

Wood Pellets Reducing Fossil Fuel Demand in Canada

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Topics

- World markets
- Canadian markets
- Canadian pellet consumption
- Electrical production
- Conclusion

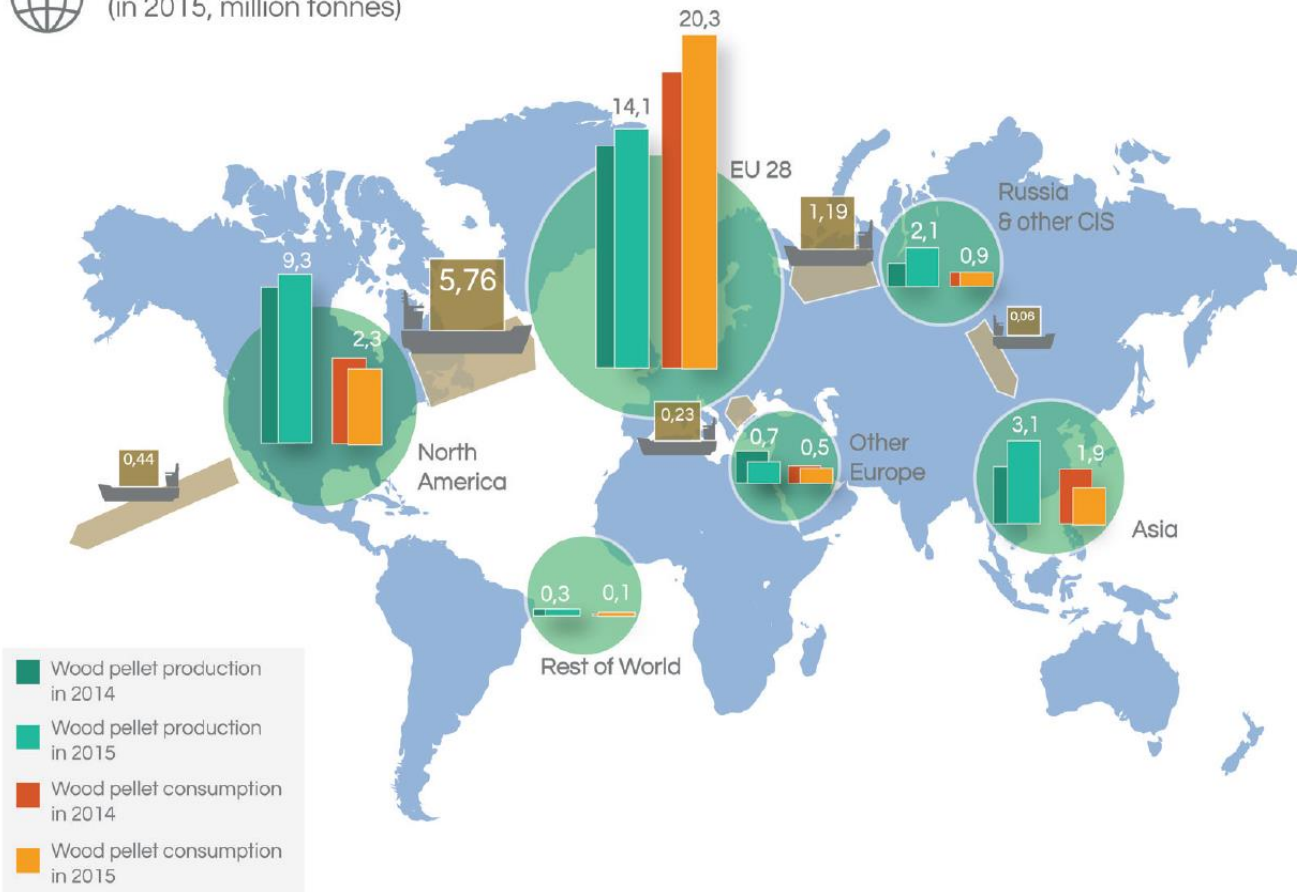


World pellet markets 2015

Production vs Consumption



World pellet map and trade flows
(in 2015, million tonnes)



Source: EPC Survey, Eurostat, Hawkins Wright, FAO

World pellet markets

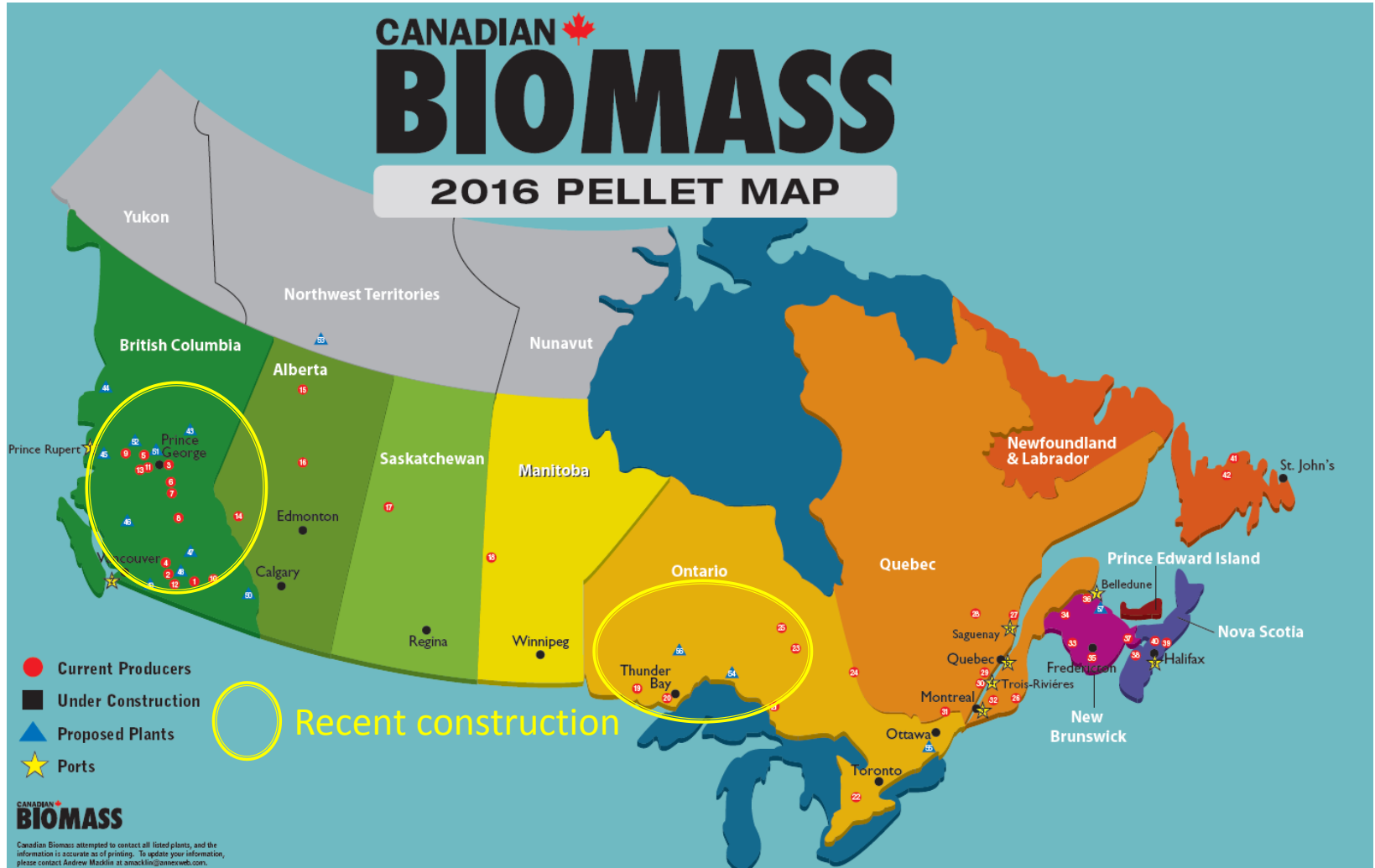
- Europe is biggest consumer (20,3 Mt) and producer (14,1 Mt)
- Market is still growing: industrial and heat
- Supported by deploying world class certifications:
 - Quality: ENplus, CANplus
 - Sustainability: Sustainable Biomass partnership (SBP)
- Canada is doing same
 - Recently mirrored ISO solid fuel standards into CSA standards



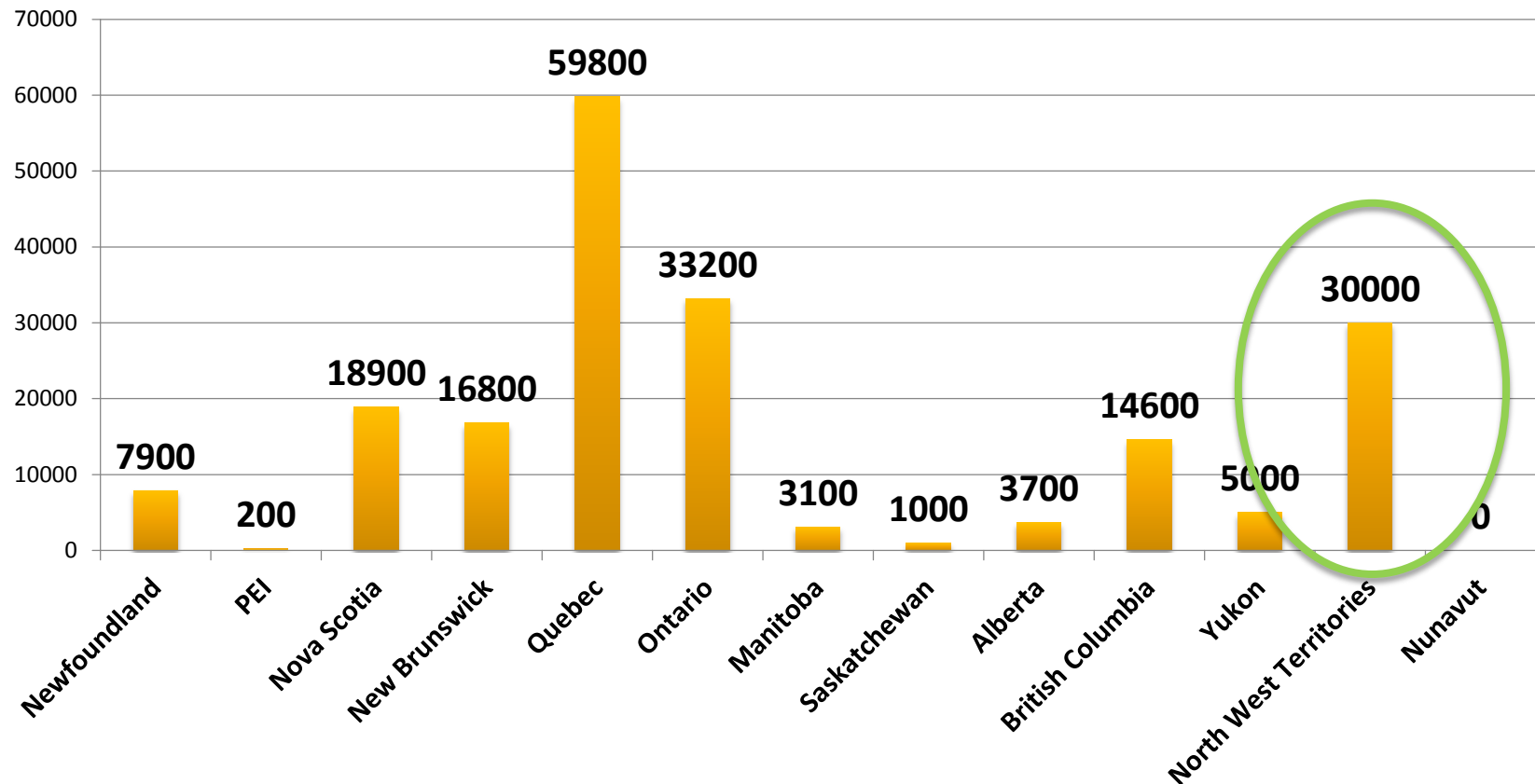
Canadian Production

- Capacity close to 4 Mmt/yr in 2016
- Production estimated at 2,5 Mmt/yr in 2015
- Including ~1Mmt/yr newly commissioned
 - 600 kt/yr Ontario
 - 350 kt/yr British Columbia
- Most producers export (Europe, USA, Italy)
- Some closures of plants in Eastern Canada

Canadian pellet producers map

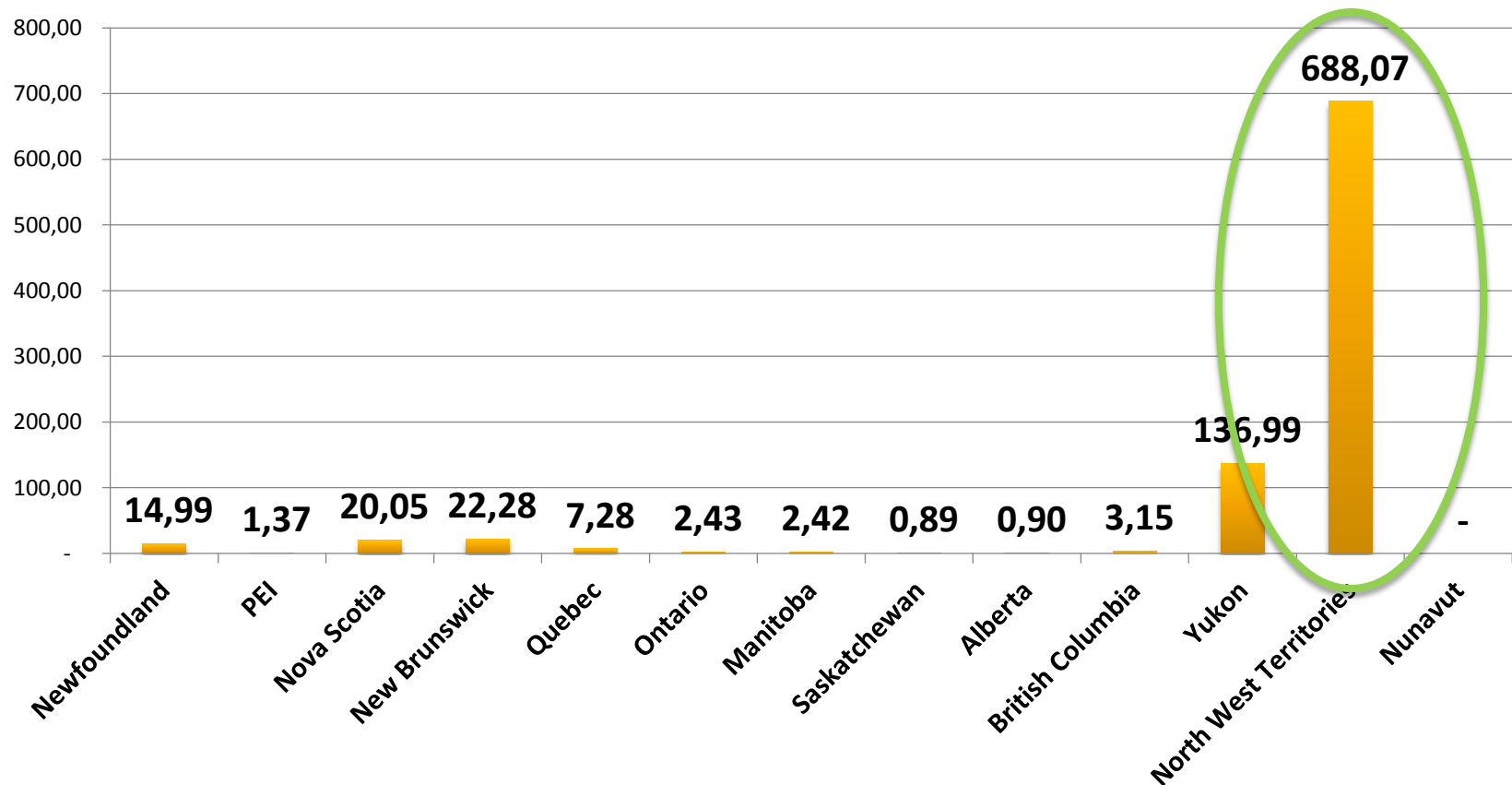


Canadian Annual residential heat Wood Pellet Consumption - tonnes



1. Calculated using data from Stats Canada & HPBA Canada & NWT Biomass & Energy Association
2. Approximately 200,000 tonnes for all of Canada annually

Canadian Annual residential heat Pellet Consumption – tonnes/1000



1. Calculated using data from Stats Canada & HPBA Canada

Examples of success stories in Northwest Territories

- Barge transport, storage & bulk distribution in Norman Wells, 44 pellet boilers, population 650
- distribution network for bulk wood pellets in 5 NWT Regions
- **9 delivery trucks**



Power Generation Options -1

- Ontario Power Generation (OPG) has proven large scale conversions work:
 - Attikokan 200MW power plant (90Kmt/yr)
 - Thunder Bay 150MW power plant (6Kmt/yr)
- Alberta: No more Coal in 2030!
- Nova Scotia? New Brunswick ?
- Many pellet options for producing heat and electricity



1- ORC Cogeneration 400kw – 10 MW



2- Micro Cogeneration with pellets/ chips

5 kWe, 50 kWe & 180 kWe

OkofEN_e TECHNOLOGY

http://www.okofen-e.com/en/pellet_boiler/



Fröling CHP50

<http://www.froeling.com/en/products/waerme-und-strom/neu-holzverstromungsanlage-chp-50.html>



<http://burkhardt-energy.com/hp607/cogeneration-units.htm>



Quebec remote networks

- Potential for 200 kmt/yr of biomass
- Hydro-Québec plans on gradual conversion by 2020
 - If reduced marginal costs!
 - Marginal costs do not include environmental benefits
 - Open to all technologies
- Some projects moving forward :
Obedjiwan: Biomass ORC

Conclusions

- Wood Pellets can help reduce fossil fuels in all markets
- Many Heat and Power options
- Quality and sustainability standards are in place
- Excess capacity is available for Canadian markets

Thank you!

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Quebec Wood
Export Bureau

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Ottawa, Ont. Canada

Learn more at: www.pellet.org/wpac-agm

