UNC ALPHA CHALLENGE

Equity Team 15
Long: First Solar (NASDAQ: FSLR)
Current Price: $249.9 (11/23/2025) | 1Y Price Target: $396.6 (58.7% Upside)

December 2025

BUSINESS DESCRIPTION

Business Description

Company Description

First Solar (FLSR) is an American company that designs, manufactures and sells thin-film solar panels using cadmium telluride (CdTe) technology. It is the largest producer in the U.S. and a global leader in this segment, with factories in the U.S., India, Malaysia, and Vietnam.

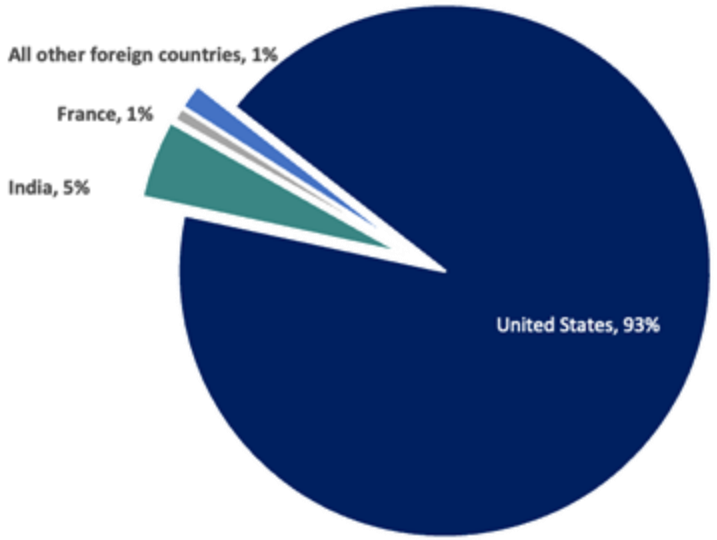
- FSLR is a solar energy manufacturer positioned as a key winner in the global transition toward clean, scalable, and cost-competitive energy.

Key Financials and Trading Statistics

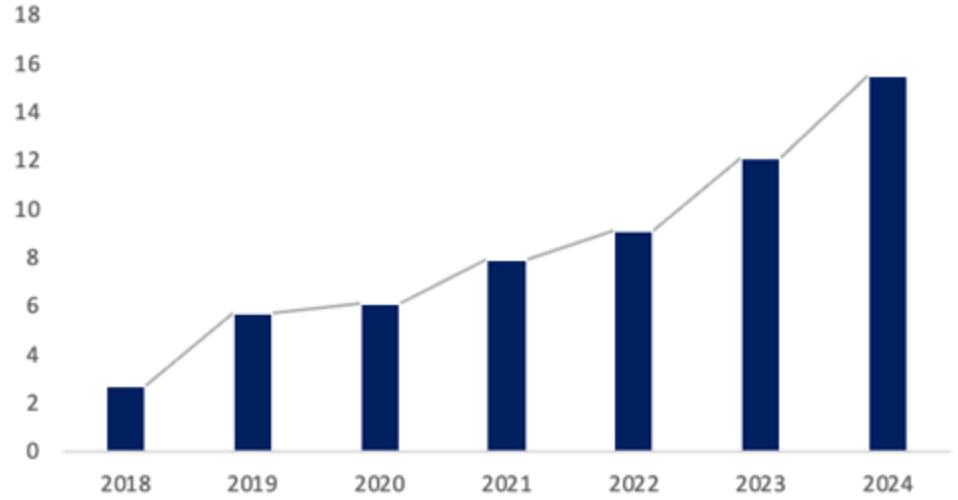
Current Price ($,11/23/2025)	249.9	52W High/Low ($)	281.6/116.6
Market Cap	$26.8 billion	Avg. Volume (M)	2.251
Enterprise Value	$25.3 billion	Float (%)	94.54%
´26E Revenue	$6,309 billion	NTM EV/EBITDA	7.2x
´26E EBITDA	$3,289 billion	NTM P/E	11.4x
EBITDA Margin (%)	52%	LTM Q3´25 ROA (%)	7.0%
2026E EPS ($)	$24.4	Dividend Yield (%)	0.0%

Revenue Breakdown and Key Metrics

Revenue breakdown by geography
— % of Sales



Modules Produced
— GW



Source: FSLR, Capital IQ

THESIS

Investment Thesis: Structural Moats

Global energy demand is surging due to **AI, digitization, and data centers**, driving a shift where solar power now leads global energy investment. First Solar (FSLR), the largest U.S. producer of thin-film solar panels, benefits from four structural advantages that secure its long-term cost and market dominance.

1. AI Data Center Power Demand

The "AI Power Shock" creates a **structural supply deficit** that only FSLR can bridge due to its 18-month deployment speed vs. 7-10 years for gas/nuclear.

2. Policy-Engineered Monopoly

Bipartisan consensus secured FSLR's 45X manufacturing credit, creating a regulatory moat and pushing its **Net Manufacturing Cost to near-zero.**

3. The India Fortress

FSLR's vertically integrated factory is protected by India's ALMM/PLI barriers, securing a high-yield market that hedges geopolitical risk in the US.

4. Technological Cost Dominance

The CdTe roadmap (CuRe, Tandem) closes the efficiency gap while the **closed-loop recycling system** provides an ESG premium and resource hedge.

Source: FSLR Investor Relations, U.S. Energy Information Administration, Congressional Records (OBBBA, S. 4873).

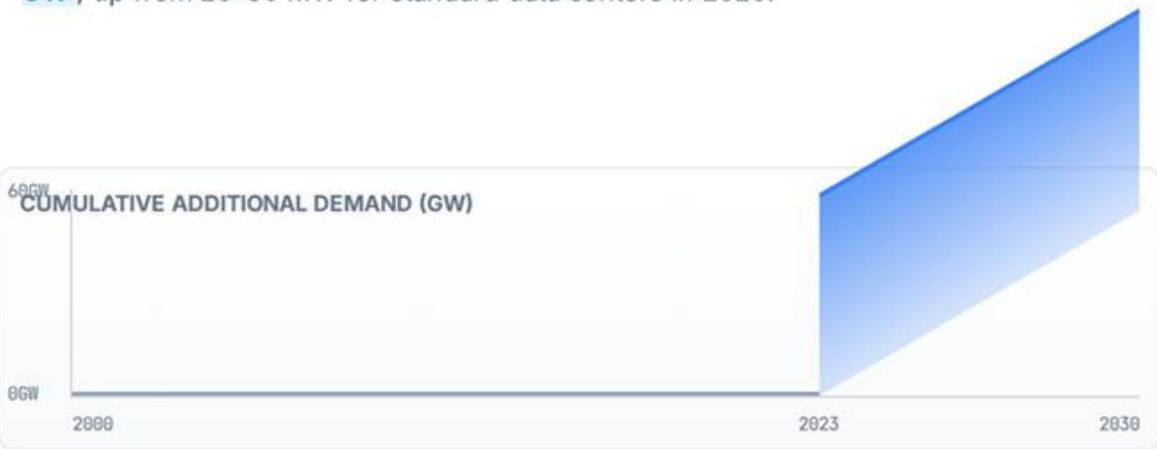
INVESTMENT THESIS 1: CRITICAL INFRASTRUCTURE FOR THE AI POWER DEFICIT

Structural Supply Imbalance (Demand Shock vs. Asset Scarcity)

THESIS: The US power market is entering a structural supply deficit driven by AI load growth. First Solar (FSLR) is the only scalable generation asset capable of deployment within the 2025–2028 window, as alternative baseload technologies (Gas/Nuclear) face insurmountable lead-time constraints.

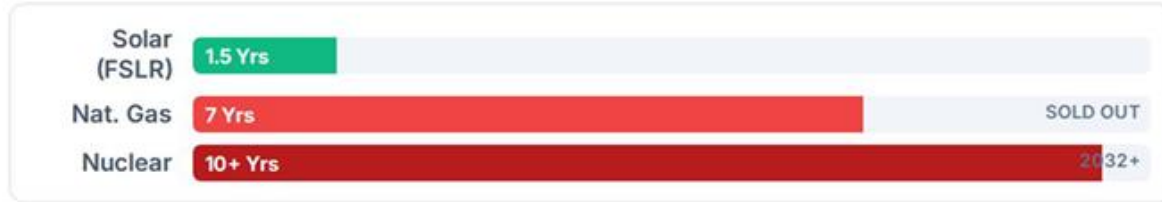
The "AI Power Shock" Inflection

- **Historical Baseline:** For two decades (pre-2023), US electricity demand was effectively flat (**0% growth**).
- **Current Projection:** Demand is projected to grow by **30–60 GW by 2030** , equivalent to adding two Californias worth of demand in 5 years.
- **Unit Economics:** A single AI training cluster (e.g., Microsoft/OpenAI) now requires **1 GW** , up from 20–50 MW for standard data centers in 2020.



The "Turbine Cliff": Why Gas & Nuclear Are Unavailable

- **Natural Gas Bottleneck:** Manufacturers like GE Vernova and Siemens are **sold out until 2029–2030** . Years of under-investment mean they physically cannot meet the AI spike.
- **Nuclear Timeline:** SMRs are experimental with optimistic deployment in 2030–2032. Restarts like Three Mile Island add negligible capacity relative to the ~40 GW required.
- **Implication:** Even if a hyperscaler permits a gas plant today, it cannot come online until 2030.



First Solar as the "Default" Bridge

Deployment Speed: First Solar utility-scale PV can be deployed in **12–18 months**. In the absence of baseload, hyperscalers are adopting a "Solar + Storage" model (FSLR + Tesla Megapacks) to simulate 24/7 power profiles.

INVESTMENT THESIS 1: CRITICAL INFRASTRUCTURE FOR THE AI POWER DEFICIT

Inelastic Demand & Political Durability

MECHANISM: Data center customers prioritize speed and compliance over cost, decoupling FSLR's pricing from global commodity markets. Concurrently, FSLR's domestic manufacturing status positions subsidies as essential national defense spending, insulating them from political repeal.

Customer Bifurcation & Pricing Power

- **The Premium Market:** Approximately **30–35% of FSLR's backlog** is derived from Data Center/Tech customers (Amazon, Microsoft, Google) via developers like Intersect Power and NextEra.
- **Price Inelasticity:** These customers prioritize speed and compliance over cost. FSLR's Average Selling Price (ASP) has remained sticky at ~$0.30/watt, maintaining a strategic premium over the **tariff-adjusted US import floor (~$0.26/watt)**.

STRATEGIC PREMIUM VS IMPORT FLOOR

The Cost-of-Delay Arbitrage

- **Financial Logic:** A 100 MW AI data center generates **$30M–$50M in monthly revenue**. Every day of operation is critical.
- **Risk Calculation:** A 3-month customs delay on Chinese panels (due to UFLPA risks) results in ~$120M in lost revenue.
- **The Premium:** Paying the resulting **$0.04/watt spread (~$4M total)** for domestic First Solar panels acts as insurance against this loss.

REVENUE LOSS RISK
~$120M
3-Month Customs Delay

>

SPREAD COST
~$4M
Domestic Premium

Strategic Protection (National Security Asset)

The US government views energy as the binding constraint in the AI arms race. Throttling FSLR (via subsidy repeal) would choke the only rapid supply of power hardware. Section 45X credits are viewed not as "Green Subsidies," but as **defense subsidies** similar to those for Lockheed Martin, ensuring domestic energy dominance.

INVESTMENT THESIS 1: CRITICAL INFRASTRUCTURE FOR THE AI POWER DEFICIT

While Competitors Talk, First Solar Builds: 17.7 GW US Capacity by 2027

EXECUTION: First Solar is converting "paper promises" into real assets. By voluntarily exiting low-margin international markets to concentrate 100% of volume in the protected US zone, FSLR maximizes exposure to high-value data center demand and manufacturing tax credits.

Domestic Capacity Ramp (The "Iron in the Ground")

- **The Growth Sprint:** US capacity is scaling rapidly from ~11 GW (2024) to **17.7 GW (2027)**.

Ohio (Factories 1-3) ● Active (Hub)	**Alabama (Fac 4)** ● Active (Sep '24)
Louisiana (Fac 5) ● Active (Aug '25)	**S. Carolina (Fac 6)** ● Const (H2 '26)

Strategic Allocation: The "Fortress" Pivot

- **Exiting Commodity War:** FSLR is voluntarily **cutting 1 GW** of international production (Vietnam/Malaysia) in 2025.
- **The Logic:** Abandoning low-margin spot markets to reallocate 100% of volume to the **Protected US Zone**.
- **Result:** Maximizing exposure to Section 45X Tax Credits (Manufacturing) and high-ASP Data Center Demand.

TOTAL BACKLOG
~54 GW
Sold Out > 2028

CONTRACTED REVENUE
$16.4B
Future Sales

NEW BOOKINGS PRICING
$0.309/watt
vs $0.26 Floor

Backlog as a Revenue Vault

With 54 GW sold out through 2028, First Solar's revenue visibility is unmatched in the sector. This isn't speculative pipeline; it is contracted capacity at premium pricing ($0.309/watt), completely insulated from commodity price fluctuations.

TOTAL VALUE
$16.4B

INVESTMENT THESIS 2: THE BIPARTISAN "INDUSTRIAL FORTRESS"

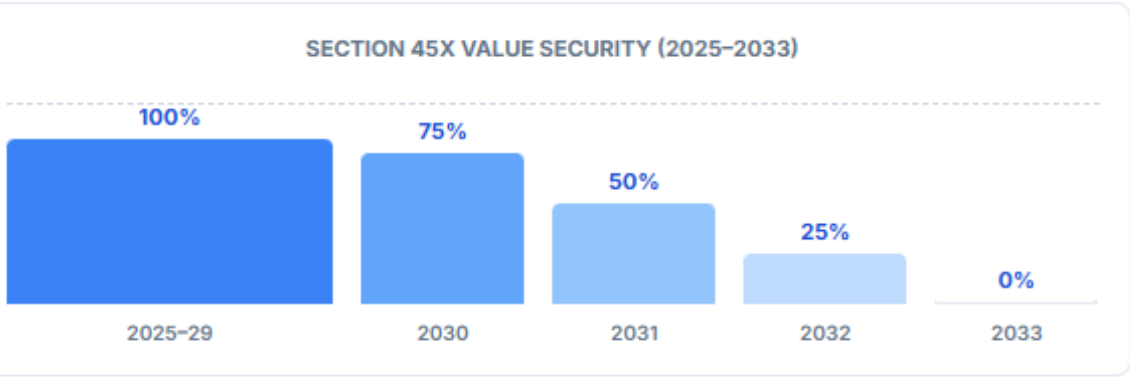
The "One Big Beautiful Bill" & Section 45X Security

Solar Manufacturing is "Industrial Policy," Distinct from "Green" Subsidies

THESIS: First Solar benefits from a structural "Policy Clearing" following the July 2025 OBBBA. By bifurcating the IRA into "Industrial Policy" (Protected) and "Consumer Policy" (Repealed), the administration—supported by a bipartisan coalition of Rust Belt Democrats and Deep South Republicans—has locked in Section 45X credits and strict Domestic Content rules.

The Legislative Settlement (July 4, 2025)

- **The Event:** Trump signed OBBBA, splitting "Winners" vs "Losers."
- **The Winner (45X):** Credits **RETAINED** for solar components.
- **The Losers:** Killed Wind credits & Consumer EV subsidies (30D).
- **Implication:** 45X is "Defense Industrial Base," not a climate handout.



The "Red State Firewall"

- **Strategy:** FSLR located 100% of US mfg in Trump-voting states.

OH	**The "Mothership" (Perrysburg)** ~2,500 Jobs • **Rep. Latta (R-OH)**	Safe
AL	**The Growth (Trinity)** ~800 Jobs • **Sen. Tuberville (R-AL)**	Protected
LA	**The Expansion (Iberia Parish)** ~700 Jobs • **Sen. Cassidy (R-LA)**	Trade Weapon

Political Alpha: Sen. Cassidy framed credits explicitly as a "trade weapon against China," aligning FSLR with the America First agenda.

The Result: A Regulatory Monopoly

The survival of 45X amidst a broader repeal creates a high barrier to entry for competitors lacking this specific political coverage.

INVESTMENT THESIS 2: THE BIPARTISAN "INDUSTRIAL FORTRESS"

The Bipartisan "Double Lock" & Policy Outlook

A Convergence of "America First" and "Pro-Union" Agendas

The "Unlikely Alliance" (Brown-Vance)

- **The Phenomenon:** On solar protectionism, Senators Sherrod Brown (D-OH) and VP JD Vance (R) act as the same policymaker, creating a unified political front.
- **Shared Mechanism:** Both championed **S. 4873** (American Tax Dollars for American Solar Manufacturing Act) to block Chinese components from US tax credits.
- **The Consensus:** While motivations differ, the policy conclusion is identical: **Strict Trade Enforcement**.

Result: **A "Double Lock" on Industrial Protectionism** regardless of election outcomes.

Potential Policy Upside

CUSTOMER PREMIUM CAPTURE

Tie-Breaker for the ITC Bonus

The Lever: The 10% ITC Domestic Content Bonus is a major incentive for utility developers.

The Possibility: If the administration enforces the rule strictly (requiring 100% US wafers/cells), FSLR becomes the **sole reliable enabler** of the bonus.

Potential Result:
Significant Margin Tailwind

Takeaway: The "Floor" is Safe, The "Ceiling" is Uncapped

The bipartisan alliance secures the current subsidy baseline (the floor). Any move toward stricter enforcement acts as pure, uncapped upside potential for First Solar's margins, without being priced in as a certainty.

INVESTMENT THESIS 2: THE BIPARTISAN "INDUSTRIAL FORTRESS"

Supply Chain Localization (Meeting the Mandate)

Moving from "Global Sourcing" to "Regional Ecosystems"

THE STRATEGY: First Solar has forced Tier 1 suppliers to physically co-locate factories near US hubs ("The Satellite Strategy") to insulate against logistics shocks and meet the strict domestic content thresholds of the OBBBA.

The "Satellite" Strategy (Co-Location)

- **Steel: Ice Industries (LA)** and **OMCO Solar (AL)** built dedicated plants to feed local factories.
- **Glass: Vitro Architectural Glass** restarted Pennsylvania production lines specifically for Series 7.
- **Semiconductor: 5N Plus (Canada)** secures Cadmium Telluride from a "friendly shore," avoiding China entirely.

The "Finishing Hub" (South Carolina)

- **New Asset:** $330M Facility in Gaffney, SC (Operational H2 2026).
- **Strategic Value:** Onshores the "finishing" (frames/junction boxes) of international Series 6 modules.
- **Purpose:** Ensures volume access to US market **without triggering FEOC penalties**.

Step 1: Import Volume
Series 6 laminates arrive from Malaysia/Vietnam (No Frame).

Step 2: SC Finishing Hub
US Steel Frames & Junction Boxes applied in Gaffney, SC.

Step 3: Market Access
Product classified as "US Finished," avoiding tariff barriers.

Strategic Moat: FEOC Immunity

By localizing the final stage of production in South Carolina, First Solar effectively "washes" its international volume of regulatory risk, ensuring 100% of its supply can serve the US market tariff-free.

INVESTMENT THESIS 3: INDIA - THE POLICY-PROTECTED, HIGH-YIELD HEDGE

The India Fortress (Policy & Execution)

India's "Parallel Wall" Creates a Non-Chinese Monopoly

THESIS: India is not a "subsidy-free" market for First Solar; it is a "different subsidy" market. The company has successfully executed a major strategic pivot, building a fully integrated factory inside India's own protectionist barriers (ALMM/PLI). This domestic position, coupled with the inherent climate advantage of CdTe, secures a high-yield market that hedges against potential long-term policy shifts in the US.

₹ The Strategic Pivot (Execution)

- **Investment:** FSLR built a $700 million factory in **Tamil Nadu** (commissioned 2024) to be a domestic player in India.
- **Scale:** The Chennai facility provides **3.3 GW** of fully integrated manufacturing capacity.
- **Hedge:** This factory was built to be **Supply Chain Independent of China**, insulating FSLR from India-China border tensions and trade wars.

India's Protectionist Moats

- **ALMM Rule:** Effectively **bans Chinese manufacturers** from selling to government-backed projects.
- **FSLR Status:** The Chennai facility is **approved on the ALMM list**, granting restricted market access.
- **PLI Subsidy:** India offers cash subsidies for domestic mfg. FSLR awarded **highest tier**.

Strategic Conclusion: Geopolitical Hedge

India serves as a crucial geopolitical hedge: If US policy falters, FSLR has a fortress in India; if Indian demand slows, they can ship high-quality, China-free product to the US market.

INVESTMENT THESIS 3: INDIA - THE POLICY-PROTECTED, HIGH-YIELD HEDGE

The CdTe Climate Advantage & LCOE Win

Generating 5-8% More Energy in the World's Hottest, Humid Regions

Temperature Resilience

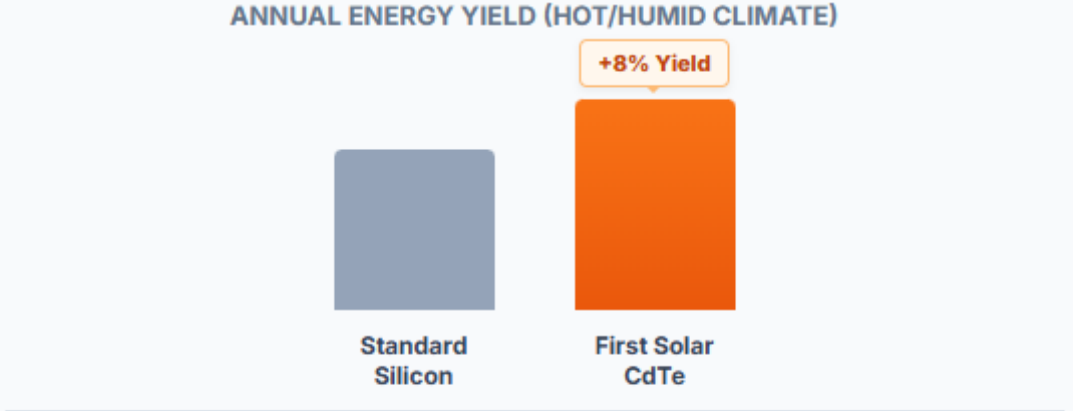
India's solar belt (Rajasthan, Gujarat) is extremely hot. Traditional Silicon panels lose significant efficiency at high temperatures (>65°C), whereas FSLR's CdTe is **far more resilient** to thermal degradation.

Humidity Gain (Spectral Shift)

India's monsoon season presents high humidity. CdTe's unique **"spectral shift"** capability allows it to harvest light wavelengths that water vapor blocks, giving it a distinct energy yield advantage over silicon in humid conditions.

LCOE Dominance

Indian utilities prioritize Levelized Cost of Energy (LCOE). Despite any slight upfront cost premium, FSLR's **higher energy yield** over a 25-year project life makes it the cheaper option and the winner on LCOE.



Operational De-Risking: Water Security

The Chennai factory is the world's first **net-zero water withdrawal** solar plant, using 100% recycled sewage water. In water-stressed India, this is a critical operational hedge against resource scarcity shutdowns.

INVESTMENT THESIS 4: THE TECHNOLOGICAL MOAT & FUTURE COST DOMINANCE

The Technological Roadmap: Breaking the 20% Ceiling

From "Single-Material" to "Hybrid" - Stacking Tech for Future Gains

THESIS: First Solar's investment in next-generation Cadmium Telluride (CdTe) chemistry and Tandem cells is closing the efficiency gap with silicon. This roadmap, combined with an unparalleled IRA subsidy advantage, makes FSLR the only solar company with a clear path to an effective zero cost of goods sold (COGS) in the US market.

2026

"CuRe" Chemistry

Group V Doping Upgrade

THE TECH

Replacing unstable Copper (Cu) doping with Group V elements (e.g., Arsenic/Antimony) to stabilize the semiconductor core.

THE IMPACT

Degradation drops to **~0.2%–0.3% per year** (vs. ~0.5% for silicon), significantly extending asset life.

Higher Lifetime Energy Yield

LATE 2026

Quantum Dot Bifaciality

Partnership w/ UbiQD

THE TRICK

Nanoparticles in the encapsulant absorb UV/blue light (unused by CdTe) and re-emit it as red light (highly efficient for CdTe).

THE RESULT

Creates an **artificial spectral shift**, boosting effective efficiency and helping close the bifacial gap with silicon.

Efficiency Step-Change

2027+

Tandem Perovskites

The Holy Grail (Evolar Acquisition)

THE SOLUTION

Stacking a Perovskite top cell (blue light) onto a CdTe bottom cell (IR light) to maximize spectrum capture.

THE GOAL

Move module efficiency from ~19% to a future **~30%**, leveraging FSLR's glass sealing expertise to solve stability issues.

Market Dominance

INVESTMENT THESIS 4: THE TECHNOLOGICAL MOAT & FUTURE COST DOMINANCE

Cost Dominance & The COGS Advantage

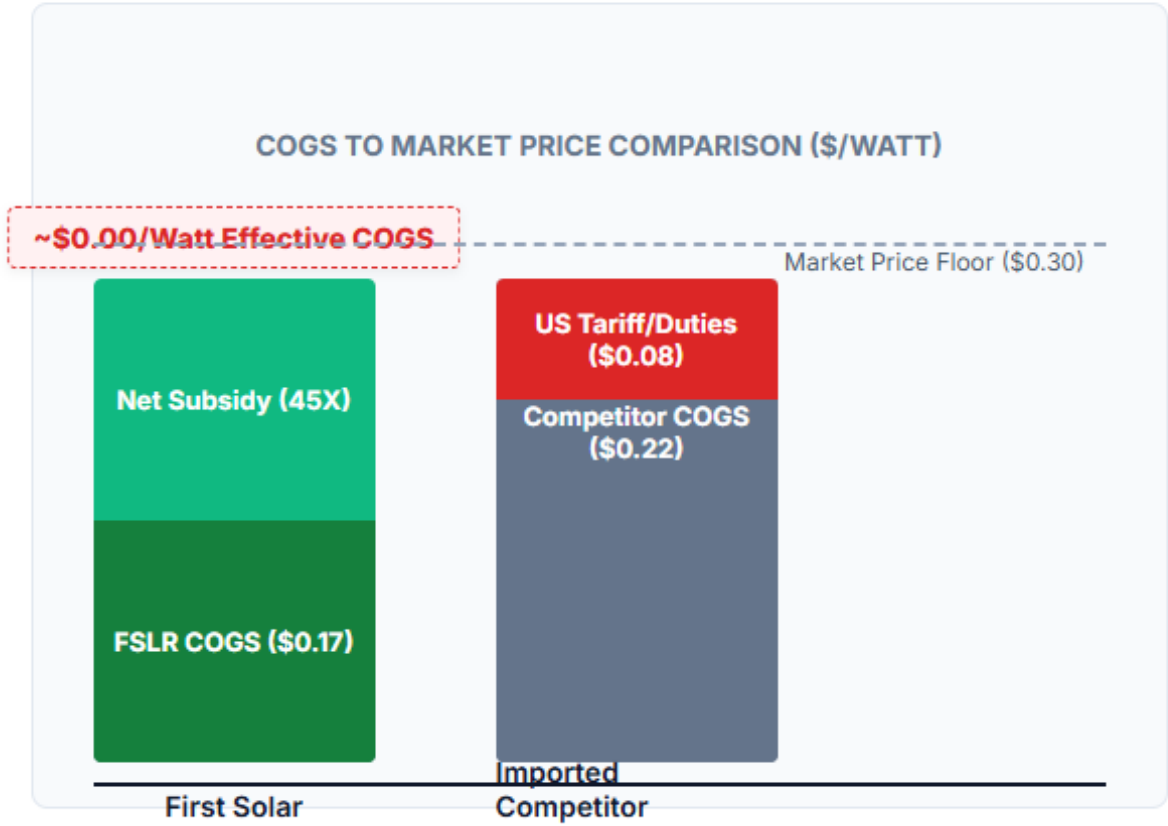
Subsidies Floor Costs at ~$0.00 while Tariffs Floor Competitor Prices at ~$0.30

The Policy-Engineered Margin Moat

- **Policy Intervention:** Global Chinese polysilicon costs ~$0.08–$0.10/watt, while FSLR's pre-subsidy COGS is ~$0.17/watt.
- **The Result:** US tariffs push Chinese "Landed" prices to ~$0.29–$0.33/watt (the market floor).
- **FSLR's Subsidy:** FSLR qualifies for the full IRA Section 45X Advanced Manufacturing Credit.
- **Total 45X Subsidy:** **~$0.17/watt.**

Effective Cost Conclusion

FSLR's **Effective Production Cost is ~$0.00/watt** ($0.17 COGS - $0.17 Subsidy), allowing them to generate a **46%+ Gross Margin** while selling at the market floor of ~$0.30/watt.



The Customer's Tie-Breaker (ITC Bonus)

- **The Lever:** The 10% ITC Domestic Content Bonus is a critical economic incentive for developers (e.g., ~$12M on a $120M project).

INVESTMENT THESIS 4: THE TECHNOLOGICAL MOAT & FUTURE COST DOMINANCE

Customer Alignment & Geographic Advantage

The Technology is Built to Dominate the Hottest, Hail-Prone US Markets

Geographic Concentration

FSLR's backlog is strategically concentrated in "Hot, Humid, and Hail-Prone" regions where CdTe's unique physics provide a tangible economic yield premium over silicon.

Heat & Hail Belt (Texas)

The ERCOT market, where summer peak pricing and severe weather demand both thermal resilience and durability.

Hot & Humid Belt (Southeast US)

Key markets like Georgia and Florida, where high water vapor content favors CdTe's spectral response.

Strategic International (India)

High ambient temperatures and monsoon seasons create the perfect "native habitat" for CdTe technology.

The Financial Yield Premium

1. The "Summer Peak" Gain

CdTe loses significantly less power in extreme heat than silicon. This generates relatively more power during critical **summer afternoon price spikes** (e.g., 4 PM in August in Texas), maximizing revenue when it matters most.

2. The "Humidity" Gain

CdTe is tuned to absorb light wavelengths that water vapor doesn't block. This creates a **~2–4% "Spectral Gain"** in humid conditions, outperforming even high-efficiency silicon panels in the Southeast US.

3. The "Hail" Gain

Series 7 uses a **Glass-on-Glass** sandwich structure, making it mechanically tougher than standard backsheet panels. Developers using FSLR often secure **lower insurance premiums** due to the reduced risk of micro-cracks and hail damage.

VALUATION

Valuation Overview

Valuation Summary 2026: Price Target

		Bear	Base	Bull
PE Multiple	2027 EPS	$18.2	$29.1	$29.8
	Forward P/E	12.0	14.0	16.0
	Price Target	**$218.5**	**$407.1**	**$477.4**
DCF Valuation	2027 EBITDA	3,006	4,172	4,253
	Forward EV/EBITDA	7.3	10.4	13.3
	Enterprise Value	21,979	43,313	56,713
	Net Debt	-1,366	-1,872	-1,476
	Equity Value	20,613	41,441	55,237
	Shares Outstanding	107	107	107
	Price Target	**$192.1**	**$386.2**	**$514.8**
Returns	Avg. Price Target	**$205.3**	**$396.6**	**$496.1**
	Current Price	$249.9	$249.9	$249.9
	Upside/Downside	**-17.8%**	**58.7%**	**98.5%**

Valuation weighs forward P/E multiples and DCF valuation to determine price targets across the three different cases

- **<u>Base case incorporates:</u>**
  - 14.0x forward P/E multiple, above historical average and 2024's 12.0x multiple, along with a 2027 EPS of $29.1
  - DCF incorporates 10% WACC, 2% growth, and implies a 10.4x exit multiple

This lands the average (50/50 weighted) **Price Target for the Base Case at $396.6, which implies a 58.7% upside tu current valuation.**

	2026			2027		
	Forecast	Consensus	% Difference	Forecast	Consensus	% Difference
Revenue	6,309	6,164	2%	7,276	7,051	3%
% Growth	21%	21%	1%	15%	14%	6%
EBITDA	3,289	3,209	2%	4,172	4,012	4%
% Margin	52%	52%	0%	57%	57%	1%
EPS	24.4	22.5	8%	29.1	28.5	2%

RISKS

Risks and Mitigants

Key Risks

- **Heavy reliance on U.S. public policy and tax incentives; potential reductions could slow growth.**
- **Technological competition from more efficient silicon-based solar producers.**
- **Supply chain exposure to volatile raw materials such as cadmium and tellurium.**
- **Possible delays in production expansion that could hurt delivery timelines and margins.**

Key Mitigants

- **Strong domestic positioning aligns with U.S. industrial and energy independence goals, supporting continued policy backing.**
- **Proprietary thin-film technology offers cost and temperature performance advantages over traditional silicon.**
- **Diversified global manufacturing footprint (U.S., India, Malaysia, Vietnam) helps manage material sourcing and supply chain risk.**
- **Solid balance sheet and robust cash position provide flexibility to weather policy or market fluctuations.**
- **Long-term structural demand growth for clean, scalable energy supports sustained market relevance and profitability.**

Source: FSLR, Capital IQ

APPENDIX

INVESTMENT THESIS 1 SUPPORTING POINTS: APPENDIX A

Generation Technology Deployment Timelines

Data supporting the "Speed to Power" advantage

TECHNOLOGY	TIME TO DEPLOY	PRIMARY BOTTLENECK	AVAILABILITY (2025-29)
First Solar (PV)	**12 – 18 Months** Fastest Deployment	**Interconnection** Transmission Queues	✓ AVAILABLE
Natural Gas	**4 – 6 Years** Permitting + Build	**Turbine Shortage** Sold out to 2030	⊘ UNAVAILABLE
Nuclear (SMRs)	**8 – 12 Years** Long-Term Only	**Regulatory** Approval & Construction	FUTURE (2032+)

KEY INSIGHT

First Solar is effectively the **"Emergency Oxygen"** for the AI industry; it is the only scalable option available **now** to meet the immediate power deficit.

INVESTMENT THESIS 1 SUPPORTING POINTS: APPENDIX B

Unit Economics of "Cost of Delay"

Quantifying why Hyperscalers pay a premium for domestic certainty.

SCENARIO **100 MW Hyperscale Data Center Project ($30M–$50M Monthly Revenue)**

Option A (Import)

~$0.26/watt

Source: Chinese/SE Asia Import

Risk: UFLPA Detention (Customs)

Impact: Potential 3-month delay in power-up

FINANCIAL IMPACT (LOSS)

-$120M

Option B (First Solar)

~$0.30/watt

Source: Ohio/Alabama (Domestic)

Cost: $0.04 Premium x 100MW

Benefit: Bypasses customs entirely (Zero Risk)

PREMIUM COST

-$4M

Rational Conclusion: The $4M premium is effectively a cheap insurance policy paid to protect against a catastrophic $120M revenue loss.

INVESTMENT THESIS 1 SUPPORTING POINTS: APPENDIX C

Backlog & Customer Segmentation

Deriving the "Shadow" Data Center exposure from the order book.

Utility / Regulated	~55%
Big Tech / Data Center	~35%

Customer Proxies

Intersect Power 7.3 GW ORDERED

Portfolio heavily weighted (>80%) to Hyperscalers like **Amazon** and **Meta**. FSLR is their primary hardware partner.

NextEra Energy 20% ALLOCATION

Disclosed that ~20% of their total renewables backlog is now dedicated specifically to "Technology and Data Center" customers.

Silicon Ranch 4 GW ORDERED

Primary supplier for data centers in the US Southeast (e.g., Georgia/Tennessee server alleys).

INVESTMENT THESIS 1 SUPPORTING POINTS: APPENDIX D

Product & Regulatory Moat

Why the product fits the Industrial/Utility niche (and avoids residential risks).

Series 7 Specification

Form Factor

~2.3 meters tall. Heavy and unwieldy, making it physically unsuitable for residential rooftops. This is a pure-play industrial tool.

Installation Speed

Uses proprietary "SpeedSlot" mounting for robotic/tracker installation, reducing labor costs for utility developers.

Strategic Benefit

Completely insulates FSLR from the residential solar market crash caused by high interest rates.

Utility-Scale Installation Only

Compliance Moat (UFLPA)

The Issue

Tech giants have "100% Carbon Free" and anti-forced labor goals. Silicon-based supply chains are notoriously opaque.

The Solution: CdTe Chemistry

First Solar's Cadmium Telluride (CdTe) technology uses **zero silicon**. It is chemically distinct from Chinese panels.

The Benefit

Creates a clean audit trail for compliance officers. No complex tracing required—if it's FSLR, it's compliant.

Data Center Grade Compliance

INVESTMENT THESIS 1 SUPPORTING POINTS: APPENDIX E

First Solar’s Domestic Infrastructure Map (2025)

Detailed breakdown of the largest manufacturing footprint in the Western Hemisphere.

FACILITY	LOCATION	CAPACITY	STATUS	ROLE
Factories 1-3	Perrysburg, OH	~7.0 GW	ACTIVE	R&D + Primary Mfg
Factory 4	Trinity, AL	3.5 GW	ACTIVE	Southeast Hub
Factory 5	Iberia Parish, LA	3.5 GW	ACTIVE	Deep South Hub
Factory 6	Gaffney, SC	3.7 GW	CONST. (2026)	Finishing / Assembly
TOTAL US	--	**17.7 GW**	--	**Largest in West. Hem.**


Factories 1-3: Perrysburg, OH

KEY INSIGHT

FSLR’s capacity is not "planned"—it is **built**.

14 GW is already online today, with the final 3.7 GW (SC) fully funded and under construction.

INVESTMENT THESIS 1 SUPPORTING POINTS: APPENDIX F

Pricing Power & Margins: Decoupling from Commodity

Understanding the structural premium over global spot prices.

THE MARKET REALITY

Global spot prices (~$0.09) are irrelevant to US enterprise buyers due to tariffs and UFLPA risks. The real competitor is the Tariff-Adjusted Import Floor (~$0.26).

WHY THE PREMIUM PERSISTS

Customers willingly pay the **+$0.05/watt spread** to:

- Eliminate UFLPA seizure risk (Customs delays).
- Guarantee eligibility for the Domestic Content Bonus (IRA).

Margin Impact: This spread flows directly to Gross Margins, acting as the structural support for FSLR's **>50% long-term margin target**.

INVESTMENT THESIS 1 SUPPORTING POINTS: APPENDIX G

Customer Ecosystem Breakdown

The "Whale" Strategy: Tier 1 Developers & Hyperscale End-Users

THE "MIDDLEMEN" (DEVELOPERS)

Intersect Power
Delivering through 2029
~7.3 GW

Lightsource bp
Key partner despite pivots
~5.4 GW

Silicon Ranch
US Southeast Projects
~4.0 GW

NextEra Energy
Largest US Renewable Dev
Major Cust.

Swift Current / Longroad
Repeat Customers
Multi-GW

BUILDS FOR

THE END-USERS (OFFTAKERS)

Big Tech (Data Centers)

Amazon, Microsoft, Google, Meta

The Driver: "100% Carbon Free" goals require gigawatts of clean power to offset surging AI emissions.

**Amazon recently signed FSLR deal for Oregon/Ohio data centers.*

Regulated Utilities

Duke Energy, Southern Co, TVA

The Driver: Prioritizing FSLR for its reliability and domestic supply chain security over cheaper, riskier imports.

INVESTMENT THESIS 2 SUPPORTING POINTS: APPENDIX A

The "Trump Risk" Matrix (Post-OBBBA)

Status of key climate/industrial credits following the July 2025 legislation.

CREDIT	PURPOSE	STATUS	RISK / IMPACT TO FSLR
45X	Advanced Manufacturing Production Subsidy	**SAFE**	**Low.** Retained for solar manufacturing (wafers, cells, modules); repealed for Wind. Cash flow secure through step-down to 2033.
ITC (48E)	Investment Tax Credit (Capex Subsidy)	**RESTRICTED**	**Medium.** Sunset clause introduced (Dec 31, 2027) unless construction began by July 4, 2026. Acceleration of pipeline deployment required.
Dom. Content	Bonus Credit for US/Domestic Supply Chain	**STRENGTHENED**	**Positive.** Requirements tightened to favor pure US supply (FSLR's core advantage), creating a higher regulatory moat against Chinese competitors.
EV Credits	Consumer Tax Credit (Section 30D)	**REPEALED**	**None Direct.** Proves administration preference for industrial subsidies (45X) over consumer handouts (EVs), strengthening the thesis that FSLR's core subsidies are politically secure.

Summary: The OBBBA political compromise clearly delineated "Industrial Policy" (retained) from "Consumer Policy" (repealed), structurally de-risking FSLR's manufacturing cost advantages.

INVESTMENT THESIS 2 SUPPORTING POINTS: APPENDIX B

The "Safe Harbor" Demand Pull-Forward

Why the ITC restrictions help First Solar in the short term.

The "Sunset" Clause

The OBBBA officially ends the Investment Tax Credit (ITC) for any solar project not online by 2027, **unless** they have established "beginning of construction" by July 4, 2026.

The "Safe Harbor" Rush

To meet the "beginning of construction" test (IRS 5% rule), developers are scrambling to buy domestic panels **now**. Spending 5% of project CAPEX on FSLR modules today locks in the 30% ITC for future years.

Strategic Impact

This regulatory cliff creates a massive, artificial backlog for FSLR, effectively insulating the order book from broader market demand volatility for the next **18 months**.

CURRENT STATE (NOV 2025)

The "Rush" Begins

Developers initiating procurement orders to reach the 5% Safe Harbor threshold.

JULY 4, 2026

Construction Deadline

Hard Stop. Projects must have incurred 5% of cost by this date to qualify for ITC under new rules.

DEC 31, 2027

ITC Expiration (Sunset)

30% Credit expires for all projects that missed the Safe Harbor window.

PANIC BUYING ZONE

INVESTMENT THESIS 2 SUPPORTING POINTS: APPENDIX C

Political Protection Scorecard

Data on the specific members protecting FSLR jobs.

STATE	FACILITY	JOBS	PROTECTOR	POLITICAL LEVERAGE
Ohio	Factories 1-3	**~2,500**	**Rep. Bob Latta (R)**	Energy & Commerce Comm. (**Veto power** on key legislation)
Alabama	Factory 4	**~800**	**Sen. Tuberville (R)**	Armed Services Comm. (Leverage tied to **National Security**)
Louisiana	Factory 5	**~700**	**Sen. Cassidy (R)**	Finance Comm. (Control over **Tax Code/Credits**)

The "Wind vs. Solar" Trade: Sen. Tuberville specifically agreed to kill Wind credits (Midwest benefit) to save Solar credits (Alabama benefit), proving the credits are viewed as **regional industrial assets**, not interchangeable climate policy.

INVESTMENT THESIS 2 SUPPORTING POINTS: APPENDIX D

The Democratic "Union vs. Climate" Split

Why a Democrat win doesn't threaten the FSLR regulatory thesis.

The Conflict

"Union Wing" (Winning)	Prioritizes Jobs & Tariffs
"Climate Wing" (Losing)	Prioritizes Cheap Deployment

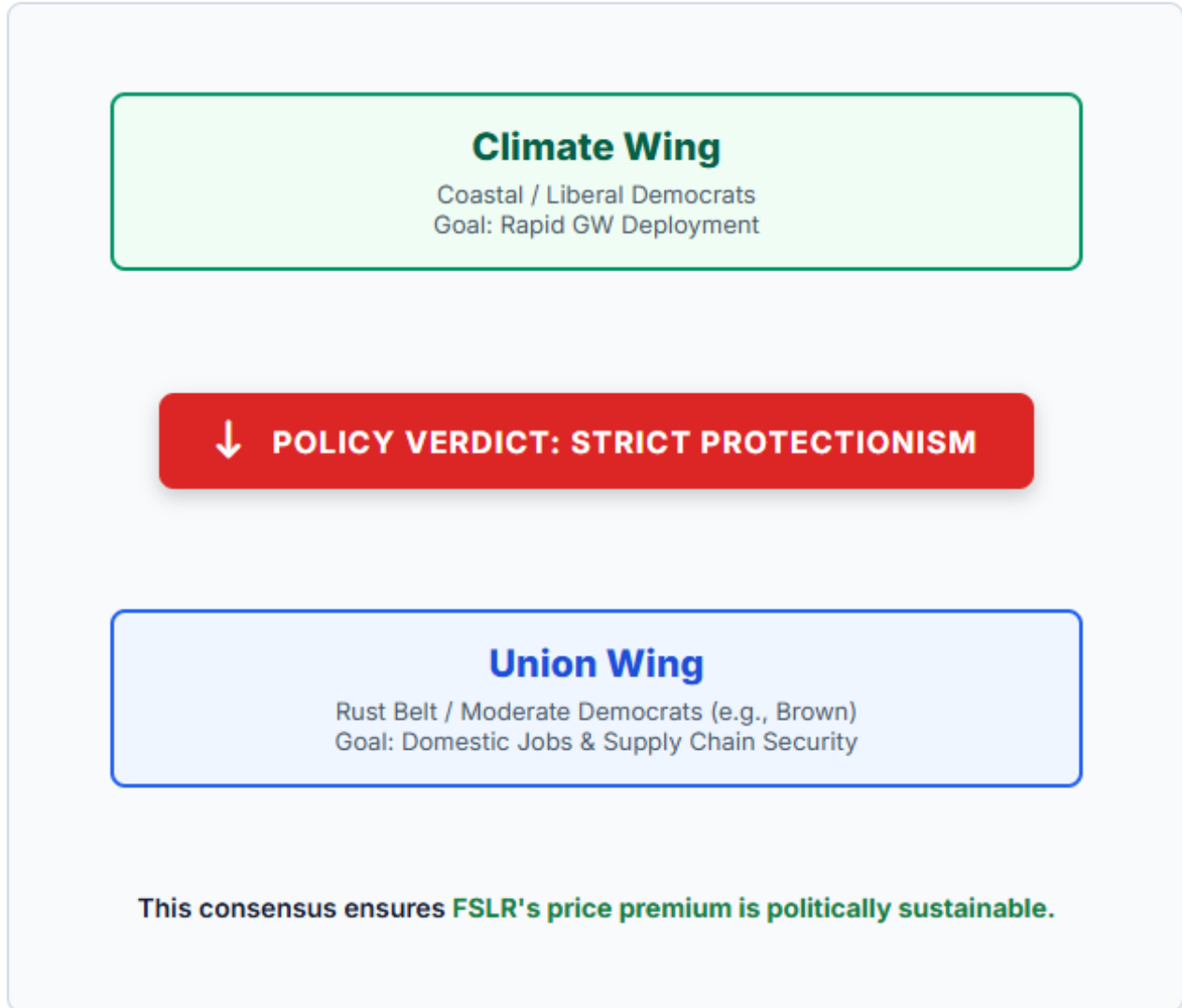
The Democratic party faced a fundamental internal conflict: protect high-wage domestic jobs (Union priority) or flood the market with cheap Chinese panels (Climate deployment priority).

The Verdict

The Biden-Harris administration's final acts (tightening **UFLPA/FEOC** enforcement) proved the **"Union Wing" won**. The Democratic platform now officially supports strict protectionism, aligning fully with the GOP on trade issues involving solar manufacturing.

Takeaway

The political risk is neutralized. FSLR's moat is now secured by a **bipartisan consensus** around industrial policy, making it immune to future changes in presidential administrations.



INVESTMENT THESIS 2 SUPPORTING POINTS: APPENDIX E

Domestic Content "Tie-Breaker" Math

The calculation developers run to justify paying FSLR a premium.

PROJECT: 100 MW SOLAR FARM ($120M TOTAL COST)	IMPORTED PANEL (COMPETITOR)	FIRST SOLAR (SERIES 7)
Panel Price	$0.28 / watt	$0.34 / watt (Premium)
Total Panel Cost (100 MW)	**$28 Million**	**$34 Million (+$6M Cost)**
Applicable ITC Rate (w/ Domestic Content)	30%	40% (w/ Bonus)
Total Tax Credit Benefit (30% of $120M) / (40% of $120M)	**$36 Million**	**$48 Million (+$12M Benefit)**
Net Savings / (Cost vs. Benefit)	--	**+$6 Million Net Win**

INVESTMENT THESIS 3 SUPPORTING POINTS: APPENDIX A

Policy Mechanisms (The "Parallel Wall")

Detailed breakdown of India's non-tariff barriers.

ALMM

APPROVED LIST OF MODELS & MFRS

THE RULE

Mandatory approval is required to sell panels to any **government-backed tender** in India (which currently accounts for the majority of utility-scale demand).

THE MOAT

The Indian government has effectively **banned Chinese manufacturers** from this list to reduce geopolitical dependence, creating a protected market for approved domestic players.

FSLR Status: **Chennai (3.3 GW) Approved**
Secures access to the most valuable market segment.

PLI Scheme

PRODUCTION LINKED INCENTIVE

THE RULE

Direct **cash subsidies** awarded to manufacturers who build fully vertically integrated solar factories within India, designed to boost domestic self-reliance.

STRATEGIC FIT

This subsidy serves as a direct substitute for the US "45X" credit, lowering FSLR's Cost of Goods Sold (COGS) in the Indian market and maintaining margins.

FSLR Status: **Highest Tier Awarded**
Only non-Indian company to receive top-tier status.

Strategic Implication: Together, ALMM restricts competition while PLI subsidizes production cost, creating a "Parallel Wall" of protection similar to the US Inflation Reduction Act.

INVESTMENT THESIS 3 SUPPORTING POINTS: APPENDIX B

Technology & LCOE Advantage

Quantifying the yield premium in hot/humid climates.

THE PHYSICS

Temperature Resilience

CdTe semiconductor technology is far more resilient than traditional silicon at operating temperatures **above 65°C**. This is a critical advantage in India's primary solar belts (Rajasthan and Gujarat), where ambient heat severely degrades silicon performance.

Spectral Shift (Humidity)

In high-water-vapor conditions (monsoon season), CdTe benefits from a "spectral shift," allowing it to harvest light wavelengths that water vapor typically blocks. This maintains energy production when silicon panels would drop off.

THE FINANCIALS

+5-8%

ANNUAL ENERGY YIELD PREMIUM

LCOE Impact

This energy yield premium directly translates to a lower **Levelized Cost of Energy (LCOE)** for the utility customer over the 25-year lifespan of the project. Even if FSLR panels have a slightly higher upfront cost, the superior generation makes them the most economical choice long-term.

The Verdict: While competitors compete on "price per watt" (CapEx), First Solar wins on "cost per MWh" (LCOE), aligning perfectly with utility incentives.

INVESTMENT THESIS 3 SUPPORTING POINTS: APPENDIX C

Execution & Operational Moats

Supply chain and water security details.

Supply Chain Independence

VERTICAL INTEGRATION MOAT

THE STRATEGY

FSLR's Chennai factory is **fully vertically integrated** (raw materials to finished panel under one roof).

THE BENEFIT

Unlike Indian competitors (Tata/Adani) who rely on Chinese cells, FSLR is not dependent on external supply chains, providing a **stable supply line** immune to India-China trade tensions.

Key Hedge: Mitigates geopolitical and logistical risk for Asian production volume.

Water Security

OPERATIONAL DE-RISKING

THE CERTIFICATION

The $700 Million Chennai factory is certified as the world's first **net-zero water withdrawal** solar plant.

THE BENEFIT

By using 100% **recycled sewage water**, FSLR de-risks its operational capacity in water-stressed regions of India, ensuring continuous production.

Key Hedge: Mitigates regulatory and environmental shutdowns due to resource scarcity.

These structural operational advantages provide FSLR a critical non-policy moat over all local and international competitors operating within India.

INVESTMENT THESIS 4 SUPPORTING POINTS: APPENDIX A

FSLR Efficiency Timeline (2010–2025)

The evolution from low-cost to high-performance.

PERIOD	KEY PRODUCT	MODULE EFFICIENCY	DESCRIPTION
2010–2012	**Series 2**	**~11.1%**	Small (0.72 m^2), frameless, baseline product.
2017–2019	**Series 6**	**17% – 18%**	**Major Leap.** Moved to a massive (2.47 m^2) form factor, significantly reducing "dead space."
2024–2025	**Series 7**	**19.3% – 19.7%**	Current flagship. Optimized for utility-scale. Highest cell efficiency **>20.6%**.

~80%

RELATIVE INCREASE

Driven by the introduction of **CuRe chemistry** and the strategic shift to a large-area form factor, positioning CdTe as a direct competitor to silicon efficiency.

INVESTMENT THESIS 4 SUPPORTING POINTS: APPENDIX B

Thermal & Spectral Performance Comparison

Detailed breakdown of relative efficiency loss.

TECH / PRODUCT EXAMPLE	MODULE EXAMPLE	TEMP. COEFF.	RELATIVE LOSS AT 65°C	OUTPUT %
Commodity Silicon	*Mono-PERC*	**-0.38% / °C**	**-15.2%**	**84.8%**
First Solar	*Series 7 (CdTe)*	**-0.32% / °C**	**-12.8%**	**87.2%**
Premium Silicon	*TOPCon (N-Type)*	**-0.30% / °C**	**-12.0%**	**88.0%**

Conclusion: FSLR's thermal advantage over standard silicon is significant. However, its true moat is **Spectral Response**, which provides a +2–4% gain in humid conditions (Texas/Florida/India) where TOPCon's slight thermal coefficient advantage is negated, securing the yield premium.

INVESTMENT THESIS 4 SUPPORTING POINTS: APPENDIX C

The Closed-Loop Recycling Moat

Recycling as a strategic resource hedge and sales tool.

Strategic Resource Hedge

>90%

High-Efficiency Recovery

FSLR achieves a >90% recovery rate for the critical Cadmium Telluride (CdTe) semiconductor material.

Resource Independence

This closed-loop system acts as a strategic stockpile, hedging against Tellurium scarcity (a rare mineral) and price volatility.

1,200 Years

TOTAL USEFUL LIFE

1 kg of semiconductor material can be recycled an estimated **41 times**, extending its utility for over a millennium.

Commercial ESG Advantage

Zero Landfill Guarantee

FSLR offers an "End of Life Services Agreement" that guarantees every panel is returned for recycling, eliminating disposal risk for the owner.

Hyperscaler "Scope 3" Solution

This allows data center clients (Microsoft, Amazon) to satisfy strict waste compliance requirements, justifying the premium price paid for FSLR hardware over generic silicon.

Future Proofing

The new **CuRe chemistry** is fully compatible with existing infrastructure, ensuring the loop remains closed even as tech evolves.

Certified "High Value" Recycling
Meeting the highest global standards for circularity.

Strategic Implication: Recycling converts a potential liability (hazardous waste) into a dual asset: a secure supply of raw materials and a premium sales differentiator.

BASE CASE VALUATION

	2020 A	2021 A	2022 A	2023 A	2024 A	2025 E	2026 E	2027 E	2028 E	2029 E	2030 E	PERP
REVENUES	**2,711**	**2,923**	**2,619**	**3,319**	**4,206**	**5,215**	**6,309**	**7,276**	**8,096**	**9,010**	**10,026**	**12,000**
Annual Growth		7.8%	-10.4%	26.7%	26.7%	24.0%	21.0%	15.3%	11.3%	11.3%	11.3%	
EBITDA	**574**	**699**	**-11**	**1,194**	**1,817**	**2,576**	**3,289**	**4,172**	**4,495**	**5,156**	**5,342**	**6,000**
EBITDA Margin	21%	24%	0%	36%	43%	49%	52%	57%	56%	57%	53%	50%
Annual Growth		22%	NA	NA	52%	42%	28%	27%	8%	15%	4%	
Δ WORKING CAPITAL	-562	-337	999	-527	-483	-113	-137	-158	-175	-195	-217	-240
% of Sales	-20.7%	-11.5%	38.1%	-15.9%	-11.5%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.2%	-2.0%
TAXES	107	-103	-53	-61	-114	-166	-211	-251	-289	-333	-341	-120
% of EBITDA	18.7%	-14.8%	478.7%	-5.1%	-6.3%	-6.4%	-6.4%	-6.0%	-6.4%	-6.5%	-6.4%	-2.0%
OPERATING CASH FLOW	**119**	**259**	**935**	**607**	**1,220**	**2,297**	**2,941**	**3,763**	**4,030**	**4,628**	**4,784**	**5,640**
CAPEX	-417	-540	-904	-1,387	-1,526	-1,527	-1,718	-1,843	-1,640	-1,460	-1,300	-1,560
% of Sales	-15.4%	-18.5%	-34.5%	-41.8%	-36.3%	-29.3%	-27.2%	-25.3%	-20.3%	-16.2%	-13.0%	-13.0%
FCF	**-298**	**-281**	**31**	**-780**	**-306**	**770**	**1,223**	**1,920**	**2,390**	**3,167**	**3,484**	**4,080**
FCF Mgn.	-51.9%	-40.2%	-283.5%	-65.3%	-16.9%	29.9%	37.2%	46.0%	53.2%	61.4%	65.2%	68.0%
PRESENT VALUE								1,745	1,975	2,380	2,379	**34,834**
ENTERPRISE VALUE												**43,313**
2026 E NET DEBT												-1,872
TOTAL EQUITY VALUE												**41,441**
MINORITY INTEREST												0
MAJ. EQUITY VALUE												**41,441**
SHARES OUTSTANDING												107
PRICE PER SHARE												**$386**
CURRENT PRICE												250
Upside potential												54.5%
NET INCOME	**398**	**469**	**-44**	**831**	**1,292**	**2,060**	**2,616**	**3,120**	**3,587**	**4,128**	**4,232**	
% of Sales	14.7%	16.0%	-1.7%	25.0%	30.7%	39.5%	41.5%	42.9%	44.3%	45.8%	42.2%	
EPS	3.7	4.4	-0.4	7.7	12.0	**19.2**	**24.4**	29.1	33.4	38.5	39.4	
PE	104.0	88.4	-938.3	49.9	32.1	**20.1**	**15.8**	13.3	11.6	10.0	9.8	

BEAR CASE VALUATION

	2020 A	2021 A	2022 A	2023 A	2024 A	2025 E	2026 E	2027 E	2028 E	2029 E	2030 E	PERP
REVENUES	**2,711**	**2,923**	**2,619**	**3,319**	**4,206**	**4,563**	**4,983**	**6,110**	**6,294**	**6,484**	**6,680**	**8,500**
Annual Growth		7.8%	-10.4%	26.7%	26.7%	8.5%	9.2%	22.6%	3.0%	3.0%	3.0%	
EBITDA	**574**	**699**	**-11**	**1,194**	**1,817**	**1,925**	**1,963**	**3,006**	**2,693**	**2,630**	**1,996**	**3,570**
EBITDA Margin	21%	24%	0%	36%	43%	42%	39%	49%	43%	41%	30%	42%
Annual Growth		22%	-102%	-10932%	52%	6%	2%	53%	-10%	-2%	-24%	
Δ WORKING CAPITAL	-562	-337	999	-527	-483	-113	-137	-158	-175	-195	-217	-213
% of Sales	-20.7%	-11.5%	38.1%	-15.9%	-11.5%	-2.5%	-2.7%	-2.6%	-2.8%	-3.0%	-3.3%	-2.5%
TAXES	107	-103	-53	-61	-114	-166	-211	-251	-289	-333	-341	107
% of EBITDA	18.7%	-14.8%	478.7%	-5.1%	-6.3%	-8.6%	-10.7%	-8.4%	-10.7%	-12.6%	-17.1%	3.0%
OPERATING CASH FLOW	**-96**	**466**	**1,040**	**728**	**1,448**	**1,978**	**2,037**	**3,099**	**2,806**	**2,768**	**2,120**	**3,250**
CAPEX	-417	-540	-904	-1,387	-1,526	-1,527	-1,718	-1,843	-1,640	-1,460	-1,300	-1,020
% of Sales	-15.4%	-18.5%	-34.5%	-41.8%	-36.3%	-33.5%	-34.5%	-30.2%	-26.1%	-22.5%	-19.5%	-12.0%
FCF	**-513**	**-74**	**137**	**-659**	**-78**	**451**	**319**	**1,257**	**1,166**	**1,307**	**820**	**2,230**
FCF Mgn.	-89.3%	-10.6%	-1240.8%	-55.2%	-4.3%	23.4%	16.2%	41.8%	43.3%	49.7%	41.1%	62.5%
PRESENT VALUE								1,142	963	982	560	**19,042**
ENTERPRISE VALUE												**22,691**
2026 E NET DEBT												-1,366
TOTAL EQUITY VALUE												**21,324**
MINORITY INTEREST												0
MAJ. EQUITY VALUE												**21,324**
SHARES OUTSTANDING												107
PRICE PER SHARE												**$199**
CURRENT PRICE												265
Upside potential												-24.9%
NET INCOME	**441**	**329**	**-312**	**910**	**1,330**	**1,408**	**1,290**	**1,954**	**1,785**	**1,603**	**886**	
% of Sales	16.3%	11.3%	-11.9%	27.4%	31.6%	30.9%	25.9%	32.0%	28.4%	24.7%	13.3%	
EPS	4.1	3.1	-2.9	8.5	12.4	**13.1**	**12.0**	18.2	16.6	14.9	8.3	
PE	48.4	64.8	-68.2	23.4	16.0	**15.1**	**16.5**	10.9	11.9	13.3	24.1	

BULL CASE VALUATION

	2020 A	2021 A	2022 A	2023 A	2024 A	2025 E	2026 E	2027 E	2028 E	2029 E	2030 E	PERP
REVENUES	**2,711**	**2,923**	**2,619**	**3,319**	**4,206**	**4,989**	**5,718**	**7,357**	**8,578**	**10,002**	**11,663**	**14,500**
Annual Growth		7.8%	-10.4%	26.7%	26.7%	18.6%	14.6%	28.7%	16.6%	16.6%	16.6%	
EBITDA	**574**	**699**	**-11**	**1,194**	**1,817**	**2,350**	**2,697**	**4,253**	**4,977**	**6,148**	**6,979**	**7,540**
EBITDA Margin	21%	24%	0%	36%	43%	47%	47%	58%	58%	61%	60%	52%
Annual Growth		22%	-102%	-10932%	52%	29%	15%	58%	17%	24%	14%	
Δ WORKING CAPITAL	-562	-337	999	-527	-483	-113	-137	-158	-175	-195	-217	-363
% of Sales	-20.7%	-11.5%	38.1%	-15.9%	-11.5%	-2.3%	-2.4%	-2.1%	-2.0%	-2.0%	-1.9%	-2.5%
TAXES	107	-103	-53	-61	-114	-166	-211	-251	-289	-333	-341	-151
% of EBITDA	18.7%	-14.8%	478.7%	-5.1%	-6.3%	-7.1%	-7.8%	-5.9%	-5.8%	-5.4%	-4.9%	-2.0%
OPERATING CASH FLOW	**-96**	**466**	**1,040**	**728**	**1,448**	**2,403**	**2,772**	**4,347**	**5,090**	**6,286**	**7,103**	**7,328**
CAPEX	-417	-540	-904	-1,387	-1,526	-1,527	-1,718	-1,843	-1,640	-1,460	-1,300	-2,175
% of Sales	-15.4%	-18.5%	-34.5%	-41.8%	-36.3%	-30.6%	-30.1%	-25.0%	-19.1%	-14.6%	-11.1%	-15.0%
FCF	**-513**	**-74**	**137**	**-659**	**-78**	**876**	**1,053**	**2,504**	**3,450**	**4,825**	**5,802**	**5,153**
FCF Mgn.	-89.3%	-10.6%	-1240.8%	-55.2%	-4.3%	37.3%	39.0%	58.9%	69.3%	78.5%	83.1%	68.3%
PRESENT VALUE								2,276	2,851	3,625	3,963	**43,997**
ENTERPRISE VALUE												**56,713**
2026 E NET DEBT												-1,476
TOTAL EQUITY VALUE												**55,237**
MINORITY INTEREST												0
MAJ. EQUITY VALUE												**55,237**
SHARES OUTSTANDING												107
PRICE PER SHARE												**$515**
CURRENT PRICE												250
Upside potential												106.0%
NET INCOME	**441**	**329**	**-312**	**910**	**1,330**	**1,834**	**2,024**	**3,202**	**4,069**	**5,121**	**5,868**	
% of Sales	16.3%	11.3%	-11.9%	27.4%	31.6%	36.8%	35.4%	43.5%	47.4%	51.2%	50.3%	
EPS	4.1	3.1	-2.9	8.5	12.4	**17.1**	**18.9**	29.8	37.9	47.7	54.7	
PE	125.3	167.9	-176.8	60.7	41.5	**30.1**	**27.3**	17.3	13.6	10.8	9.4	

SENSITIVITIES TO WACC

PRESENT VALUE						
WACC	8.5%	1,769	2,030	2,480	2,514	45,293
WACC	9.0%	1,761	2,011	2,446	2,468	41,291
WACC	9.5%	1,753	1,993	2,413	2,423	37,839
WACC	10.0%	1,745	1,975	2,380	2,379	34,834
WACC	10.5%	1,737	1,957	2,348	2,337	32,195
WACC	11.0%	1,730	1,940	2,316	2,295	29,862
WACC	11.5%	1,722	1,922	2,285	2,254	27,787

PRESENT VALUE		NPV	ENTERPRISE VALUE	Price P$	Upside
WACC	8.5%	54,086	52,214	$487	95%
WACC	9.0%	49,978	48,106	$448	79%
WACC	9.5%	46,421	44,549	$415	66%
WACC	10.0%	43,313	41,441	$386	55%
WACC	10.5%	40,574	38,702	$361	44%
WACC	11.0%	38,143	36,271	$338	35%
WACC	11.5%	35,970	34,098	$318	27%

SENSITIVITIES TO P/E

		EPS									
		15	17	19	21	23	25	27	29	31	33
P/E	10.0x	-40%	-32%	-24%	-16%	-8%	0%	8%	16%	24%	32%
P/E	10.5x	-37%	-29%	-20%	-12%	-3%	5%	13%	22%	30%	39%
P/E	11.0x	-34%	-25%	-16%	-8%	1%	10%	19%	28%	36%	45%
P/E	11.5x	-31%	-22%	-13%	-3%	6%	15%	24%	33%	43%	52%
P/E	12.0x	-28%	-18%	-9%	1%	10%	20%	30%	39%	49%	58%
P/E	12.5x	-25%	-15%	-5%	5%	15%	25%	35%	45%	55%	65%
P/E	13.0x	-22%	-12%	-1%	9%	20%	30%	40%	51%	61%	72%
P/E	13.5x	-19%	-8%	3%	13%	24%	35%	46%	57%	67%	78%
P/E	14.0x	-16%	-5%	6%	18%	29%	40%	51%	62%	74%	85%
P/E	14.5x	-13%	-1%	10%	22%	33%	45%	57%	68%	80%	91%
P/E	15.0x	-10%	2%	14%	26%	38%	50%	62%	74%	86%	98%
P/E	15.5x	-7%	5%	18%	30%	43%	55%	67%	80%	92%	105%
P/E	16.0x	-4%	9%	22%	34%	47%	60%	73%	86%	98%	111%
P/E	16.5x	-1%	12%	25%	39%	52%	65%	78%	91%	105%	118%
P/E	17.0x	2%	16%	29%	43%	56%	70%	84%	97%	111%	124%
P/E	17.5x	5%	19%	33%	47%	61%	75%	89%	103%	117%	131%
P/E	18.0x	8%	22%	37%	51%	66%	80%	94%	109%	123%	138%

SENSITIVITIES TO EV/EBITDA

		EBITDA									
		3,000	3,200	3,400	3,600	3,800	4,000	4,200	4,400	4,600	4,800
EV/EBITDA	7.0x	-29%	-23%	-18%	-13%	-8%	-3%	3%	8%	13%	18%
EV/EBITDA	7.5x	-23%	-17%	-12%	-6%	-1%	5%	10%	16%	22%	27%
EV/EBITDA	8.0x	-17%	-12%	-6%	0%	6%	12%	18%	24%	30%	36%
EV/EBITDA	8.5x	-12%	-6%	1%	7%	13%	20%	26%	32%	39%	45%
EV/EBITDA	9.0x	-6%	0%	7%	14%	21%	27%	34%	41%	47%	54%
EV/EBITDA	9.5x	-1%	6%	13%	21%	28%	35%	42%	49%	56%	63%
EV/EBITDA	10.0x	5%	12%	20%	27%	35%	42%	50%	57%	65%	72%
EV/EBITDA	10.5x	10%	18%	26%	34%	42%	50%	57%	65%	73%	81%
EV/EBITDA	11.0x	16%	24%	32%	41%	49%	57%	65%	73%	82%	90%
EV/EBITDA	11.5x	22%	30%	39%	47%	56%	65%	73%	82%	90%	99%
EV/EBITDA	12.0x	27%	36%	45%	54%	63%	72%	81%	90%	99%	108%
EV/EBITDA	12.5x	33%	42%	51%	61%	70%	79%	89%	98%	107%	117%
EV/EBITDA	13.0x	38%	48%	58%	68%	77%	87%	97%	106%	116%	126%
EV/EBITDA	13.5x	44%	54%	64%	74%	84%	94%	104%	115%	125%	135%
EV/EBITDA	14.0x	50%	60%	71%	81%	91%	102%	112%	123%	133%	144%
EV/EBITDA	14.5x	55%	66%	77%	88%	98%	109%	120%	131%	142%	153%
EV/EBITDA	15.0x	61%	72%	83%	94%	106%	117%	128%	139%	150%	162%