

Canada-NW-California Transmission Study

Resource Scenarios and Corresponding Transmission Options

Transmission Option	Option Capacity for Studies	Resource Scenario	Studies				
			Mileage/Cost/Corridor	Equal Angle, Voltage profile	PF Studies	Delivered Cost of Energy	Prod/Cost Studies
Option 10: 300 MW upgrade (MATL project (Lethbridge-Shelby 230 line?), Montana upgrades, (or Nelway PS #2) Buckley development, Raver-Paul line switch, Assumes simultaneous 4800MW to California with 300 to Sierra)	300 MW	Fort McMurray Cogen, Northern Alberta Hydro, Lake Wabamun Coal, Southern Alberta Wind, Central WA Wind, SE BC Resources	BPA	BPA AESO	CISO PG&E AESO		
Option 1: DC Underwater cable from Prince Rupert to Vancouver Island to San Francisco (Kitimat-Dunsmuir-San Francisco Bay area – could be tapped into NW)	1600 to 3200 MW	Coastal Wind and Hydro in Northwestern BC, Wind on Northern Vancouver Island.	SB BPA	Rcvg end only?	SB		SB
Option 2: DC underwater cable from Vancouver Island Olympic Peninsula with 500-kV AC line to Northern California using westside route (Dunsmuir – Esquimalt-DC cable - Fairmount – Shelton – Olympia 230 lines; Paul – Troutdale; Pearl – Marion - Alvey – Dixonville – Meridian -Captain Jack – Olinda – Tracy – Tesla 500 lines)	1000/1500 MW	Wind on Northern Vancouver Island, BC Resources	SB BPA	SB BPA	ABB		
Option 3: 500-kV AC line from Northern Alberta/BC to Northern California using Westside route (Dover-Wesley-Peace Canyon; Nicola-Meridian - Ingledow – Custer - Monroe – Echo Lake; Raver – Paul – Troutdale; Pearl – Marion - Alvey – Dixonville - Meridian - Captain Jack – Olinda – Tracy - Tesla)	1500 MW	Fort McMurray Cogen, Site C, and NW WA Cogen, Coastal Wind and Hydro in Northwestern BC, Wind on Northern Vancouver Island, Alberta Coal	BPA	AESO BPA BCTC	PSE BCTC AESO		
Option 4A: 500-kV AC line from south/central BC to Northern California using mid-WA/OR route (Dover-Wesley-Peace Canyon; Nicola – Vasuex Lake - Coulee - Hanford - John Day – Grizzly - Captain Jack - Olinda – Tracy - Tesla)	1500 MW	Revelstoke & Mica Hydro, Southern Alberta Wind, Central WA Wind	BPA	AESO BPA BCTC	PSE BCTC		
Option 4B: 500-kV AC line from south/central BC to Northern California using mid-WA route via McNary (Dover-Wesley-Peace Canyon; Nicola – Vasuex Lake - Coulee - Hanford – McNary - John Day –	1500 MW	Revelstoke & Mica Hydro, Southern Alberta Wind, Central WA Wind	BPA	AESO BPA	PSE BCTC		

Grizzly - Captain Jack - Olinda – Tracy - Tesla)							
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			Mileage/Cost/Corridor	Equal Angle, Voltage profile	PF Studies	Delivered Cost of Energy	Prod/Cost Studies
Option 5 A: 500-kV AC line from Northern Alberta to Northern California using eastside route (Dover – ELLERSLIE, KEEP HILLS – LANGDON - BELL - ASHE - JOHN DAY – GRIZZLY - CAPTAIN JACK - OLINDA – TRACY – TESLA)	1500 MW	Fort McMurray Cogen, Northern Alberta Hydro, Lake Wabamun Coal, Southern Alberta Wind, Central WA Wind, SE BC Resources	BPA	AESO BPA BCTC	BCTC AESO		
Option 5B: 500- kV AC line from Northern Alberta to Northern California using eastside route via Selkirk (Dover – ELLERSLIE, KEEP HILLS - LANGDON – CRANBROOK – SELKIRK - BELL - ASHE – MCNARY - JOHN DAY – GRIZZLY - CAPTAIN JACK - OLINDA – TRACY – TESLA)	1500 MW	Fort McMurray Cogen, Northern Alberta Hydro, Lake Wabamun Coal, Southern Alberta Wind, Central WA Wind, SE BC Resources	BPA	AESO BPA	BCTC AESO		
Option 6: DC line from Northern Alberta to Northern California using eastside route (Fort McMurray (DC terminal) – Edmonton - Langdon – Bell (DC terminal)– Ashe - Celilo (DC terminal)- AC Option 6A DC line from FM to Celilo, AC line from Big Eddy - Grizzly - Captain Jack - Olinda – Tracy – Tesla)	3000 MW from FM to Celilo, 1500 MW from Celilo to Tesla.	Fort McMurray Cogen, Northern Alberta Hydro, Lake Wabamun Coal, Southern Alberta Wind	BPA	Rcvg end only?	CISO PG&E AESO		
Option 7: AC/DC line from Northern Alberta to Las Vegas using eastside route (AC from Fort McMurray - GM Shrum - Nicola-Vasux Lake -Coulee , DC line from Townsend (DC terminal) to Marketplace (DC terminal). 7A option: AC line from FM to Genesee – Langdon - Westbrooks to Townsend with same DC line.	3000 MW DC from Townsend south, 1500 from Alb/BC, 1500 from Montana	Fort McMurray Cogen, Northern Alberta Hydro, Lake Wabamun Coal, Southern Alberta Wind	BPA	Rcvg end only?	CISO PG&E AESO		
Option 8: DC line from Northern Alberta to Southern California using far eastside route in north – (Fort McMurray (DC terminal) – Townsend (DC terminal), - Midpoint – SWIP corridor – Marketplace (DC terminal)– LA (DC terminal))	3000 MW	Fort McMurray Cogen, Northern Alberta Hydro, Lake Wabamun Coal, Southern Alberta Wind, could incorporate Montana resources	BPA	Rcvg end only?	CISO PG&E AESO		
Option 9: DC line from Northern Alberta to Northern California using far eastside route – (Fort McMurray (DC terminal) – Townsend (DC terminal), - Midpoint – Captain Jack – Olinda - Tracy – Tesla (DC terminal))	3000 MW	Fort McMurray Cogen, Northern Alberta Hydro, Lake Wabamun Coal, Southern Alberta Wind, could incorporate Montana resources	BPA	Rcvg end only AESO	CISO PG&E AESO		