

Why Canada is a Great Sourcing Option for Wood Pellets

RISK IDENTIFICATION IN THE WOOD PELLET SUPPLY CHAIN

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WHAT IS CANADIAN SUPPLY CHAIN RISK?

FIBRE



MANUFACTURING



QUALITY



LOGISTICS



You need a supply of wood pellets, what should you consider?

- **Proximity & Logistics** – distance to Japan, port infrastructure
- **Fibre feedstock** – Availability, consistency; security, sustainability, quality
- **Transport Infrastructure** – reliable, safe
- **Manufacturing experience and technology** – safety, quality, best available technologies
- **Financial muscle** – well funded owners / producers; stable fibre suppliers
- **Economic & Political Stability** – well managed, politically stable & AAA rated

LOW RISK
SUPPLIABILITY



WHAT IS CANADIAN SUPPLY CHAIN RISK?



Internal : Controllable

Any negative threat that could disrupt the flow of material



External : Uncontrollable



GEOGRAPHIC RISK – ECONOMIC AND POLITICAL STABILITY



GEOGRAPHIC RISK – PROXIMITY AND ACCESS



Soma, Japan to:	Sailing Time
Prince Rupert, BC	11.5 days
Long Beach, CA	15.0 days
Chesapeake, VA	30.0 days
Perth, Australia	15.0 days
Jakarta, Indonesia	11.0 days
Saigon, Vietnam	8.0 days
Shanghai, China	4.0 days



FEEDSTOCK RISK – LONG TERM FIBRE SECURITY

Global Leaders; Long Term Contractable



Quantity & Abundance of Fibre

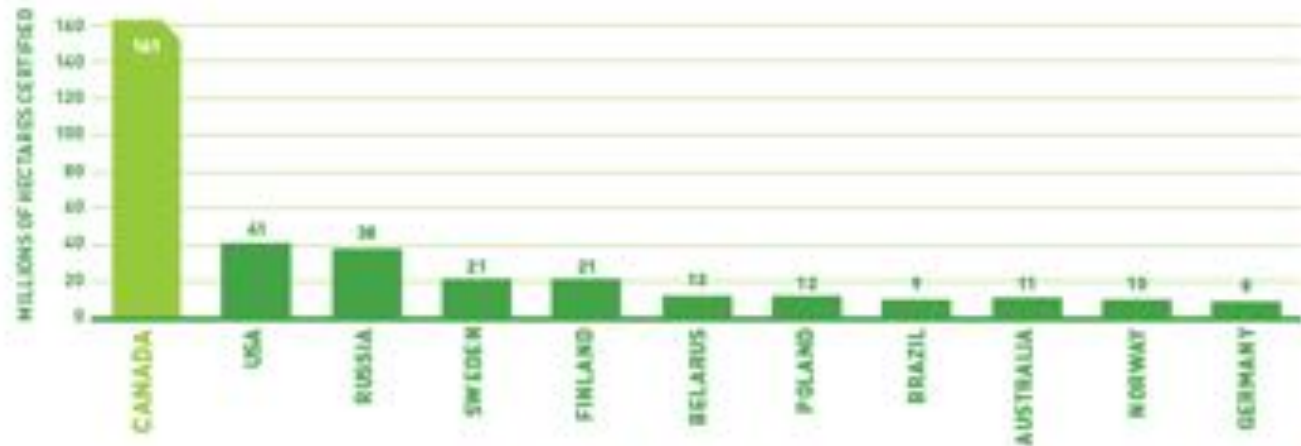


Fibre Supplier Reliability



FEEDSTOCK RISK – SUSTAINABILITY & FOREST MANAGEMENT

- Source of raw material?
- Meets all local and national legislation?
 - Forestry & Environmental laws
 - Conservation and habitat laws
 - Labour Laws
 - Welfare, Health & Safety laws
- Forest Management Certification
- Chain of Custody Certification
- Greenhouse Gas Certification
- Paid up stumpage, taxes and duties
- Land use change
- Deforestation
- Contamination



CANADIAN SUSTAINABLE FOREST MANAGEMENT CERTIFICATION IN THE GLOBAL CONTEXT

Canada has the largest area of forests in the world that are third-party independently certified. As of 2014, only about 10% of the world's forests were certified. Canada had 161 million hectares or 43% of these certified forest

• Substitution Risks:

- Tropical Hardwood
- Agricultural residue (husks)
- MSW, RDF, SRF etc



• Mixing Risks:

- Different types of Fuels
- Certified with non-certified pellets
- Legal with illegal raw material
- Legal with illegal pellets



• Alternative use Risks:

- Demand & Supply of pellets
 - Animal comfort
 - Sorbent
 - Domestic markets
- Demand & Supply of wood fibre
 - Lumber
 - Chips for fuel or pulp
 - MDF, OSB,



MANUFACTURING RISKS

- **Manufacturing experience?**
 - How long in the business
 - Safety record
 - Manufacturing record
 - Maintenance record
- **Best Available Manufacturing Technology?**
- **Regular Capital Expenditure?**
 - Updated & upgraded equipment
- **Quality?**
 - Handleability
 - NCV / heat
 - Chemistry; Trace elements
 - Ash content & melting behavior
 - Consistency



INFRASTRUCTURE RISKS

- **Inland Transportation:**

- Roads
- Rail
- Intermodal points
- Critical points



- **Ports:**

- Safety
- Labor
- Draft (air and water)
- Services



- **Export Terminals:**

- Storage
- Surveys
- Sampling
- Loading

- **Load Port Services**
 - Supervision
 - Surveys
 - Sampling and Testing
- **Biomass Services**
 - Sustainability and GHG audits
 - Wood traceability
 - Stumpage / Tax payment verification
- **General Services**
 - Export administration
 - Fuel and Power
 - Telecommunications



COUNTERPARTY RISK

- Financial capacity
- Credit wrap availability
- Customer default risk
- Long term contract competency
- Business risks
 - Key personnel
 - Business processes
 - Planning and control
 - Cultural risk
 - Mitigation and contingency
- Proven supply capability to Japan



 Tohoku Electric Power Co., Inc.

 THE KANSAI
ELECTRIC POWER CO., INC.

 TOKYO ELECTRIC POWER COMPANY

 JOBAN JOINT POWER CO., LTD.



 SUMITOMO

大阪ガスグループ
 GAS & POWER



Shawa Shell Sekiyu K.K.

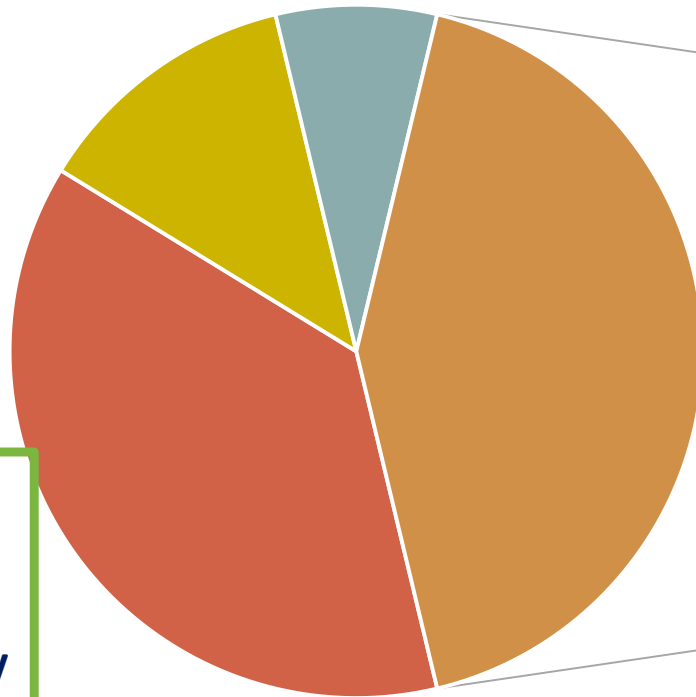


FINANCIAL RISK

- Basic Risk
- Capital Risk
- Country Risk
- Default Risk
- Economic Risk
- Exchange Rate Risk
- Interest Rate Risk
- Liquidity Risk
- Operations Risk
- Payment System Risk
- Political Risk
- Refinancing Risk
- Reinvestment Risk
- Settlement Risk
- Sovereign Risk
- Underwriting Risk

€ EU: Euro	\$ US: Dollar	¥ China: Yuan	¥ Japan: Yen
DM Germany: Deutsche Mark	Fr France: Franc	£ UK: Pound	£ Italy: Lira
R\$ Brazil: Real	C\$ Canada: Dollar	₽ Russia: Rouble	₹ India: Rupee
₪ Spain: Peseta	A\$ Australia: Dollar	Mex\$ Mexico: Peso	₩ South Korea: Won
f Netherlands: Guilder	TL Turkey: Lira	Rp Indonesia: Rupiah	SFr Switzerland: Franc

Total Canadian Capacity About 4 million Tonnes



BC has 58% of Canadian Wood Pellet Capacity

42% of Canadian capacity would logistically flow through the East coast.



WHY BUYING FROM CANADA MAKES GOOD SENSE

- **Geography** – 1.5 weeks sailing to Japan
- **Available feedstock** – 55 million hectares of forest lands, 1.5 times area of Japan.
- **Fibre security** – long term contracts with established Canadian sawmillers
- **Sustainability** – 95% forests are certified to international standards
- **Quality** – made primarily from clean sawmilling residuals, consistent high heat I2 standard.
- **Port Infrastructure** – 2 deep water modern ports, west coast
- **Terminal Infrastructure** – most modern pellet terminal in the world, panamax capable
- **Transport Infrastructure** – dependable rail and road network with world class operators
- **Manufacturing experience & technology** – 25 yrs of experience & many sites utilize BAT
- **Financial muscle** – well funded owners; stable fibre suppliers
- **Economic and Political Stability** – well managed, politically stable and AAA rated

LOW RISK
SUPPLIABILITY



Canadian Wood Pellets – Leading the World



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