

2026

INVESTMENT TEASER

NINES PHOTOVOLTAICS



Sustainable Manufacturing Equipment for advanced Solar Cells

Funding round: €5M Growth Capital

Location: Dublin, Ireland

Sector: DEEP TECH - Solar Manufacturing Equipment



COMPANY SNAPSHOT

Company	Nines Photovoltaics
Founded	2010
Headquarters	Dublin, Ireland
Sector	Solar cell manufacturing equipment
Core technology	Atmospheric Dry Etching (ADE)
Employees	~5–10
Funding sought	€5M
Projected EBITA	€42.5M (2030)
Stage	Pilot / early commercialization

Nines Photovoltaics is a DeepTech company that has developed and patented disruptive equipment and process technology for Solar Cell manufacturing, enabling **low cost** silicon wafer etching of current and advanced **architectures**, with **zero water** consumption, **10x less power consumption**, and **no greenhouse-gas** process emissions.

INVESTMENT HIGHLIGHTS

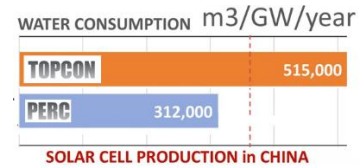
- Game changing patented technology with **10X** efficiency, enabling **high-throughput/low COO** production compatible with **next-generation solar cell** architectures (e.g. TOPCon, IBC).
- **Eliminates water** usage and **greenhouse-gas** emissions associated with conventional processes, enabling **re-shoring** of manufacturing market India /Türkiye/US/EU.
- Technology validated by leading research institutions including **Fraunhofer ISE**.
- Industrial equipment already **built – TRL7 – ready for pilot**
- **LOI from customers** willing to pilot the ADE technology in their cell production lines.
- Positioned within the **rapidly expanding global solar manufacturing equipment market** driven by gigafactory expansion, re-shoring of manufacturing and **energy security**

1. INDUSTRY PROBLEM

The photovoltaic industry faces increasing pressure to **reduce manufacturing costs, water consumption, and carbon footprint** while scaling production worldwide, for the global energy transition.

Current silicon wafer etching processes:

- Require **large volumes of water and chemicals**
- Generate **significant chemical waste**
- Occupy **large factory footprints**
- Limit the adoption of **new high-efficiency cell architectures**



As global solar capacity continues to expand rapidly, emerging countries reshoring their manufacturing require **more efficient, sustainable production tools**.

2. THE NINES SOLUTION

Nines has developed **Atmospheric Dry Etching (ADE)**, a proprietary gas-phase process that replaces traditional wet etching in solar cell production.

Key features:

- **Water-free etching process**
- Zero GWP chemistry – **no greenhouse gases**
- High etching rates enabling **gigafactory-scale** throughput and **Lower Cost of Ownership**
- **Compact** equipment footprint
- Compatible with **advanced solar cell** architectures

The ADE process operates **at atmospheric pressure**, avoiding the cost and complexity of vacuum-based semiconductor tools.



ADE provides **lower operating cost and environmental footprint**, addressing key sustainability challenges in solar manufacturing.

3. PRODUCT: THE ADE TOOL

Industrial manufacturing equipment & process designed for solar cell manufacturing lines.

Key specifications (indicative):

- Throughput: up to **24,000 wafers/hour**
- **Inline** production architecture
- Compatible with multiple wafer sizes
- Designed for **high-volume gigafactory environments**

Applications:

- Silicon wafer **etching**
- **Selective etching & patterning**
- Edge isolation
- Advanced PV architectures (**TOPCon, IBC**)

4. TECHNOLOGY VALIDATION

- ADE technology developed and validated by leading research partners, including **Fraunhofer Institute for Solar Energy Systems**.
- Industrial tool development & **built completed** - supported by European innovation funding.
- **LOI from Industrial customers** that are ready to **pilot** ADE technology

5. MARKET OPPORTUNITY

The solar manufacturing equipment market is expanding rapidly due to the global energy transition.

Key drivers:

- Expansion of **solar gigafactories** ; **reshoring** of manufacturing in India, Turkey, USA, Europe
- Regions affected by global increase in **water scarcity**
- Increasing regulatory pressure for **sustainable manufacturing** (including China)
- Transition to **higher-efficiency, more complex** cell architectures

Market indicators:

Global PV installations	Rapid growth driven by energy transition & energy security
Solar cell manufacturing capacity	India alone projected to add >100 GW (SAM 300M€)
Addressable equipment segment	Etching / texturing equipment – Globally 1.5 B€ SAM

6. BUSINESS MODEL

Outsourced/localised manufacturing (“**fabless**”). Focus on IP and customers. Nines generates revenue through:

Equipment sales	ADE production tools for solar manufacturers
Process licensing	Licensing of ADE process technology
Engineering services	Process integration and line optimization
Maintenance & upgrades	Tool servicing and process upgrades

7. FINANCIAL SNAPSHOT

Growth driven by:

- first commercial tool sales
- process licensing
- expansion of manufacturing capacity

Year	2025	2026	2027	2028	2029	2030
Sales Revenues (M€)	0.15	0.4	5.3	30.1	55.4	136.3
Investment (M€)		2.5	2.5			
EBITA (M€)	-0.46	-1.1	- 0.8	5.8	13.5	42.5
Pilot Tool Sales	0	1	1	1	1	2
Production Tool Sales	0	0	3	18	33	81

8. FUNDING ROUND

Capital raise: €5M	Use of proceeds	%
Pilot demonstration at customer site		20%
Expend engineering & commercial capacity		30%
Process R&D & next-gen cells		20%
Working capital		30%

Milestones

- First industrial pilot line commercial evaluation
- Multi-GW tool order
- Expand international customer base
- Widen technology applications (Semi-conductor, power electronic, flat panel display,...)

8. LEADERSHIP TEAM



EDWARD DUFFY

CEO & FOUNDER

Semiconductor capital equipment industry veteran with experience at global equipment manufacturers.



LAURENT CLOCHARD

CTO

Technology development expert with extensive experience in semiconductor and photovoltaic process innovation

9. NEXT STEPS

We invite investors to schedule a call to explore this high-growth opportunity. Contact us at e.duffy@nines-pv.com to discuss investment terms and strategic partnerships.

PREPARED FOR

PREPARED BY

Nines Photovoltaics
Synergy Centre, TU Dublin – Tallaght Campus
Dublin, Ireland (nines-pv.com)

