

North Cowichan LCS Assumption

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		Baseline/Build as Usual	CleanBC Scenario	Climate Emergency Low-carbon Scenario
Target outcome of policy or action in the sector.		The modelled current energy use and emissions production trajectory given City plans and historical trends, without any new energy and emissions policy or action interventions.	The modelled current energy use and emissions production trajectory given City plans and historical trends, with new energy and emissions policies and actions based on the CleanBC Plan.	A modelled alternative energy use and emissions production scenario accounting for City plans and historical trends, with policy and action interventions in the land-use, buildings, energy generation,
DEMOGRAPHICS				
1	Population	29,676 (2016) 39,066 (2041)	Population projections held constant	Population projections held constant
2	Employment	31,618 (2016) 43,576 (2050)	Employment projections held constant	Employment projections held constant
3	Households	12,686 (2016) 13,340 (2050)	Household projections held constant	Household projections held constant
4	Vehicles	19,400 (2016) 17,600 (2050)	Vehicle projections held constant	Vehicle projections held constant
LAND-USE				
5	Spatial distribution	Continue current development trajectories.	Continue current development trajectories.	<ul style="list-style-type: none"> • 30% to James Alexander; • 30% to Gibbins/Prevost; • 30% to Chemainus; • 5% to Crofton; • 5% broadly distributed.
6	Dwelling size	Baseline dwelling sizes maintained	Baseline dwelling sizes maintained	Decrease the average dwelling size by 20% by 2050
7	Building type mix	New buildings type mix ratios reflect baseline building mixes.	New buildings type mix ratios reflect baseline building mixes.	Decrease the share of new buildings that are single family homes to 10% by 2050
BUILDINGS				
New buildings - buildings codes & standards				
8	New residential buildings	Follow BC Step Code: 20 per cent more energy efficient by 2022, 40 per cent more energy efficient by 2027, and 80 per cent more energy efficient by 2032 – net-zero energy ready "	Follow BC Step Code: 20 per cent more energy efficient by 2022, 40 per cent more energy efficient by 2027, and 80 per cent more energy efficient by 2032 – net-zero energy ready "	New buildings meet Passive House standard by 2030.
9	New commercial buildings	Follow BC Step Code	Follow BC Step Code	New buildings meet Passive House standard by 2030.
Existing buildings - retrofitting				
10	Retrofit homes	No retrofits.	-40% building emissions reduction	Achieve 50% thermal savings and 50% electrical savings in 100% of all existing dwellings by 2040.
11	Retrofits of commercial	No retrofits.	-40% building emissions reduction	Achieve 50% thermal savings and 50% electrical savings in 100% of all existing commercial buildings by 2040.
12	Industry (process motors/efficiency)	No change to current efficiencies.	No change to current efficiencies.	Increase efficiency by 50% by 2050.
13	Municipal buildings retrofits	Current efficiencies held constant	Current efficiencies held constant	100% of existing municipal buildings are retrofit to net zero emissions by 2030
Renewable energy generation (on-site, building scale)				
14	Installation of heat pumps	Current instances of heat pump use is extrapolated.	1000 NC homes transition to heat pumps. 1000 new NC homes use heat pumps instead of natural gas water heaters. 53 million m2 commercial floor space has heat pumps across BC by 2030.	100% of buildings' space heating and cooling needs are met by electric systems by 2050. Assume 70% air source and 30% geothermal heat pumps.
15	Solar PV - net metering	Current instances of solar PV use held constant.	Current instances of solar PV use held constant.	90% of new buildings have solar PV installed by 2050, supplying 50% of the buildings' electric load.
ENERGY GENERATION				

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Low or zero carbon energy generation (community scale)							
16	Solar PV - ground mount	Local energy generation	No instances	No instances	?		
17	District energy	Local energy generation	Current instances of DE held constant	Current instances of DE held constant	New DE systems added in high thermal energy demand areas - University Village/Civic Arena.		
18	Energy storage	Fuel-shifting	None	None	?		
19	Wind	Local energy generation	None	None			
20	Renewable natural gas	Local energy generation	None	15% RNG in homes by? (CleanBC does not specify)	100% of post-efficiency measures natural gas demand is replaced with RNG by 2050.		
TRANSPORTATION							
Transit and City fleet							
21	Expand transit	Reduced transportation energy use	Follows BC Transit planning	Follows BC Transit planning	By 2050: 10 minute frequency on high-demand routes, 20 minute frequency on medium demand, 7 days/week service by 2050.		
22	Electrify transit	Fuel-shifting	Follows BC Transit planning	Follows BC Transit planning	Transit mode share increases to 25% by 2050		
23	Electrify municipal fleets	Fuel-shifting	None.	None.	100% of vehicles electric and right-sized fleet by 2030. 100% electric by 2030.		
Active							
24	Increase/improve cycling & walking infrastructure	Reduced transportation energy use	Mode shares held current.	Mode shares held current.	35% of trips are walking and cycling by 2050, targeting trips of less than 2km for walking and less than 5km for cycling.		
Private/personal use							
25	Electrify personal vehicles	Fuel-shifting	3% new personal EVs in personal use vehicle stock by 2040.	30% of new car sales are electric by 2040. 100% of new car sales are electric by 2040. Increase low-carbon fuel standard by 20% by 2030. Increase tailpipe emissions standards by 2025. Over 40% of diesel and 10% of gasoline comes from biofuels. 15% of the passenger vehicles could be all-electric, 4% plug-in hybrid, and 33% hybrids.	Scales up to 100% electric of all new sales by 2030.		
26	Electrify commercial vehicles	Fuel-shifting	Current mix held constant.		Scales up to 100% electric of all new sales by 2030.		
WATER AND WASTE							
Water and wastewater							
27	Increase pumping efficiency	Reduced electric energy use	Current intensity held constant.	Current intensity held constant.	Decrease energy used in pumping by 2%/year to 2050.		
28	Increase water efficiency	Reduced electric energy use	Current intensity held constant.	Current intensity held constant.	Decrease water volume use by 2%/year to 2050.		
Waste							
29	Waste Diversion	Avoided methane emissions	Baseline generation and diversion rates extrapolated. 100% solid waste landfill gas capture already in place.	95% organic waste diversion. 75% landfill gas capture.	90% of residential and ICI waste diverted by 2050. Installation of anaerobic digestion facilities for waste water treatment and biogas capture for use as renewable natural gas.		
Energy Procurement							
30	RNG Procurement	Fuel-shifting	None	None	Replace 100% of post-efficiency measures natural gas with RNG by 2050		
31	Renewable Electricity Procurement	Fuel-shifting	None needed	None needed	Replace 100% of the remaining grid electricity with green electricity by 2050		
Industry and Agriculture							
32	Major industry energy use	Avoid fossil fuel emissions	No change from current practices.	2.5Mt annual reduction across the province.	?		

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33	Agricultural practices	No change from current practices.	No change from current practices.	?
34	Carbon capture and storage	Maintain current Municipal Forest Reserve practices.	Reduce 580,000 tCO ₂ e from industry across the province in 2030.	?
	Avoid livestock and tilling emissions			
	Remove carbon dioxide from the atmosphere			