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WPAC AGM

Ottawa, ON

Biomass Power Generation Support

Policy Options for Canada and its Provinces

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Support Policies

Overview

Justification

Grants

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Tax Incentives

Tenders

Feed-in-Tariffs

Feed-in-Premium

Quota Obligation

Other Subsidies

Considerations

Key Messages

1. Variety of support schemes with varying results
2. Examine competitiveness of biomass power in different provinces & relative to other bioenergy
3. Value the attributes – firm capacity, jobs, assets
4. Unique Canadian aspects – public ownership
5. Bioenergy must be presented as a cleantech solution to broader societal goals

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Overview

- Justification for support
- Comparison of provinces
- Policy options
 - Investment Grants
 - Soft Loans, Loan Guarantees, Tax Incentives
 - Tenders
 - Feed-in-Tariffs, Feed-in-Premium
 - Quota Obligation & Green Certificates
 - Other Subsidies
- Considerations for Canada

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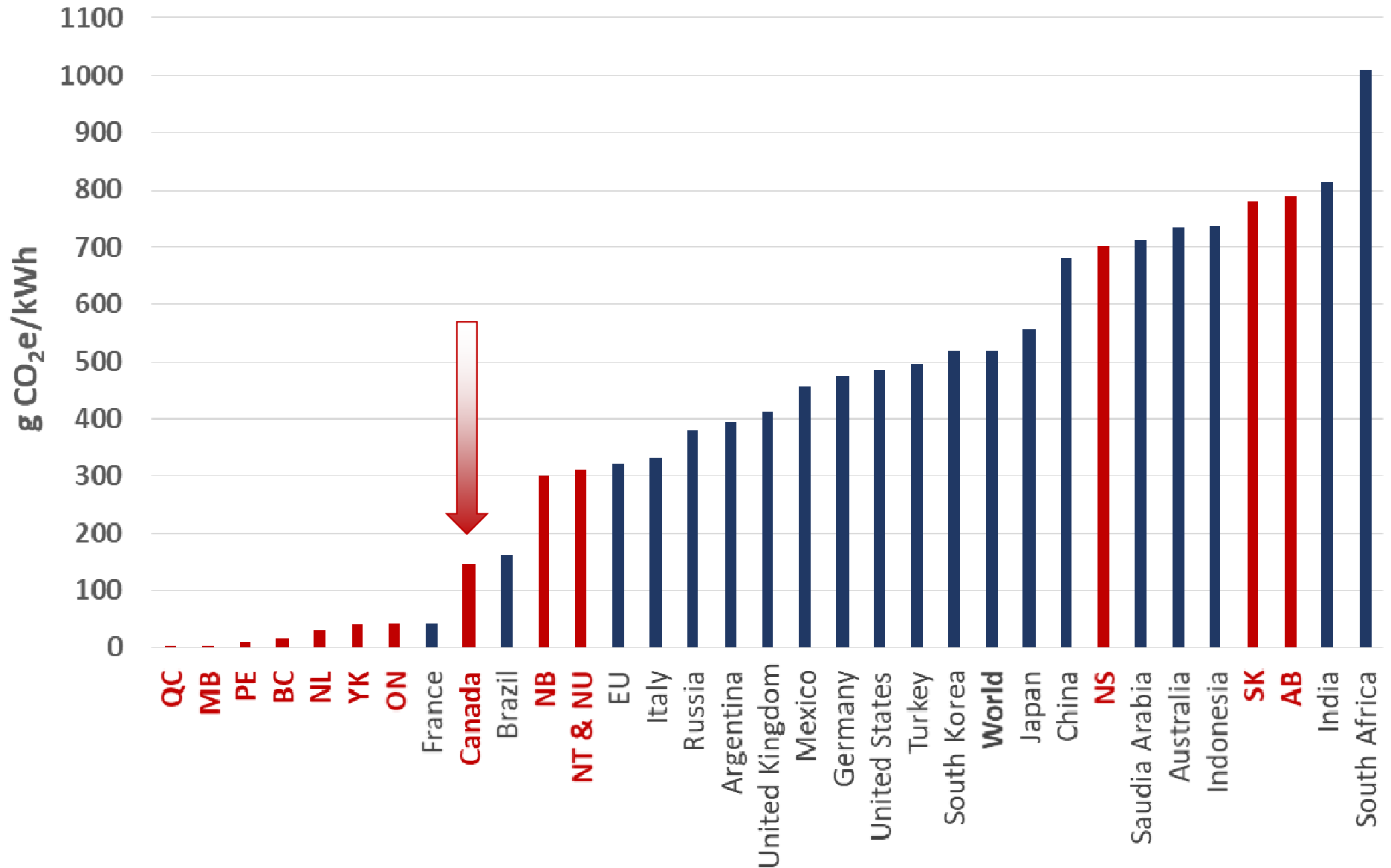
Other Subsidies

Considerations

Why Would Government Support You?

- Aligns with policy goal(s) – What is the benefit?
- **Job creation**
 - High-skilled vs. Low-skilled
 - Urban vs. Rural
 - Location in Canada
- **Economic diversification**
 - “Innovation”
 - “Value-Add”, Exports, Other Sectors
 - Manufacturing vs. Resources vs. Services
- **Environmental benefits**
 - GHGs – real, perceived
 - Air, water impacts (+ve, -ve) – trade-offs

GHG Intensity of Electricity: Canada & G20



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Support Schemes

- Promote use of renewable energy by:
 - Reducing cost of energy
 - Increasing energy sale price
 - Increasing volume of energy by obligation

Supporting	Income Impacts	Capacity Driver
Investment	<ul style="list-style-type: none"> • Investment Grants • Soft Loans • Loan Guarantees • Tax Incentives 	<ul style="list-style-type: none"> • Tenders
Supporting Energy Production	<ul style="list-style-type: none"> • Feed-in-Tariffs • Feed-in-Premium 	<ul style="list-style-type: none"> • Quota Obligation
	<ul style="list-style-type: none"> • Green Certificates • Direct Subsidies 	

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Investment Grants

- Public funds for direct support of renewable energy project
- Typically for capital support
- Reduces debt & equity requirements
- Increases production capacity
- No guarantee of production/performance
- Government must choose projects
- Often technology risk (not always!)

Examples:

- SDTC, ERA, IFIT, PPGTP, EEP, One-offs
- Bioheat (AT, FI), CHP (BE, FI)

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Soft Loans

- Loans from government (or private banks) with favourable terms
 - Interest rate below commercial rate
 - Longer repayment period
- Risk of default borne by public
- Government chooses projects
- Typically used for international development
- Role with CDN bioenergy – feedstock risk?

Examples:

- BDC, EDC, CIDA, FNFA?
- Biopower (DE, HR, PL), Bioheat (FR, UK, DE)

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Loan Guarantees

- Loans made by commercial lender guaranteed by government
- All/portion of risk of default borne by public
- Private sector chooses projects, but decision impacted by loan guarantee
- Due diligence can be limited
- Role with CDN bioenergy – feedstock risk?

Examples:

- CSBFP
- US DOE Biorefineries, Bioheat (BG, FI)

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Tax Incentives

- Producers pay lower excise tax than fossil
- Lowers cost of product to consumers
- Production/investment tax credits
- Property tax exemptions (heat)
- Other 'environmental' taxes
- Income tax reduction for installations
- Accelerated depreciation

Examples:

- CCA Class 43.1/43.2
- Production Tax Credit (US), Investment Tax Credit (US, IE), VAT exemption (FR), Property Tax Reduction (IT, BG), Income Tax (FI, FR)¹¹

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Tenders

- Tender for supply of energy
- By government or government entities
- Specific attributes
- Supplied under contract at price/quantity resulting from tender
- Adds capacity via competitive process
- Recognition of firm power? Employment?

Examples:

- OPA LRP, BC Bioenergy, AB REP, QC HQ
- Electricity tenders (FR, IT), Bioheat (AT, PEI)

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Supporting Energy Production	<ul style="list-style-type: none"> • Feed-in-Tariffs • Feed-in-Premium 	<ul style="list-style-type: none"> • Quota Obligation
	<ul style="list-style-type: none"> • Green Certificates • Direct Subsidies 	

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Feed-in-Tariffs

- Generators paid fixed price for energy generated and sold
- Independent of wholesale prices
- Long-term agreements with energy regulator
- Allows for private sector financing
- Rates vary by technology, scale, etc.
- Often target small installations – biopower?
- Net metering

Examples:

- Ontario FiT, BC SOP, NS COMFIT
- Electricity (JP, AT, FR, DE, UK), UK RHI (heat)

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Feed-in-Premium

- Includes Contract-for-Difference (CfD)
- Generators paid a premium relative to wholesale price
- Floating: difference between wholesale price and pre-determined contract price
- CfD: have to pay back difference if wholesale above contract price
- Fixed: premium amount above wholesale
- Typically tender-driven – firm power?

Examples:

- ecoENERGY, BPP (AB), AB REP
- Electricity (DK, FI, DE, NL-SDE+), UK RHI (heat)¹⁵

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Quota Obligation

- Mandated minimum renewable share
- Performance metric – energy, GHG
- Typically applied to suppliers, but can also be placed on producers and consumers
- Common in transportation fuels
- May or may not include Green Certificates
- Green certificates are tradeable with a separate market from the energy product
- Certificates often have minimum price

Examples:

- RFR (CDN), RLCFRR (BC), CFS
- Electricity (UK RO, KR, BE, 29 States), EU RED

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Direct Subsidies (excl. Investment)

- Direct government grant to renewable energy company
- Can be based upon employment creation or other criteria
- Not necessarily project specific
- Direct support for consumption of renewable energy (e.g., farmers)

Examples:

- Farmer consumption (EE)
- Direct company grant (CZ)



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Canadian Considerations

- Federalism
- Provincial differences in grid GHG & exports
- Existing plants – AB, SK, NB, NS
- Public ownership of forest resources
- Asymmetrical valuation of feedstock risk
- Operating cost hurdles
- Valuation of bioenergy attributes
 - Firm capacity (AB capacity market)
 - Deployability
 - Job creation? (ON Green Energy & Jobs)
 - Life cycle GHG and environment

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Another Idea

- Look at the feedstock baseline
- Uniquely Canadian: public ownership
- Valuation of PM reduction (health)
- Exponentially more PM from slash and forest fires than coal plants
- Valuation of Black Carbon reduction (GHG)
- 3200 t CO₂e/tonne (20 yrs)
- >50 Mt CO₂e for 1/3 of slash
- @ \$30 t CO₂e, \$1.5 B
- BC carbon tax on slash?
- Slash and fire-risk of timber

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