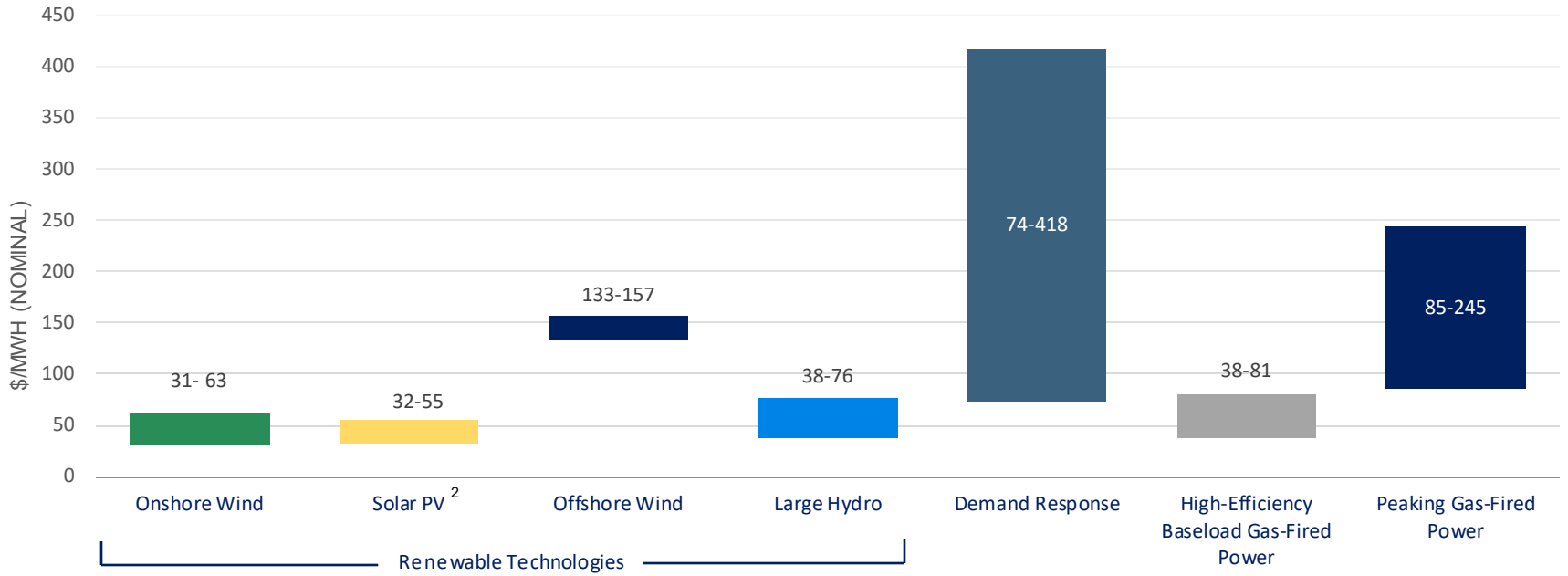
JULY 2022

EIG

Why Solar is Relevant

Unsubsidized Costs for New Build Renewables in the US (H2-21)

Source: BloombergNEF - 2022 sustainable energy America factbook



Solar – An Integral Part of the Future of Electricity Generation

- Development cost increases and potential for additional tariffs (beyond the recently announced tariff exemption) are likely to raise levelized costs in the short term, putting upward pricing pressure on PPAs
- Nevertheless, utility scale solar PV provides the lowest-cost of adding new electricity capacity relative to other forms of renewable generation. This dynamic is particularly reinforced in the context of increasing natural gas prices and price volatility[1]

1. IEA, Renewables 2021 Analysis and Forecast to 2026, December 2021
2. Includes fixed-axis and tracking PV

A Decade of Significant Growth

Over the past decade, the US solar industry has grown at an average annual growth rate of 33%[1]

Factors Contributing to Growth in Solar

Rapidly Declining Costs

- Since 2010, there has been an 82% reduction in the cost of utility scale solar PV systems[2]
- Majority of cost reduction is attributed to an 85% reduction in module price[2]

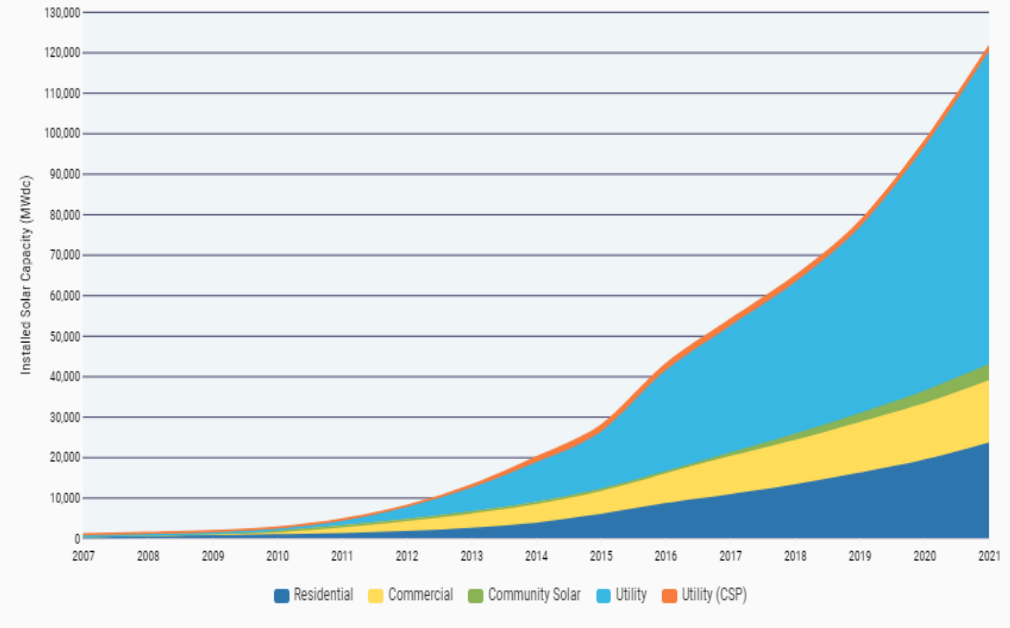
Strong US Federal Incentives

- The US Solar Investment Tax Credit, implemented in 2006, has helped improve competitiveness and incentivized industry growth
- The 26% credit is set to step down to 22% in 2023 and 10% in 2024 for commercial and utility-scale projects[3]

Energy Transition

- Increasing demand for clean energy across the public and private sectors
- Corporations are increasingly becoming off-takers of renewable energy to meet net zero pledges

Cumulative US Solar Installations[1]



- 126.1 GW of Installed Solar Capacity in the US—enough to power 22 million households[1]
- Solar's share of US electricity generation has increased to 4% up from 0.1% in 2010[1]
- In Q1 2022, solar accounted for 50% of all new generating capacity[1]

1. Solar Industry Research Data, Solar Energy Industries Association & Wood Mackenzie, Q2 2022
2. Documenting a Decade of Cost Declines for PV Systems, NREL, Q1 2021
3. Guide to the Federal Investment Tax Credit for Commercial Solar Photovoltaics, US Department of Energy, Q1 2021

Near-Term Headwinds

Key Factors Affecting the Short to Medium-Term Outlook for Solar

Covid/Supply Chain Issues

- Covid induced container shortages and port backlogs have contributed to supply chain delays and soaring shipping costs
- Over the two years to January 2022, Asia-to-US shipping container rates increased approximately 6x
- Covid lockdowns have impacted the production of solar PV raw materials
  - Aluminum, zinc, polysilicon and magnesium experienced curtailment or shutdowns in production across China and Europe

Key Risk
Construction Delays

Cost Inflation

- Increasing prices of component materials and hardware significantly impacting project economics
- Since the beginning of 2020:
  - The price of PV-grade polysilicon has more than quadrupled
  - Steel has increased by 50%
  - Copper has increased by 60%
  - Aluminum increased by 80%
- Significantly impacts feasibility of the current solar development pipeline

Key Risk
Project Economics

Geopolitical Environment

- Significant concern in the US driven by the Commerce Department's investigation into whether imports of solar panels from Southeast Asian nations are circumventing tariffs on goods made in China
- The investigation effectively froze imports and stalled projects in the US
- On June 5, the Biden administration announced a 24-month tariff exemption on solar modules manufactured in Cambodia, Malaysia, Thailand and Vietnam

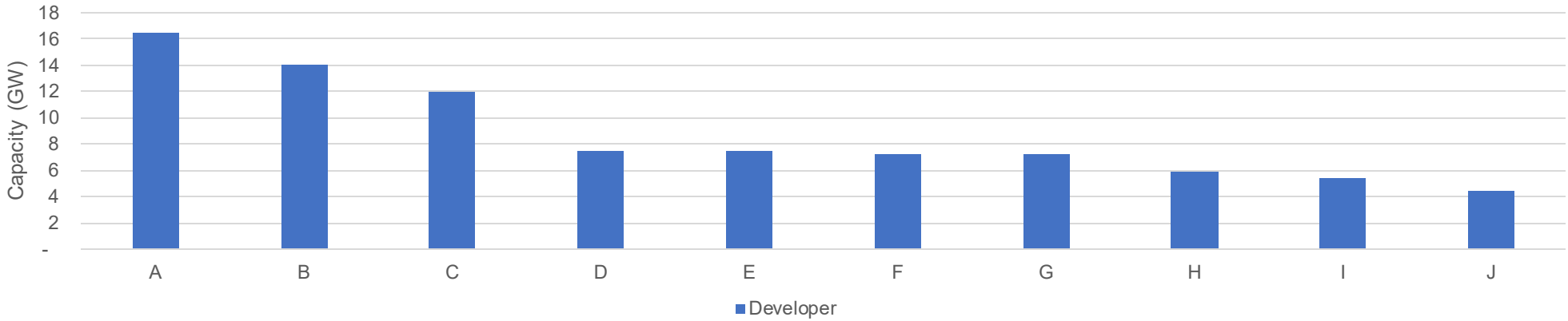
Key Risk
Development Delays

Sources: BNEF, H1 2022 US Clean Energy Market Outlook; Executive Action to Spur Domestic Clean Energy Manufacturing, whitehouse.gov, June 2022

US Solar Project Pipeline and Capacity Forecast

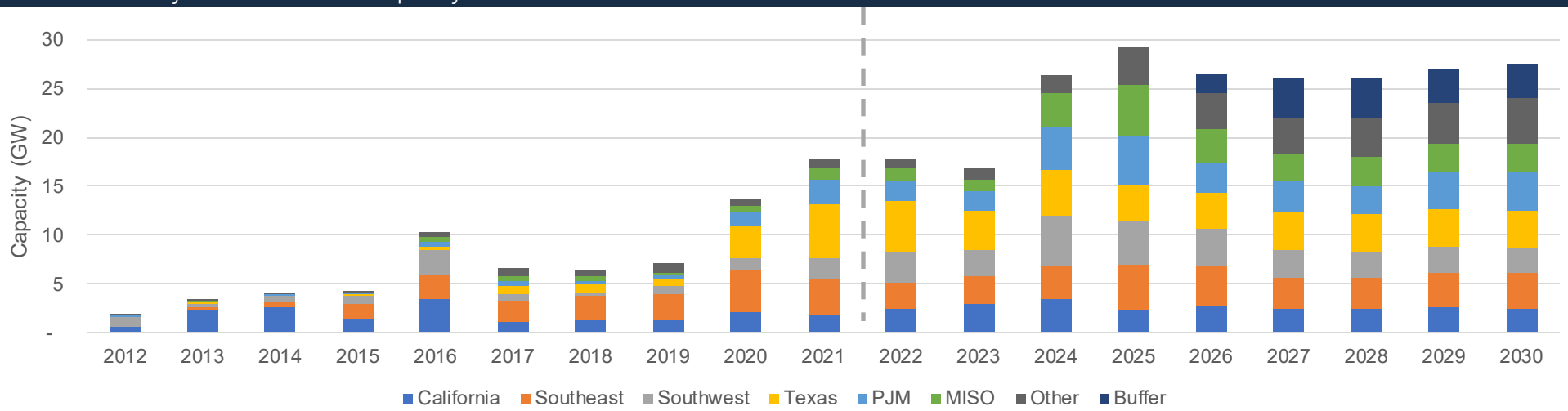
The top 10 US solar developers currently have an 88 GW development pipeline for US solar projects…

Top US Solar Developer Project Pipelines[1]



…these development projects underpin the medium to long-term forecast for solar build outs, which is forecast to grow at an accelerated pace with 25 GW of average annual additions projected between 2022 and 2030[2]

Annual US Utility-Scale Solar PV Capacity Additions[2]



1. Enervus (Sept 2021)
2. BNEF, H1 2022 US Clean Energy Market Outlook

EIG Risk Modeling for Solar Development Pipelines

Key Inputs…

Developer Track Record

- Conversion rate of development projects
- Realized development value (via asset sales or project equity valuation)
- Site location of development pipeline
- Relationships and quality of off-takers

Categorize development pipeline into "stages"

Risk projects / MWs within each "stage"

For ready-to-build projects, calculate NPV on $/kW basis

Apply $/kW value to projects in other "stages"

Net present value of portfolio of development projects

("Platform Value")

Long-term, cash flow forecast supported by projects reaching Financial Close

("Liquidity Profile")

Illustrative Pipeline "Risking" by Development "Stage" (and its Impact on Value)

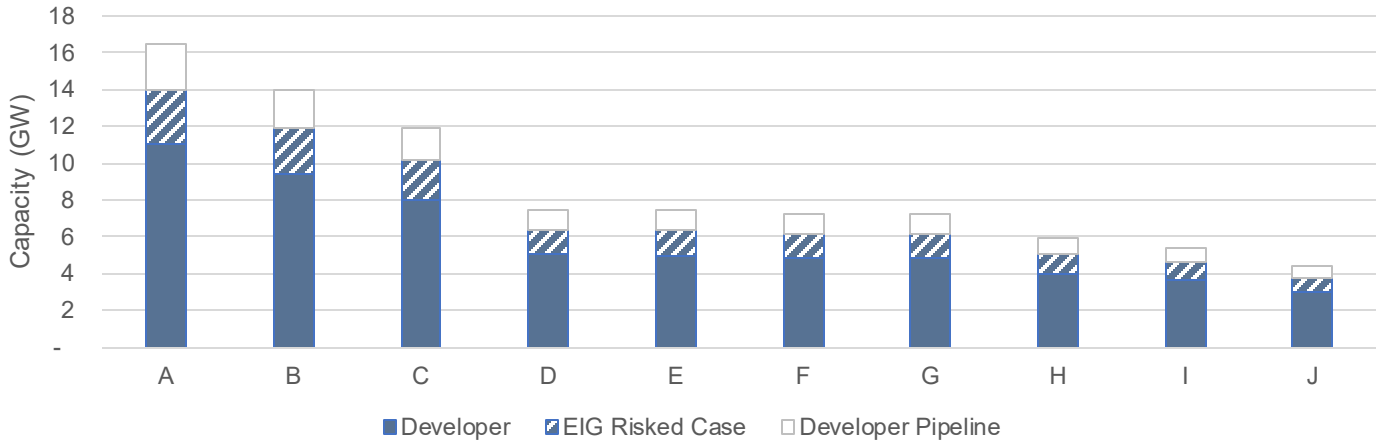
"Stage"	Management Case	Risked Case
Ready-to-build	100%	90-100%
Advanced	>90%	50-75%
Pipeline	>75%	25-50%
Lead	>50%	0-25%

"Stage"	Pipeline (GW)	Management Case	Risked Case
Ready-to-build	1.0	1.0	0.9 – 1.0
Advanced	3.0	2.7	1.5 – 2.3
Pipeline	4.0	3.0	1.0 – 2.0
Lead	7.5	3.8	0.0 – 1.8
"Risked" Pipeline	**15.5**	**10.5**	**3.4 – 7.1**

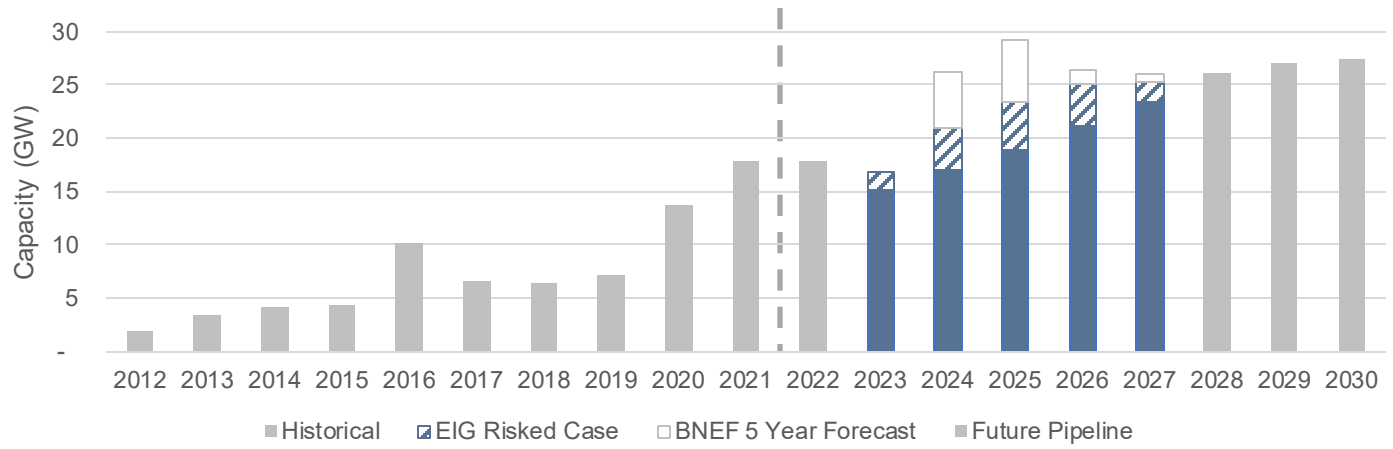
Risking the US Solar Development Pipeline

If developers cannot achieve high conversion rates project pipelines may need to grow more aggressively than forecasted

Top US Solar Developer Project Pipelines-Risk Adjusted[1]



Annual US Utility-Scale Solar PV Capacity Additions-Risk Adjusted[1]

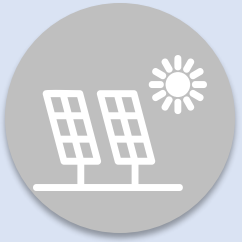


- Given the recent headwinds and volatility impacting solar, EIG has performed sensitivity analysis on the US solar development pipeline
- The analysis is based on applying a range of pipeline conversion rates between 67% and 85%
  - EIG believes the pipeline of top US solar developers represents a significant proportion of the total US solar development pipeline
  - 85% represents a best-in-class conversion rate based on EIG's solar investment experience
  - 67% represents a conversion rate in line with EIG's risking model for solar developers
- BNEF's forecast estimates 125 GW of cumulative capacity growth from 2023 – 2027
  - To increase the probability of meeting the BNEF forecast, EIG believes the macro development pipeline would need to add up to an additional ~27 GW
  - Alternatively, applying EIG's estimated conversion rates to the existing developer pipeline implies a 11-23% reduction in potential capacity additions over this period

Potential underdevelopment on the solar pipeline is likely to create opportunities for additional investment in energy delivery away from solar

1. Enervus (Sept 2021) and EIG Analysis as of June 2022
2. BNEF, H1 2022 US Clean Energy Market Outlook and EIG analysis as of June 2022

Potential Energy Investing Implications of Risking the Macro US Solar Pipeline



Solar Capital Requirements

Solar developer liquidity will be challenged if solar capacity additions continue to outperform or slow down. The need for capital to address cost increases or implementation delays will lead to structured solutions that are sensitive to equity ownership dilution

Energy Transition

Slower solar development is likely to lengthen the timing of the transition away from traditional fossil fuel energy delivery systems to a more sustainable mix

Solar Investment Outlook

Volatility and uncertainty may persist in the implementation of solar impacted by factors such as material and labor cost, permitting and interconnection delays

Gas as a Transition Fuel

A shortfall in solar deployments relative to forecast is likely to be addressed by gas as the most carbon friendly fossil fuel alternative. This reality increases the importance of gas as a key transition fuel as the solar market undergoes change

Conventional Fossil Fuel Use

Increased and elongated utilization of conventional fossil fuels outside of gas (i.e., coal and/or oil) is also likely to pick up any capacity gaps created by weaker solar development experience

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