



# Building a Sustainable Energy Future: Why Canada Must Engineer & Manufacture Its Own Solar and Wind Technologies

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# Executive Summary



## **JOB CREATION**

Domestic manufacturing drives higher-value employment opportunities



## **SECURITY & RESILIENCE**

Shorter, diversified supply chains reduce exposure to tariffs, sanctions, and shipping shocks.



## **LEARNING SYSTEMS & IP**

Engineering at home compounds know-how, protects IP, and seeds export-ready firms.



## **REALITY CHECK (2014 to today...)**

Several Canadian co's have shifted capacity abroad.  
Rebuilding requires targeted incentives.

Domestic clean-tech manufacturing is a strategic imperative for Canada, not a luxury. It drives job creation, supply chain security, and technological learning, positioning Canada for a sustainable energy future.

# Why Domestic Engineering & Manufacturing?

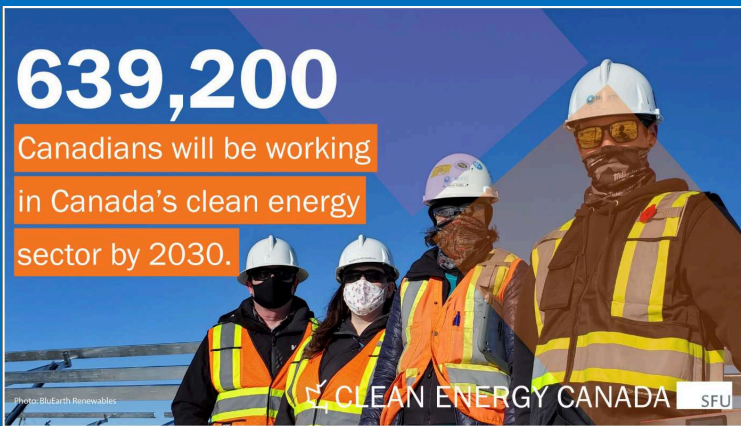


## Higher-Value Employment

Design, materials, automation, and quality assurance drive wages above installation-only jobs.

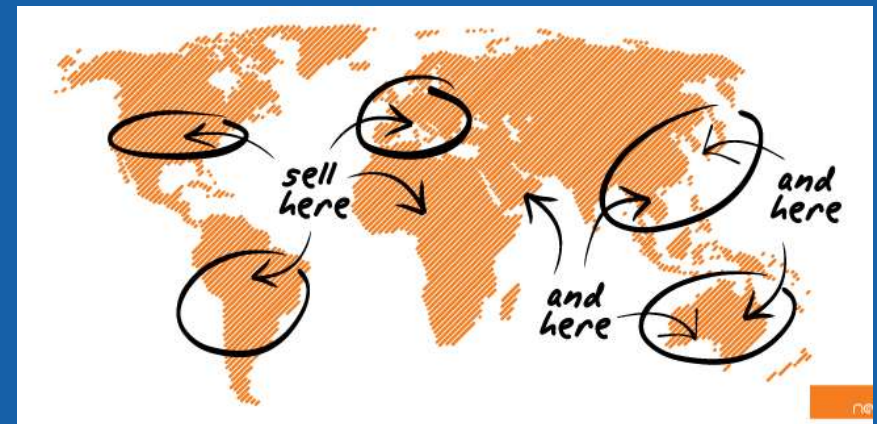
**639,200**

Canadians will be working in Canada's clean energy sector by 2030.



## Export Readiness

Owning product IP allows Canada to sell globally, not just install imports.



# Job Creation Across the Supply Chain



## Upstream

Canada's upstream includes production of raw materials like **steel, aluminum, glass, magnets, and semiconductors.**



## Midstream

In the midstream segment, Canada manufactures components such as **solar modules and cells, wind turbine blades and towers,** and power electronics like inverters for clean energy systems.



## Downstream

The downstream activities include engineering, procurement, and **construction (EPC) services, system commissioning, operations and maintenance (O&M),** and recycling of clean energy components.



# Security & Resilience



Domestic manufacturing reduces exposure to trade risks (e.g. tariffs, shipping disruptions) compared to relying on imports

75%

Reduced Exposure to Tariffs

60%

Shorter Lead Times

80%

Supply Chain Resilience

# What Happened Since 2014?



**2013**

WTO struck down  
Ontario FIT LCR

**2018**

Ontario repealed  
Green Energy Act

**2017**

Celestica exited PV;  
Siemens closed  
Tillsonburg blade plant

**2023–2025**

US IRA pulls  
capacity south;  
Canadian firms  
expand abroad

# Canada Today: Demand Up, Manufacturing Thinner



While Canada's installed wind and solar capacity is rising, the remaining domestic manufacturing base has been reduced to a handful of companies, posing risks of import dependence.

## **Wind/solar capacity rising**

- >24 GW installed by 2024.

## **Remaining anchors**

- Only a handful of companies of companies like Polar Racking are still manufacturing in Canada.

# Risks of Import Dependence



- Policy shocks from tariffs/quotas.
- FX swings and shipping risks.
- Tech sovereignty and cyber posture risks.



# A Practical, Trade-Law-Aware Playbook



- **Production-linked incentives (WTO compliant)**

Provide **incentives** that are tied to actual production volumes, ensuring compliance with World Trade Organization (WTO) rules.

- **Strategic procurement preferences**

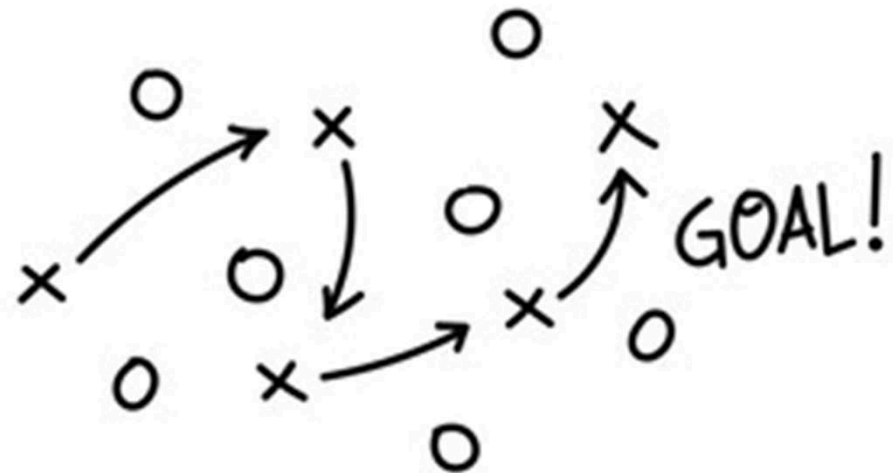
Implement **policies** that give preference to domestically manufactured clean energy products in government and utility-scale procurement.

- **Anchor customers with long-term offtakes**

Establish long-term **contracts** with domestic manufacturers to provide a reliable demand base and enable investment in capacity expansion.

- **R&D grants and IP retention in Canada**

Invest in research and development (R&D) **grants** to support innovation and ensure that the resulting intellectual property (IP) remains within Canada.

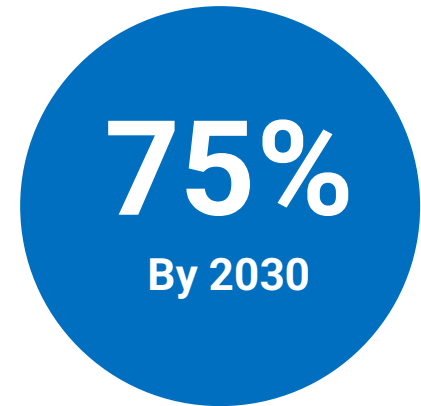


# Canada vs. Saudi Arabia: Localization Strategies



## Saudi Arabia – What They're Doing

- Massive sovereign-backed JVs with JinkoSolar, TCL Zhonghuan, Vision Industries.
- Targeting ~30 GW localized PV capacity (ingots → modules).
- Industrial land grants, SIDF loans, Vision 2030 policy alignment.
- Local content mandates (75% by 2030) and export hub ambitions.



# Canada Current Gaps



Comparison of domestic manufacturing targets and support between Canada and Saudi Arabia

## Canada Gaps

- No equivalent sovereign-backed JV model; fragmented policy support.
- Local manufacturers exist (Heliene, Silfab) but scaling in U.S. under IRA pull.
- No long-term, binding local content mandates since WTO struck down FIT rules.
- Limited financing instruments; competition with U.S. IRA and Saudi PIF scale.



# Canada Opportunities



Comparison of domestic manufacturing targets and support between Canada and Saudi Arabia

## Opportunities for Canada

- Tie renewables manufacturing to Solar, Wind, Hydrogen, EV, and grid modernization strategies.
- Craft WTO-compliant incentives: production-linked, domestic procurement rules.
- Cluster development around steel, ports, and automation hubs.
- Focus on IP, advanced R&D, and skills pipeline to sustain advantage beyond cost.

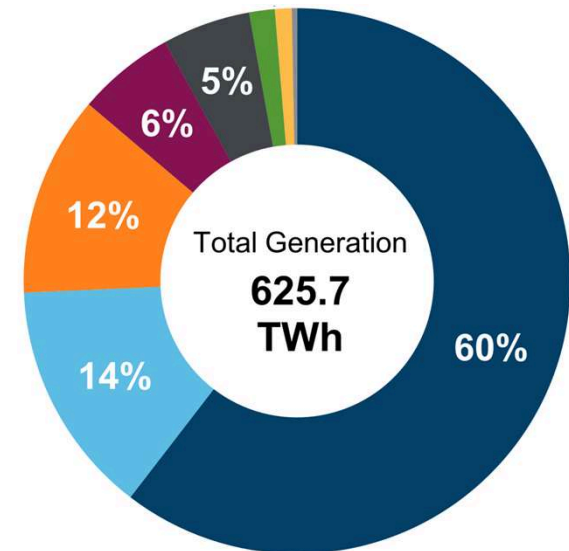


# Bottom Line

Canada's clean energy future hinges on cultivating a robust domestic manufacturing ecosystem.

By aligning strategic incentives, anchoring demand through procurement, and scaling its home-grown OEMs, Canada can secure durable jobs, supply chain resilience, and technological leadership in the global clean energy transition.

The window is open: align incentives, anchor demand, and scale domestic OEMs before global capacity hardens elsewhere.



# Global Incentives Matrix



Policy Incentive	United States	India	Saudi Arabia	Canada
Production Tax Credits (PTC) for Solar, Wind, Batteries	✓	X	X	X
Domestic Content Bonus for ITC/PTC	✓	X	X	X
Advanced Manufacturing Investment Tax Credit (ITC)	✓	X	X	X
Production Linked Incentive (PLI) Scheme	X	✓	X	X
Reduced Customs Duties on Modules, Critical Minerals	X	✓	X	X
Export Subsidies	X	✓	X	X
Transmission/GST Waivers to Boost Local Demand	X	✓	X	X
PIF-backed Joint Ventures with Global Manufacturers	X	X	✓	X
Industrial Land Grants and Financing Instruments	X	X	✓	X
Local Content Mandates (e.g., 75% by 2030)	X	X	✓	X

\*The data in this table is compiled from various industry reports and government policy documents.