



MARKET COST OF ENERGY ANALYSIS

HI 2024

INVESTMENT BANKING FOR A LOW CARBON WORLD

CONTENTS

- [Introduction](#) 3
- [2024 Year-1 MCOE Price Ranges by Region](#) 4
- [Changes from H2 2023 MCOE](#) 5
- [Regional MCOE Comparison](#) 6
- [MCOE Results by COD Year](#) 7
- [Analysis Spotlight: Solar + Storage](#) 13
- [Analysis Spotlight: Hybrid Tax Credit Structure](#) 14
- [MCOE in Context](#) 15
- [Appendix A: Detailed Assumptions & Data](#) 16
- [Appendix B: About CRC-IB](#) 22



INTRODUCTION – SUMMARY OF METHODOLOGY

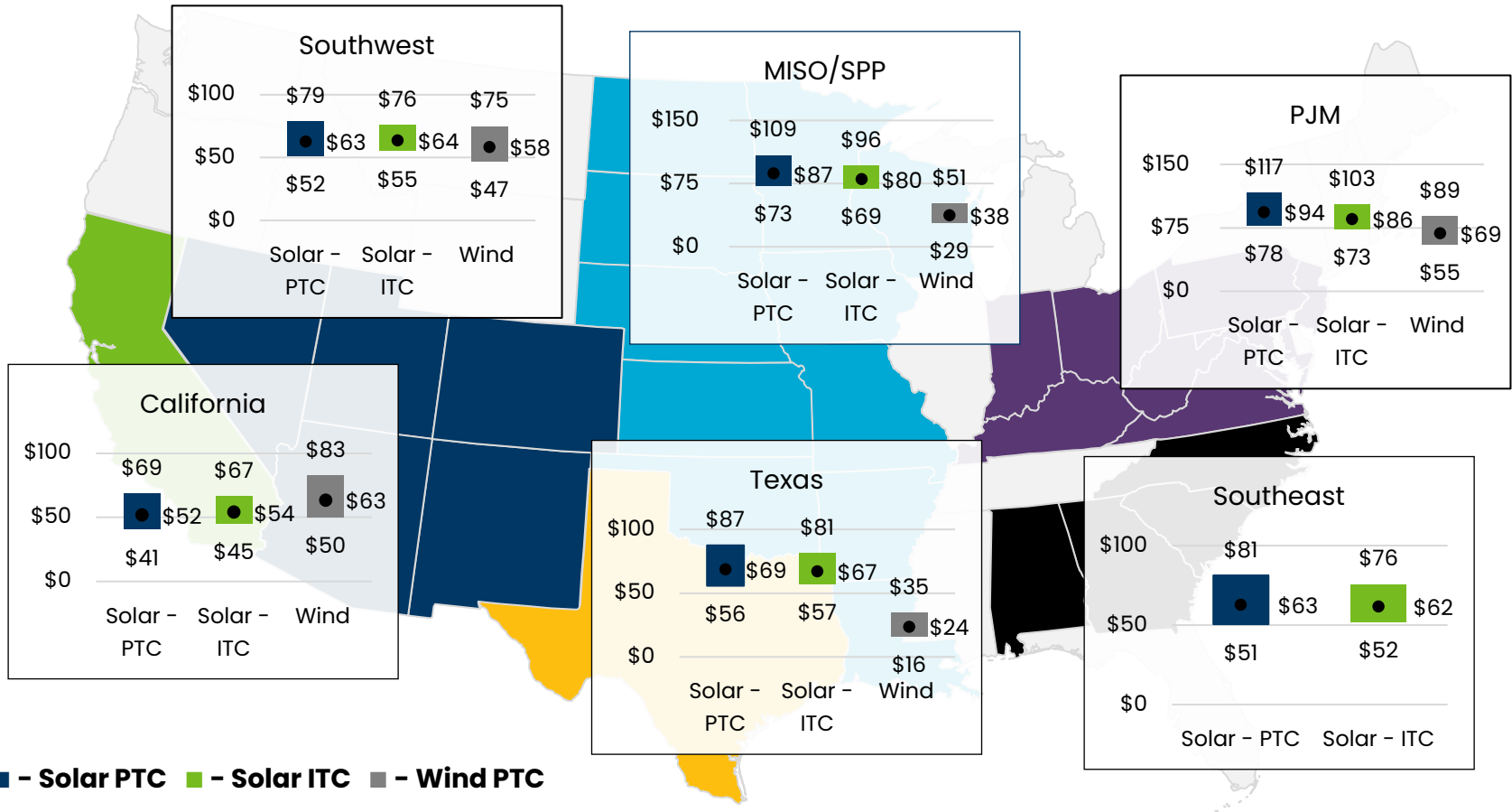
- **The Market Cost of Energy (MCOE) provides a more market-based metric than the Levelized Cost of Energy (LCOE).** MCOE represents a year-1 \$/MWh contracted offtake rate with a creditworthy offtaker on a 15-year bundled (energy + capacity + RECs) utility-scale busbar PPA with 2% p.a. escalation.
- LCOE measures the average net percent cost of energy generation for a power plant over its lifetime. Comparatively, MCOE utilizes a market-based approach in determining the PPA price required to reach specific investor returns.
- CRC-IB analyzed 6 major US market regions: California (CAISO), the Southwest, Texas (ERCOT), PJM, MISO/SPP combined, and the Southeast (solar only).
- CRC-IB evaluated the relative offtake cost competitiveness of utility-scale projects commissioned during a 7-year “Projection Period” from 2024 – 2030.
- External^(1,2) and internal⁽³⁾ project data on build costs, generation, merchant pricing, and operating expenditure were updated in an internal model. Tax equity returns, debt financing, and sponsor hurdle rates are additional inputs. See Appendix A for additional information on assumptions.

Sources: (1) Wood Mackenzie 2024 Base Case; (2) Ventyx Fall 2023 Reference Case – Base Results; (3) CRC-IB internal data collected from utility solar, wind, and storage projects



2024 YEAR-1 MCOE PRICE RANGES BY REGION⁽¹⁾

2024 MCOE prices range from \$40.6/MWh to \$116.7/MWh for solar PTC, \$45.1/MWh to \$102.9/MWh for solar ITC, and \$16.1/MWh to \$88.5/MWh for wind.



(1) Highlighted states above represent approximations of the ISO/RTO regions included in this analysis. CRC-IB notes that various input data were available at different levels of detail. E.g., merchant curves were aligned with ISO/RTO regions, CAPEX data was available at the state-level, and OPEX/NCF data points were taken based on analysis of real projects in each region. CRC-IB aggregated data as needed based on industry knowledge. All figures are in \$/MWh.

Sources: Wood Mackenzie 2024 Base Case; Ventyx Fall 2023 Reference Case – Base Results; CRC-IB internal data collected from utility solar, wind, and storage projects



CHANGES FROM H2 2023 MCOE

Increases in CAPEX and sponsor return requirements are driving a 30% average increase in MCOE prices, compared to our H2 2023 analysis.

- We have assumed the **same tax equity return requirements** of 8.00% for solar ITC, 8.25% for solar PTC, and 8.50% for wind PTC.
- We have assumed **higher sponsor equity hurdle rates** of 10.00% for solar and 10.50% for wind. This is a 150bps increase from our H2 2023 analysis.
- We have assumed a **lower spread on debt pricing of SOFR + 200bps**, a decrease of 50bps since our H2 2023 analysis.
- **CAPEX has increased** on average 15% across all regions and technologies. This increase is more significant than the 4% average increase between our H1 2023 and H2 2023 analyses.
- **Energy prices in the merchant period (year 16+) have increased** on average 9% across all regions. More expected revenues from this period allow for lower PPA prices to achieve the same returns.

2024 Year-1 PPA Price, H1 2024 Forecast vs. H2 2023 Forecast (\$/MWh)

		California	Southwest	PJM	MISO / SPP	Texas	Southeast*
Solar ITC	H1 2024	54.14	63.62	85.55	80.33	67.20	61.90
	H2 2023	51.54	56.53	69.19	64.87	50.54	46.40
	% Change	5%	13%	24%	24%	33%	33%
	# Change	2.60	7.09	16.37	15.47	16.66	15.50
Solar PTC	H1 2024	51.89	62.67	93.68	87.16	68.66	63.02
	H2 2023	45.15	51.46	71.12	65.61	46.92	42.43
	% Change	15%	22%	32%	33%	46%	49%
	# Change	6.74	11.21	22.56	21.55	21.74	20.59
Wind PTC	H1 2024	63.45	58.29	68.97	37.66	23.72	
	H2 2023	65.32	54.96	56.45	32.51	23.68	
	% Change	-3%	6%	22%	16%	0%	
	# Change	-1.87	3.32	12.52	5.15	0.04	

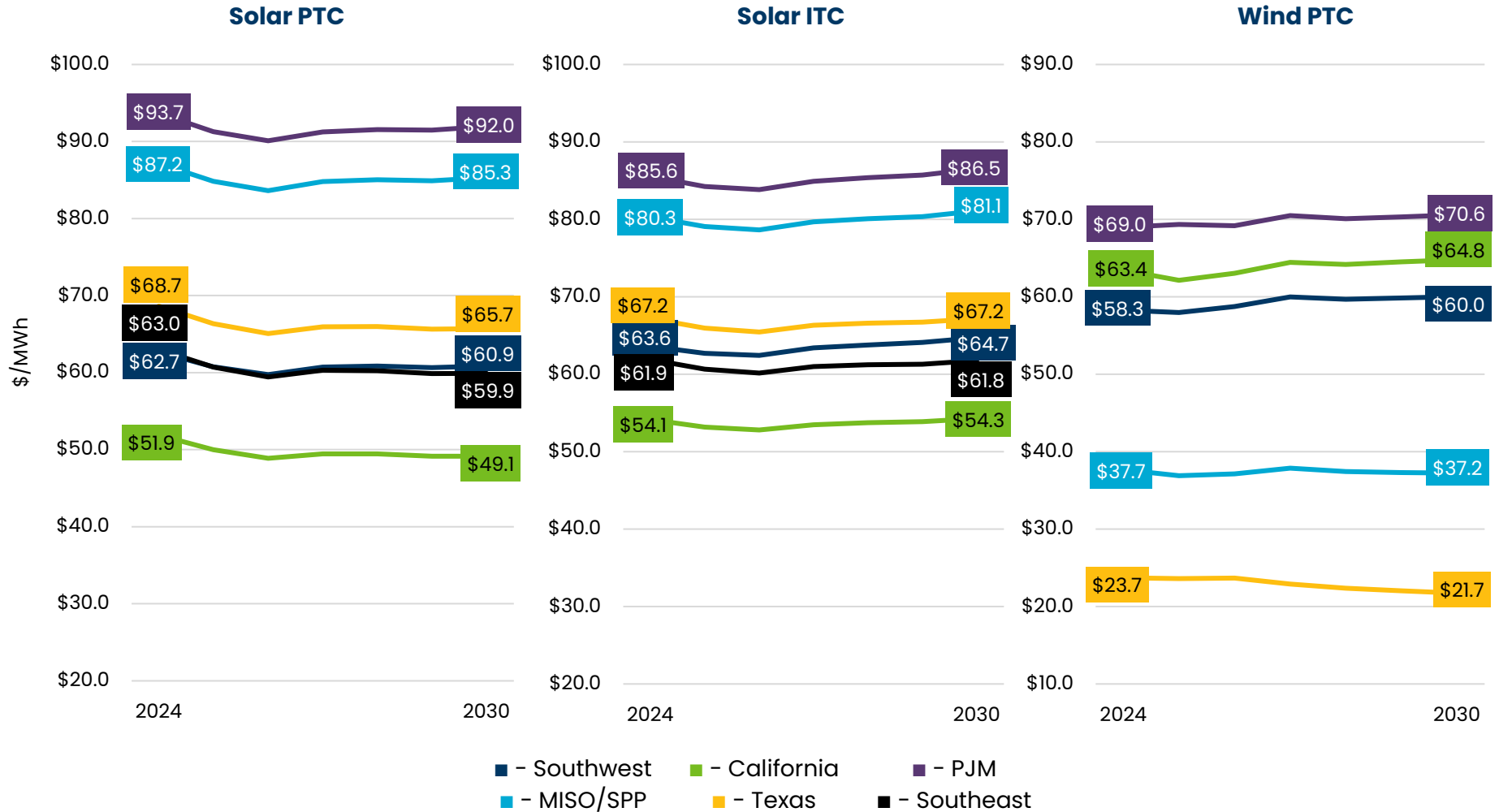
Sources: Wood Mackenzie 2024 Base Case and 2023 Base Case; Ventyx Fall 2023 Reference Case – Base Results; CRC-IB internal data collected from utility solar, wind, and storage projects

*Wind resource in the Southeast is so low that there is effectively no market for onshore wind. Therefore, it has not been assessed in our MCOE analysis



REGIONAL MCOE MIDPOINTS COMPARISON

Despite increases since our H2 2023 report, CAPEX is expected to remain relatively flat year-over-year during the projection period. The timing of the impact from technological advancements, future rate cuts, and increased domestic manufacturing is somewhat uncertain, keeping MCOE steady in the near-term.



Sources: Wood Mackenzie 2024 Base Case; Ventyx Fall 2023 Reference Case – Base Results; CRC-IB internal data collected from utility solar, wind, and storage projects



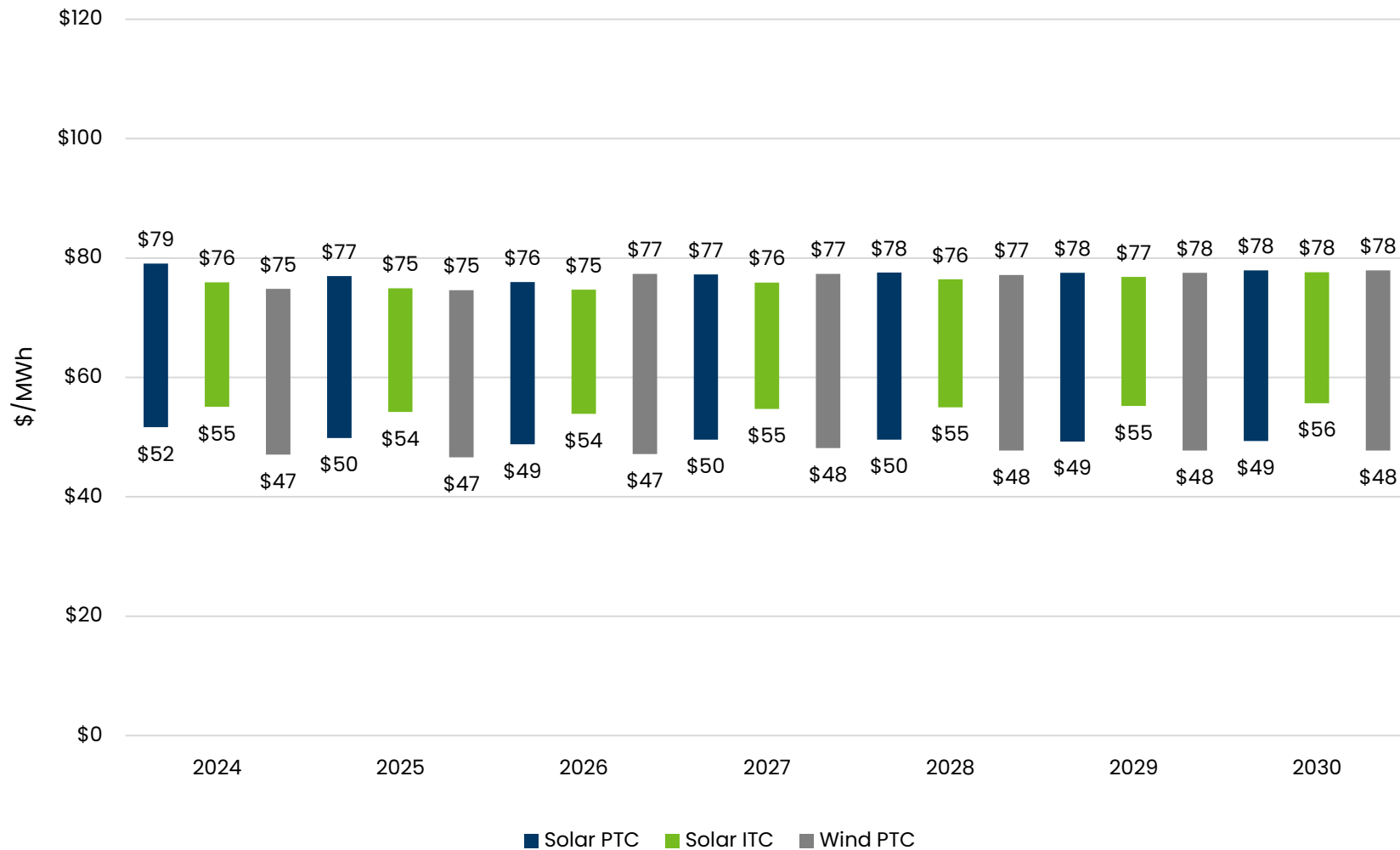
MCOE RESULTS: CALIFORNIA (CAISO)



Sources: Wood Mackenzie 2024 Base Case; Ventyx Fall 2023 Reference Case – Base Results; CRC-IB internal data collected from utility solar, wind, and storage projects



MCOE RESULTS: SOUTHWEST



Sources: Wood Mackenzie 2024 Base Case; Ventyx Fall 2023 Reference Case – Base Results; CRC-IB internal data collected from utility solar, wind, and storage projects



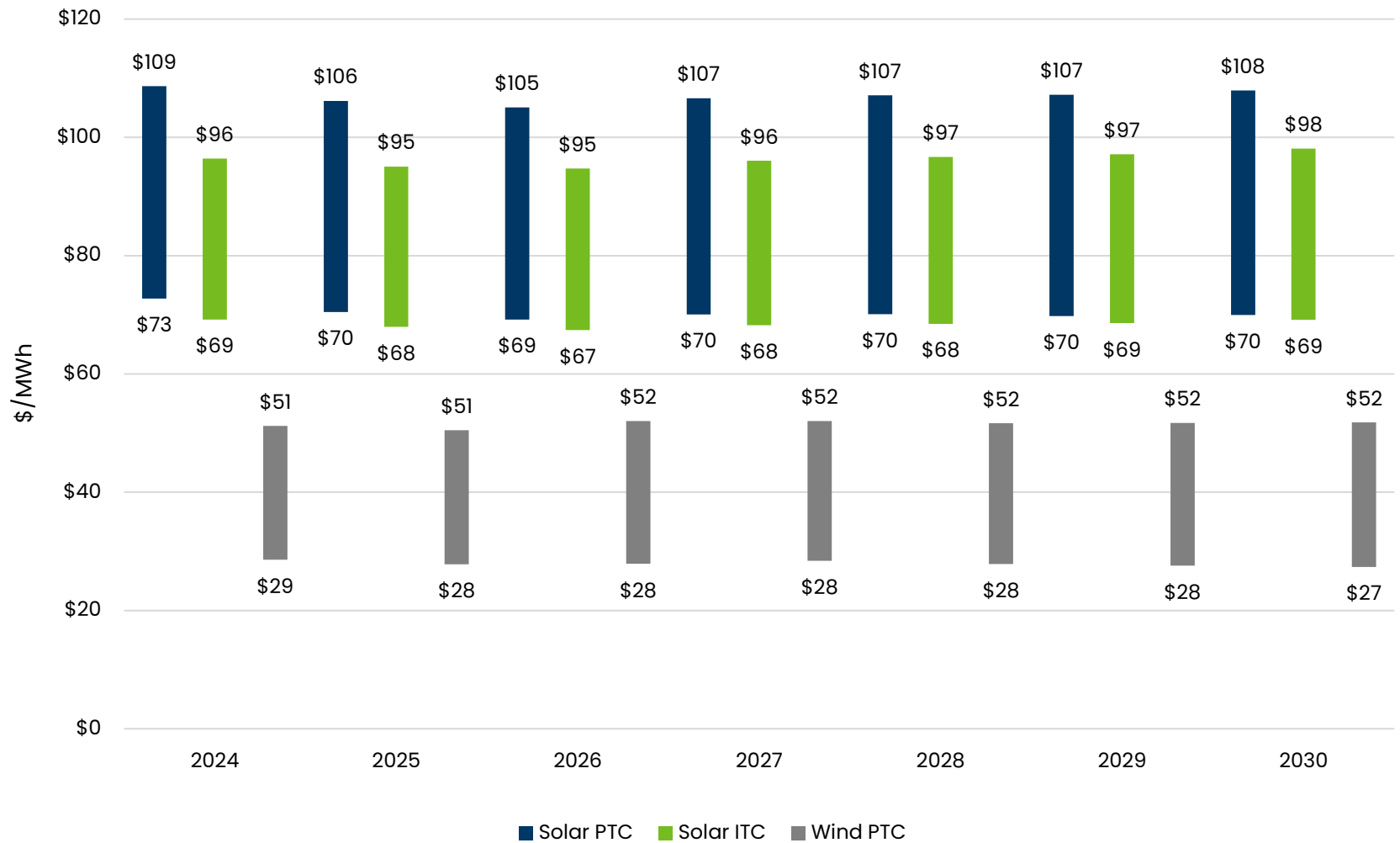
MCOE RESULTS: PJM



Sources: Wood Mackenzie 2024 Base Case; Ventyx Fall 2023 Reference Case – Base Results; CRC-IB internal data collected from utility solar, wind, and storage projects



MCOE RESULTS: MISO / SPP



Sources: Wood Mackenzie 2024 Base Case; Ventyx Fall 2023 Reference Case – Base Results; CRC-IB internal data collected from utility solar, wind, and storage projects



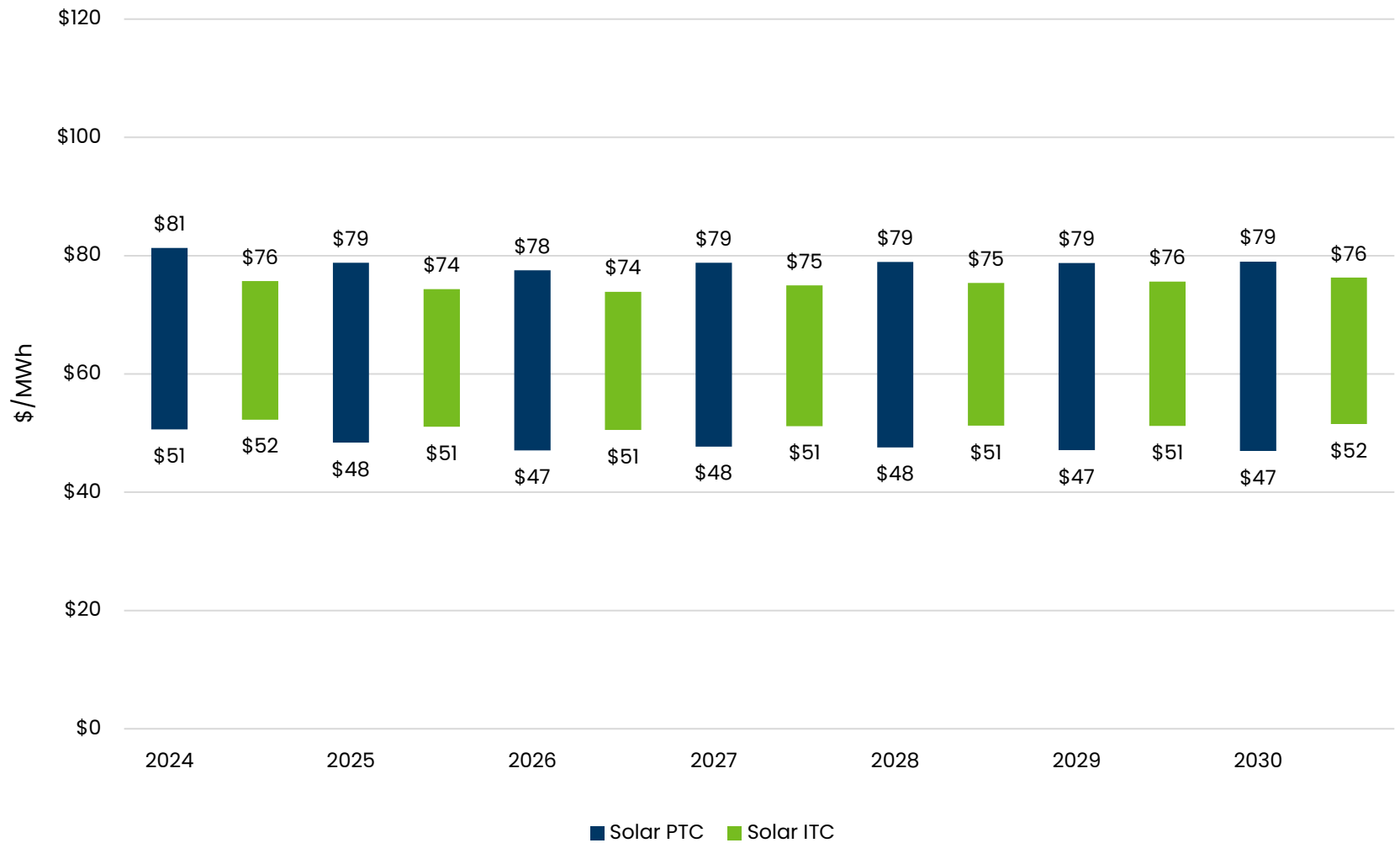
MCOE RESULTS: TEXAS (ERCOT)



Sources: Wood Mackenzie 2024 Base Case; Ventyx Fall 2023 Reference Case – Base Results; CRC-IB internal data collected from utility solar, wind, and storage projects



MCOE RESULTS: SOUTHEAST

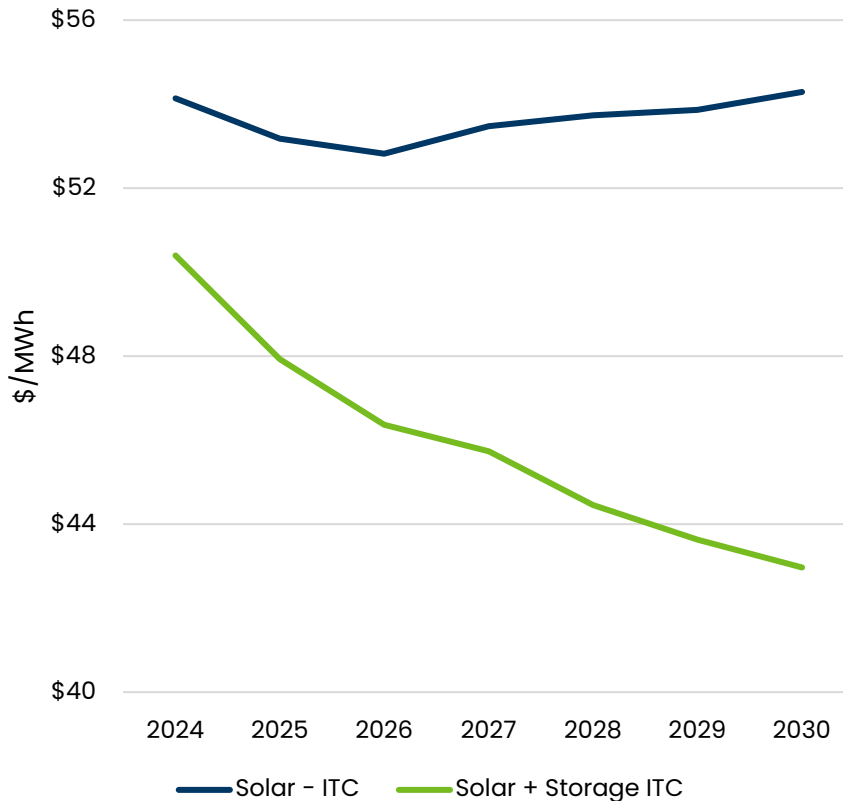


Sources: Wood Mackenzie 2024 Base Case; Ventyx Fall 2023 Reference Case – Base Results; CRC-IB internal data collected from utility solar, wind, and storage projects



ANALYSIS SPOTLIGHT: SOLAR + STORAGE

Year-1 PPA Price: Solar ITC vs Solar + Storage ITC (California)



Overview

- Roughly 25% of installed solar in CA is co-located with storage, and over 98% of proposed new solar capacity is hybrid, reflecting higher penetration levels and declining contributions to meeting peak demand.
- Our analysis examines the year-1 solar PPA price for solar + storage projects in CA.

Key Assumptions

- 15-year tolling agreement (\$125/kW-year) applied to a co-located 4-hr energy storage asset.
- CAPEX for solar + storage decreases at a 1.95% average annual rate due to interconnection cost benefits for co-located resources and a drop in lithium prices.
- CAPEX for standalone solar increases at a 0.4% average annual rate, in contrast.

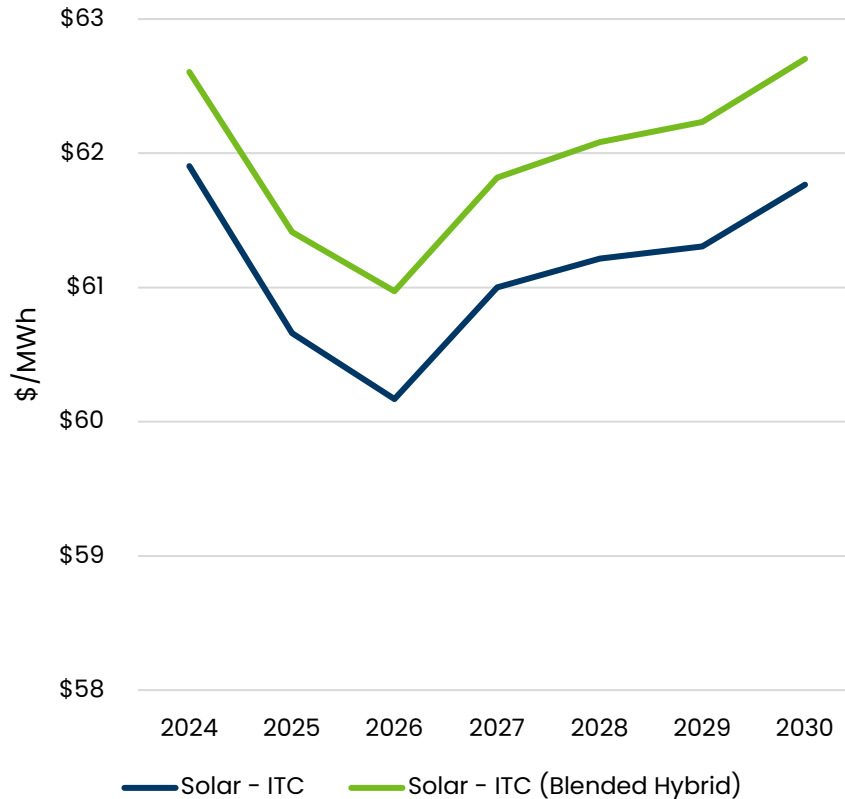
Results

- In 2024, the Solar + Storage ITC midpoint MCOE is \$3.74/MWh lower than the Solar ITC case.
- By 2030, this gap increases to \$11.32/MWh. The spread between the two project types increases over time because the magnitude of change in solar + storage CAPEX is larger.



ANALYSIS SPOTLIGHT: HYBRID TAX CREDIT STRUCTURE

Year-1 PPA Price: Solar ITC (Yield-Based Flip) vs Solar ITC Hybrid Structure (Southeast)



Overview

- Hybrid tax credit structures⁽¹⁾ are increasingly popular given the flexibility in the utilization of tax credits.
- CRC-IB analyzed a “Solar – ITC (Blended Hybrid)” case to compare the year-1 solar PPA price required under this structure to the Solar ITC YBF base case.

Key Assumptions

- Under this structure, an 11% “blended” return requirement is assumed which covers both the sponsor as well as either a preferred equity investor or a tax investor.
- To isolate the impact of tax structures, cash flow assumptions for sizing back leverage debt remain the same in the YBF and Blended Hybrid cases.

Results

- The required year-1 PPA price for the Blended Hybrid structure is modestly higher than the YBF structure.
- Over the projection period, the Blended Hybrid midpoint MCOE is \$0.70-\$0.94/MWh higher than the YBF case. YBF remains the most efficient structure for the utilization of tax credits.
- Southeast was chosen to illustrate this impact, but similar results can be seen in most other markets.








(1) The Hybrid Tax Credit Structure can involve either (a) the formation of a tax equity partnership and eventual sale of all or a portion of the tax credits or (b) a preferred equity investment to form a partnership with the project’s sponsor prior to transferring the tax credits.

Sources: Wood Mackenzie 2024 Base Case; Ventyx Fall 2023 Reference Case – Base Results; CRC-IB internal data collected from utility solar, wind, and storage projects



MCOE IN CONTEXT: BROADER NEAR-TERM PPA PRICE TRENDS

The following key factors summarize several of the most important trends that are impacting PPA prices.

TOPIC	IMPACT ON PPA PRICE	DISCUSSION
Cost of Capital		<ul style="list-style-type: none"> Over the past 6-12 months, sponsor equity hurdle rates have increased ~150bps. Sponsors, being subordinate in the capital stack, adjusted their returns later in response to rising costs and interest rates. Tax equity and debt have largely remained stable since H2 2023.
CAPEX		<ul style="list-style-type: none"> Solar CAPEX increased ~27% and Wind CAPEX increased ~3% on average between 2024-2030 over the last analysis. Costs for interconnection, land, balance of system, labor, and EPC have all increased.
Corporates Demanding Clean Power		<ul style="list-style-type: none"> More PPA buyers are entering the market due to upcoming 2030 sustainability deadlines, the growing electrification of transportation and buildings, and increased power demands from data centers. The U.S. announced 17.3GW of new corporate PPAs in 2023.
Bottlenecks to New Generation		<ul style="list-style-type: none"> A failure to build new transmission projects or upgrade existing lines could slow clean energy project deployment, ultimately increasing PPA prices as supply is hindered. Interconnection queue and permitting backlogs also pose issues.
Moderation in Panel Prices		<ul style="list-style-type: none"> Solar panel prices in the U.S. have fallen ~24% from pandemic-highs. The U.S. is still paying a \$0.20/W premium compared to the rest of the world (\$0.31/W vs \$0.11/W), largely due to tariffs. The growth of domestic manufacturing driven by the IRA is expected to further reduce U.S. panel prices over the next decade.
Alleviation of Supply Chain Constraints		<ul style="list-style-type: none"> Global supply chains eased through the end of 2023, with U.S. panel imports reaching a record 54GW, up 82% from 2022. Additionally, the IRA has spurred over 270,000 new U.S. clean energy jobs to assist the domestic labor force and further help to alleviate supply chain costs.
Future Interest Rate Changes		<ul style="list-style-type: none"> The market is expecting interest rate cuts, the first of which could happen in September. Most economists believe interest rates will come down ~150-bps by the end of 2025, driving down the cost of capital and the price of PPAs.

Sources: BNEF; Reuters; Inside Climate News; S&P Global; Climate Power



APPENDIX A: DETAILED ASSUMPTIONS & DATA

METHODOLOGY & KEY ASSUMPTIONS

CRC-IB modeled fully structured project economics for utility-scale solar, wind, and solar + storage projects in key U.S. markets. CAPEX, OPEX, capacity factors, and post-contracted pricing were sensitized to produce a range of year-1⁽¹⁾ PPA rates from 2024 – 2030, while applying the federal tax credit schedule under the IRA.

AREA	COMMENT
CAPEX	<ul style="list-style-type: none"> Wood Mackenzie 2024 Base Case (\$/W, by technology and market).⁽²⁾
OPEX	<ul style="list-style-type: none"> Average by technology and market, based on public and internal data; escalated 2.0% p.a. through project useful life.
Capacity Factor	<ul style="list-style-type: none"> Average P50 NCF (by technology and market) based on public and internal data.
Sponsor Equity Hurdle Rate	<ul style="list-style-type: none"> Levered After-Tax (Inefficient) IRR: <ul style="list-style-type: none"> Solar ITC / PTC: 10.00% Wind: 10.50% Hybrid: 11.00% (Efficient)
Post-Contracted Wholesale Pricing	<ul style="list-style-type: none"> Wood Mackenzie 2024 Technology Weighted Average Prices and Ventyx Fall 2023 Reference Case. Post-contract assumptions impact Hurdle Rate/MCOE, reflecting how CRC-IB observes investors valuing assets in today's market (significant portion of return is derived from post-contracted period).
Financing	<ul style="list-style-type: none"> Asset-specific tax equity and back leverage structuring with associated sizing parameters for each.
Federal Tax Credit Qualification⁽³⁾	<ul style="list-style-type: none"> Full 30% on ITC and 100% on PTC assumed for projects placed in service between 2024 and 2030.

(1) MCOE reflects value applied in first complete year of project operations, after 12/31 COD in 2024-2030

(2) For comparability across technologies, no additional developer fees or basis markups were included in project costs

(3) Federal Tax Credit Qualification was based on a 3-year start of construction to reflect safe harbor & physical work test. It is assumed that projects will satisfy the Prevailing Wage Requirement under the IRA and will comply under future treasury guidance



DETAILED ASSUMPTIONS – SOLAR

TOPIC	DISCUSSION
Project Type	<ul style="list-style-type: none"> 200MWdc / 164MWac , Single-Axis Tracker; without storage.
Useful Life	<ul style="list-style-type: none"> 35 years
Capital Expenditure	<ul style="list-style-type: none"> Based on Wood Mackenzie 2024 Base Case forecast of build cost by state. Overnight Capital Cost method (CAPEX assumed to be incurred in year 0 to isolate impact of other variables on MCOE). No additional developer fees or basis markups were included in project costs.
Energy Production	<ul style="list-style-type: none"> Average AC net capacity factors (“NCF”) based on public operating plant data and internal CRC data. Average NCFs held constant across 2024–30 projections.⁽¹⁾ 98% annual combined availability & curtailment factor applied to solar and wind.
Energy Production (Tech-Specific)	<ul style="list-style-type: none"> Degradation: 0.46% p.a. weighted average of thin film (0.30%) and CSPV (0.50%) by U.S. market share.
Market Cost of Energy (“MCOE”)	<ul style="list-style-type: none"> \$/MWh required for sponsor equity to achieve a target Levered After-Tax Hurdle Rate. Proxy for year-1 price on a 15-year bundled (energy + capacity + (S)REC) busbar PPA with 2% p.a. escalation. Plant revenues for ancillary grid services not contemplated (e.g., smart inverter).
Sponsor Equity Hurdle Rate	<ul style="list-style-type: none"> Levered After-Tax (Inefficient) IRR: 10.00% Return for Hybrid case (Efficient) IRR: 11.00%
Contracted / Merchant Periods	<ul style="list-style-type: none"> 100% contracted for PPA term; wholesale price forecast applied to 100% of generation thereafter (year 16+). Post-contracted assumptions impact Hurdle Rate/MCOE, reflecting observed valuation methodology. Post-contracted wholesale pricing based on 50/50 weighting of Wood Mackenzie’s “2024 Technology Weighted Average Prices” using technology-specific pricing for Solar and Ventyx’s “Fall 2023 Reference Case”. Real pricing escalated to nominal assuming 2.5% long-term inflation; no haircut applied to nominal pricing for mid-MCOE.
Operating Expense	<ul style="list-style-type: none"> Average all-in year-1 OPEX (\$/W, by technology and market) based on public operating plant data and internal CRC data; escalated 2.0% p.a. through project useful life.
Operating Expense (Tech-Specific)⁽²⁾	<ul style="list-style-type: none"> Inverter replacement \$0.40/Wdc nominal future cash cost (no reserve) spread evenly from year 11-25.

(1) NCFs expected to increase with technology improvements; however, assumption is held constant through time in our analysis to isolate build cost and tax credit impacts on MCOE



DETAILED ASSUMPTIONS – WIND

TOPIC	DISCUSSION
Project Type	<ul style="list-style-type: none"> 200MW with Tier-1 turbine OEM; without storage.
Useful Life	<ul style="list-style-type: none"> 30 years
Capital Expenditure	<ul style="list-style-type: none"> Based on Wood Mackenzie 2024 Base Case forecast of build cost by state. Overnight Capital Cost method (CAPEX assumed to be incurred in year 0 to isolate impact of other variables on MCOE). No additional developer fees or basis markups were included in project costs.
Energy Production	<ul style="list-style-type: none"> Average AC net capacity factors (“NCF”) based on public operating plant data and internal CRC data. Average NCFs held constant across 2024-30 projections.⁽¹⁾ 98% annual combined availability & curtailment factor applied to solar and wind.
Energy Production (Tech-Specific)	<ul style="list-style-type: none"> Additional 2% congestion curtailment applied to Texas wind.
Market Cost of Energy (“MCOE”)	<ul style="list-style-type: none"> \$/MWh required for sponsor equity to achieve a target Levered After-Tax Hurdle Rate. Proxy for year-1 price on a 15-year bundled (energy + capacity + (S)REC) busbar PPA with 2% p.a. escalation. Plant revenues for ancillary grid services not contemplated (e.g., smart inverter).
Sponsor Equity Hurdle Rate	<ul style="list-style-type: none"> Levered After-Tax (Inefficient) IRR: 10.50%
Contracted / Merchant Periods	<ul style="list-style-type: none"> 100% contracted for PPA term; wholesale price forecast applied to 100% of generation thereafter (year 16+). Post-contracted assumptions impact Hurdle Rate/MCOE, reflecting observed valuation methodology. Post-contracted wholesale pricing based on 50/50 weighting of Wood Mackenzie’s “2024 Technology Weighted Average Prices” using technology-specific pricing for Wind and Ventyx’s “Fall 2023 Reference Case”. Real pricing escalated to nominal assuming 2.5% long-term inflation; no haircut applied to nominal pricing for mid-MCOE.
Operating Expense	<ul style="list-style-type: none"> Average all-in year-1 OPEX (\$/W, by technology and market) based on public operating plant data and internal CRC data; escalated 2.0% p.a. through project useful life.

(1) NCFs expected to increase with technology improvements; however, assumption is held constant through time in our analysis to isolate build cost and tax credit impacts on MCOE

(2) Potentially necessary major maintenance CAPEX to support 30-year wind project useful asset life not contemplated given diversity of site-specific requirements and conditions



DETAILED ASSUMPTIONS – SOLAR + STORAGE

TOPIC	DISCUSSION
Project Type	<ul style="list-style-type: none"> Solar: 200MWdc / 164MWac , Single-Axis Tracker Storage: 100 MW BESS system with 4 hr duration
Useful Life	<ul style="list-style-type: none"> Solar: 35 years Storage: 15 years
Capital Expenditure⁽¹⁾	<ul style="list-style-type: none"> Based on Wood Mackenzie 2024 Base Case forecast of build cost by state. Overnight Capital Cost method (CAPEX assumed to be incurred in year 0 to isolate impact of other variables on MCOE). No additional developer fees or basis markups were included in project costs.
Energy Production	<ul style="list-style-type: none"> Average AC net capacity factors (“NCF”) based on public operating plant data and internal CRC data. Average NCFs held constant across 2024–30 projections.⁽²⁾ 98% annual combined availability & curtailment factor applied to solar portion.
Energy Production (Tech-Specific)	<ul style="list-style-type: none"> Degradation: 0.46% p.a. weighted average of thin film (0.30%) and CSPV (0.50%) by U.S. market share. BESS: 100% availability and no degradation
Market Cost of Energy (“MCOE”)	<ul style="list-style-type: none"> \$/MWh required for the PV asset for sponsor equity to achieve a target Levered After-Tax Hurdle Rate, assuming the BESS asset has a fixed rate tolling agreement in place for its useful life. Proxy for year-1 price on a 15-year bundled (energy + capacity + (\$)REC) busbar PPA with 2% p.a. escalation. Plant revenues for ancillary grid services not contemplated (e.g., smart inverter).
Sponsor Equity Hurdle Rate	<ul style="list-style-type: none"> Levered After-Tax (Inefficient) IRR: 10.00%
Solar Contracted / Merchant Periods	<ul style="list-style-type: none"> 100% contracted for PPA term; wholesale price forecast applied to 100% of generation thereafter (year 16+). Post-contracted assumptions impact Hurdle Rate/MCOE, reflecting observed valuation methodology. Post-contracted wholesale pricing based on 50/50 weighting of Wood Mackenzie’s “2024 Technology Weighted Average Prices” using technology-specific pricing for Solar and Ventyx’s “Fall 2023 Reference Case”. Real pricing escalated to nominal assuming 2.5% long-term inflation; no haircut applied to nominal pricing for mid-MCOE.
Storage Contracted / Merchant Periods	<ul style="list-style-type: none"> 100% contracted under a tolling agreement for Useful Life, no merchant assumptions. Average all-in year-1 Tolling Rate (\$/kW) based on internal CRC data; no escalation assumed.
Operating Expense	<ul style="list-style-type: none"> Average all-in year-1 OPEX (\$/W, by technology and market) based on public operating plant data and internal CRC data; escalated 2.0% p.a. through project useful life.
Operating Expense (Tech-Specific)⁽³⁾	<ul style="list-style-type: none"> Solar: Inverter replacement \$0.40/Wdc nominal future cash cost (no reserve) spread evenly from year 11–25.

(1) While storage system’s CAPEX generally scales with power and duration, some costs (for instance, inverters) would scale only with power and not duration. This implies that lower duration batteries would have slightly higher costs on a \$/kWh basis than higher duration ones; Wood Mackenzie analysts estimate a 2-hr battery to be ~10% more expensive on a turnkey, \$/kWh basis than a 4-hr battery. On a \$/kW basis, the 2-hr battery will be 55–60% of the cost of the 4-hr battery, instead of exactly half; (2) NCFs expected to increase with technology improvements; however, assumption is held constant through time in our analysis to isolate build cost and tax credit impacts on MCOE; (3) Potentially necessary major maintenance CAPEX to support 30-year wind project useful asset life not contemplated given diversity of site-specific requirements and conditions.



STRUCTURE & TAX ASSUMPTIONS

TOPIC	DISCUSSION
Federal Tax Credit Qualification	<ul style="list-style-type: none"> Federal tax credit qualification based on qualified start of construction 3 years prior to COD. Analysis did not include entire 4-year qualification as it is unlikely that 100% of projects will safe harbor equipment or achieve continuous construction and maintain eligibility.
Depreciation & Eligible Basis	<ul style="list-style-type: none"> Wind / Solar (ITC & PTC): 12Y Straight-Line. ITC Eligible Basis: 95% of build cost.
Interest Rates	<ul style="list-style-type: none"> Tax equity, debt, and sponsor equity hurdle rates benchmarked to current interest rate environment. Base-case analysis does not incorporate impacts of potential financing margin compression or fluctuations in risk-free rates.
Tax Equity Structure (Solar – ITC)	<ul style="list-style-type: none"> Flip Yield: 8.00% Flip term: 7 years post COD. 12-year Straight-Line election to manage investor DRO. Cash Allocation (Pre/Post-Flip): 25% / 5% Income (Loss) Allocation: 99% in year 1, stepping down to 67% through year 6, stepping down to 5% thereafter and post-flip.
Tax Equity Structure (Solar – PTC)	<ul style="list-style-type: none"> Flip Yield: 8.25% Flip term: 10 years post COD. No PayGo (for consistency with solar ITC financing structure and impact of upfront TE proceeds on MCOE). 12-year Straight-Line election to manage investor DRO. Cash Allocation (Pre/Post-Flip): 20% / 5% Income (Loss) Allocation (Pre/Post-Flip): 99% / 5% Following PTC step-down to 0%, a TE partnership is still assumed to be used, with the tax investor aiming to monetize depreciation benefits.
Hybrid Structure (Solar – ITC)	<ul style="list-style-type: none"> 11.00% combined required return for a sponsor and either a preferred equity or tax equity investor. 5-year MACRS election. Assuming a combined tax efficient sponsor. Tax credit transfer assumed; 50% transferred in year of tax credit generation and 50% transferred in the following year. No step-up in basis assumed for consistency with YBF structure.
Tax Equity Structure (Wind)	<ul style="list-style-type: none"> Flip Yield: 8.50% Flip term: 10 years post COD. No PayGo (for consistency with solar ITC financing structure and impact of upfront TE proceeds on MCOE). 12-year Straight-Line election to manage investor DRO. Cash Allocation (Pre/Post-Flip): 20% / 5% Income (Loss) Allocation (Pre/Post-Flip): 99% / 5% Following PTC step-down to 0%, a TE partnership is still assumed to be used, with the tax investor aiming to monetize depreciation benefits.
Debt	<ul style="list-style-type: none"> Back leverage term loan priced assuming 200bps spread on SOFR Swap (75% interest rate hedging); 25bps step-up every 4 years; 1.5% upfront fee. 20-year amortization (includes 5-year merchant tail). Contracted DSCRs: P50 – 1.40x (Wind), 1.30x (Solar ITC & PTC); P99 – 1.00x. Uncontracted DSCRs: P50 – 2.00x; P99 – 1.60x.



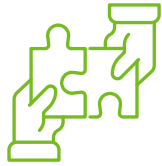
APPENDIX B: ABOUT CRC-IB

INDUSTRY LEADER FINANCING THE ENERGY TRANSITION

330 TRANSACTIONS

\$63Bn IN VALUE

119 GW



M&A

85 GW

\$13.4Bn Total Value



PROJECT FINANCE

33 GW

\$16.5Bn Tax Capital

\$9.5Bn Debt



CAPITAL RAISING

12 GW

\$6.8Bn Capital Raised

SECTOR EXPERTISE



Solar

82 GW



Wind

31 GW



Storage

7 GW



CCUS/New Technologies

13 Active Mandates

800+ QUALIFIED RELATIONSHIPS



IMPACT IN CONTEXT

Every transaction is a catalyst for change, every closing a step toward a cleaner future.

OUR TRANSACTIONS REDUCE CARBON EMISSIONS*



165 MILLION TONS
CO2 offset



175 MILLION
Forest acres saved

This has had an equivalent impact of:

36 MILLION
Cars taken
off the road 

347 MILLION
Barrels of
oil avoided 

39 Coal plants
decommissioned 

*EPA Greenhouse Gas Equivalencies Calculator (Annual Reductions)

Proud member of:



FINANCIAL INNOVATORS POWERING THE ENERGY TRANSITION

Conor McKenna

PARTNER & SR.
MANAGING DIRECTOR
NEW YORK



15+ YEARS

150+ sustainable energy project finance, asset sale, and M&A transactions



Nick Knapp

PARTNER & SR.
MANAGING DIRECTOR
NEW YORK



18+ YEARS

80+ sustainable energy project finance and M&A transactions on both buy-side and sell-side



Gary Durden

PARTNER & MANAGING
DIRECTOR
NEW YORK



18+ YEARS

10+GW of sustainable energy projects across 70+ solar, onshore wind, and offshore wind transactions



Britta von Oesen

PARTNER & MANAGING
DIRECTOR
SAN FRANCISCO



15+ YEARS

\$15bn+ of sustainable energy project finance, asset sale, and corporate M&A transactions



Andy Nguyen

MANAGING DIRECTOR
SAN FRANCISCO



10+ YEARS

\$10bn+ of equity, debt, and tax equity raised across 10GW+ of sustainable energy projects



Michael Tatarsky

MANAGING DIRECTOR
NEW YORK



10+ YEARS

\$3bn+ raised across 10GW+ of projects including wind, solar, and battery storage



Michael Yurkerwich

MANAGING DIRECTOR
WESTPORT



10+ YEARS

20+ sustainable energy project finance and M&A transactions including 45Q



DISCLAIMER

While the information provided herein is believed to be accurate and reliable, neither Carbon Reduction Capital, LLC (d/b/a "CRC-IB"), nor any affiliate makes any representations or warranties, express or implied, as to the accuracy or completeness of such information. No representation or warranty is given as to the achievement or reasonableness of, and no reliance should be placed on, any projections, targets, estimates or forecasts contained in this Presentation. The information contained herein was prepared expressly for use herein and is based on significant assumptions and elements of subjective judgment and analysis which may or may not be correct and, as such, such estimates may not be realized. Furthermore, the information contained herein includes materials obtained from third parties and CRC-IB has not independently verified the accuracy of any such information. Moreover, these materials contain forward looking statements and whether any such forward looking statements or forecasts are in fact achieved will depend upon future events which are not within the control of CRC-IB. Accordingly, actual results may vary from the projected results and such variations may be material. Neither CRC-IB, nor any of their affiliates shall have any liability for any errors in or omissions from this Presentation or any other written or oral communications transmitted or made available to in connection with this Presentation.

In furnishing this Presentation, CRC-IB reserves the right to amend or replace the Presentation at any time but undertakes no obligation to do so or to provide the recipient with access to any additional information or correct any inaccuracies or omissions. Prospective recipients are deemed to be sophisticated parties and should, together with their financial, legal, accounting, tax and other advisors, conduct their own investigation and analysis and rely on their own judgment in their evaluation.

This Presentation shall not constitute an offer for a sale of securities or a sale of assets in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or jurisdiction. No securities will be registered under the Securities Act of 1933, as amended (the "Act"), or any applicable state or foreign securities laws, nor has the Securities and Exchange Commission or any state or foreign regulatory authority passed upon the accuracy or adequacy of the information contained in this Presentation and any representation to the contrary is unlawful. Any securities shall be offered pursuant to exemptions from registration under the Act, certain state securities laws and certain rules and regulations promulgated pursuant thereto. Any such securities may not be further transferred in the absence of an effective registration statement under the Act and any applicable state or foreign securities laws or an applicable exemption therefrom. In addition, operating agreements pertaining to the securities and/or wind projects may contain contractual restrictions on transfers.

CRC-IB makes no representation or warranty, expressed or implied, as to the accuracy or completeness of the information contained in this Presentation, and nothing contained herein is, or shall be relied upon as, a promise or representation, whether as to the past or the future. CRC-IB has not independently verified any of the third-party information used in this Presentation and assumes no responsibility for its accuracy or completeness. This material is not for external distribution.

IRS CIRCULAR 230 NOTICE: Any tax statement herein regarding any U.S. Federal Tax is not intended or written to be used and cannot be used, by any taxpayer for the purpose of avoiding any penalties. Any such statement herein was written to support the marketing or promotion of the transactions(s) or matter(s) to which the statement relates. Each taxpayer should seek advice based on the taxpayer's particular circumstances from an independent tax advisor.

Notwithstanding anything herein to the contrary, each recipient (and each employee, representative, or other agent of such recipient) may disclose to any and all other persons, without limitation of any kind, the tax treatment and tax structure of the transactions described herein, and all materials of any kind (including opinions or other tax analyses) that are provided to such recipient relating to such tax treatment and tax structure. For this purpose, the tax treatment of a transaction is the purported or claimed U.S. federal income tax treatment of the transaction and the tax structure of a transaction is any fact that may be relevant to understanding the purported or claimed U.S. federal income tax treatment of the transaction.

This Presentation is not intended to provide, and should not be relied upon for, legal, tax, regulatory, financial, accounting or investment advice. Prior to entering any transaction (a "Transaction"), you should determine, without reliance upon CRC-IB, the economic risks and merits (and independently determine that you are able to assume these risks) as well as the legal, tax and accounting characterizations and consequences of any such Transaction. In this regard, by accepting this Presentation, you acknowledge that (a) CRC-IB is not in the business of providing (and you are not relying on CRC-IB for) legal, tax or accounting advice, (b) there may be legal, tax or accounting risks associated with any Transaction, (c) you should receive (and rely on) separate and qualified legal, tax and accounting advice and (d) if applicable, you should apprise senior management in your organization as to such legal, tax and accounting advice (and any risks associated with any Transaction) and our disclaimers to these matters.

This Presentation does not purport to be complete on any topic addressed and does not contain risk disclosures that are material to any particular Transaction. The information in the Presentation is provided to you as of the dates indicated and neither CRC-IB may not update the information after its distribution, even in the event that the information becomes materially inaccurate. Certain information contained in the Presentation includes calculations or figures which have been prepared by CRC-IB and have not been audited or verified by a third party. In addition, some information is provided by third party sources and although believes to be reliable, has not been independently verified. Use of different methods for preparing, calculating or presenting information may lead to different results and such differences may be material.

CRC-IB is engaged in or may be engaged in the future in investment banking, securities trading, brokerage activities and principal investing activities, as well as providing financial advisory services. The Presentation is not an expressed nor an implied agreement by CRC-IB to act in any capacity with respect to you, and any such agreement shall only be as set forth in an executed engagement letter, the terms of which are to be agreed upon by you and CRC-IB. This Presentation in no way restricts CRC-IB from any other engagement, including acting in any capacity in a manner adverse to you. No fiduciary, advisory or agency relationship between CRC-IB, on the one hand, and you and your affiliates, employees, officers, directors, or stockholders on the other hand, has been created in respect of the Presentation, and none of your affiliates, employees, officers, directors, or stockholders may rely on the Presentation.



Securities offered through Carbon Reduction Capital, LLC, d/b/a/ CRC-IB, a Maryland limited liability company.
The firm is a member of FINRA and SIPC and is registered as a broker dealer with the SEC. All rights reserved.

crc-ib.com

