

Carbon tax presentation

NC First Commission

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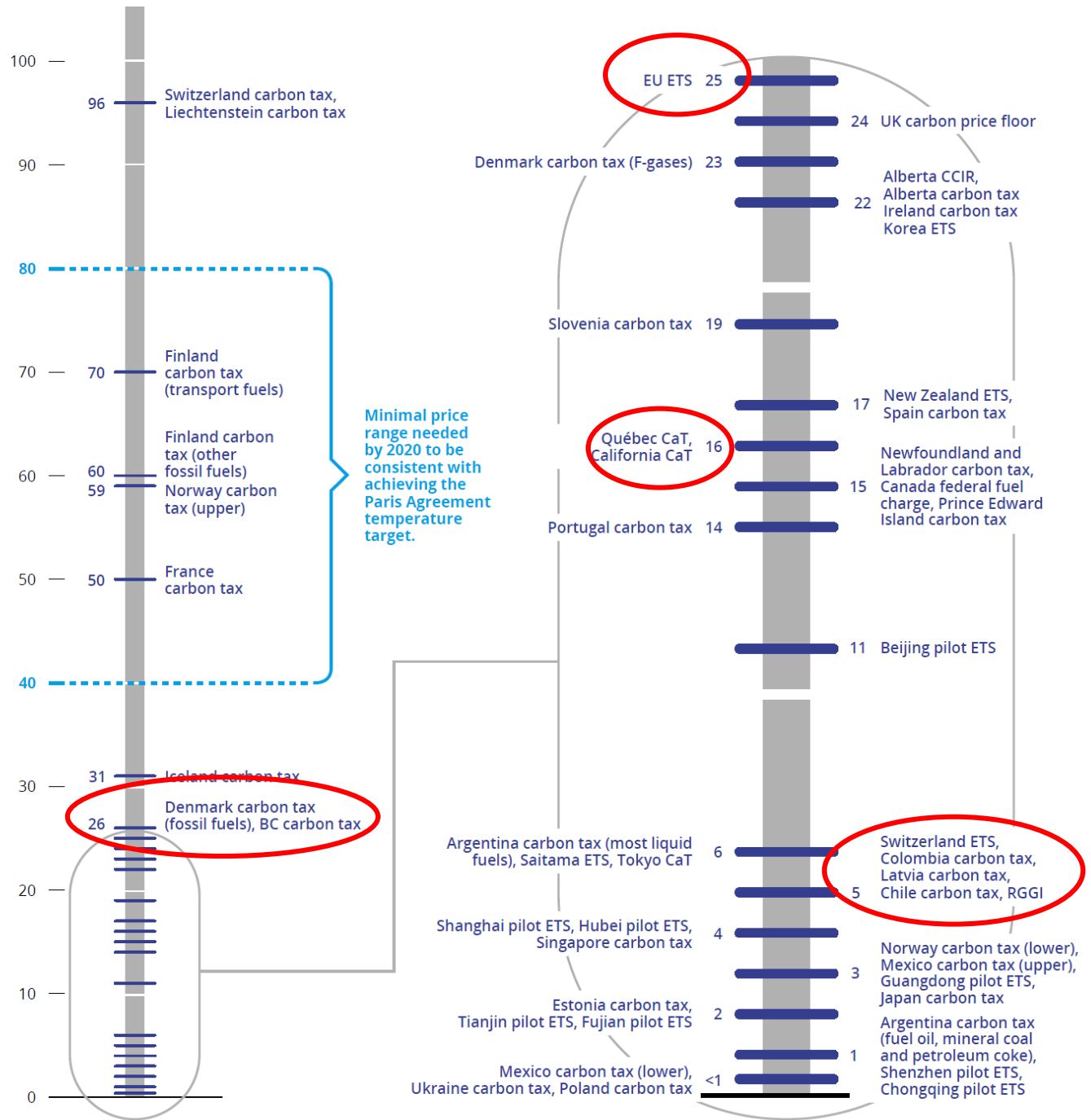
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Table 1-1: North Carolina GHG Emissions Inventory by Source Sector (MMT CO₂e)

	Historic					Projected		
	1990	2005	2012	2015	2017	2020	2025	2030
Electricity Use	54.57	79.37	66.85	58.48	52.60	45.74	40.59	42.46
Electric Power Generation	46.28	73.27	55.95	51.10	45.32	38.34	32.99	34.70
Imported Electricity ^a	8.29	6.10	10.90	7.37	7.28	7.39	7.60	7.76
Residential/Commercial/Industrial Combustion^b	26.77	26.02	18.66	21.15	20.92	22.52	23.26	23.92
Industrial	17.59	14.21	10.00	9.97	9.93	11.32	12.16	12.62
Commercial	3.79	5.06	4.17	5.76	5.72	5.84	5.76	5.93
Residential	5.39	6.75	4.48	5.43	5.28	5.36	5.35	5.38
Transportation	40.21	55.19	46.36	49.02	48.72	45.27	41.00	39.22
Gasoline & Diesel Highway	35.13	48.21	41.60	44.00	44.05	40.47	36.02	34.02
Non-Highway	5.08	6.96	4.72	4.98	4.62	4.74	4.91	5.12
Alternative Fuel Vehicles	0.00	0.03	0.04	0.05	0.05	0.06	0.07	0.08
Agriculture	7.06	10.65	10.56	10.38	10.53	10.51	10.47	10.44
Manure Management	2.59	6.02	5.63	5.90	6.05	6.06	6.09	6.11
Agricultural Soil Management	2.87	2.74	3.18	2.74	2.84	2.82	2.78	2.75
Enteric Fermentation	1.60	1.89	1.74	1.73	1.64	1.63	1.60	1.58
Burning of Agricultural Crop Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste Management	6.39	8.52	9.09	8.44	8.77	9.29	10.17	11.07
Municipal Solid Waste	5.47	7.23	7.52	6.82	7.09	7.52	8.26	9.00
Wastewater	0.92	1.29	1.57	1.61	1.68	1.77	1.92	2.06
Industrial Processes	1.04	3.83	5.39	6.03	7.18	8.84	11.31	12.73
Natural Gas and Oil Systems	0.86	1.17	1.28	1.32	1.35	1.40	1.47	1.55
Gross Emissions	136.89	184.74	158.18	154.82	150.08	143.57	138.28	141.37
Net Carbon Sinks – LULUCF^c	-35.64	-32.66	-33.97	-34.16	-34.03	-34.03	-34.03	-34.03
Net Emissions	101.25	152.08	124.22	120.66	116.06	109.55	104.25	107.35
Percent Reduction in Net Emissions from 2005					24%		31%	

<https://deq.nc.gov/energy-climate/climate-change/greenhouse-gas-inventory>

Existing carbon prices (World Bank State and Trends of Carbon Pricing 2019)



NC Carbon Tax Revenue

2025-2030, Annual Estimate (rough)

	Est. Emisns.	\$25 tax	\$50 tax	\$75 tax
Electricity	40 mn. tons	\$1 billion	\$2 billion	\$3 billion
Residential / Commercial / Industrial	23 mn. tons	\$0.6 billion	\$1.1 billion	\$1.7 billion
Transport	40 mn. tons	\$1 billion	\$2 billion	\$3 billion
Total	103 mn. tons	\$2.6 billion	\$5.1 billion	\$7.7 billion

Effects on prices (rough calculation)

	Current	\$25	\$50	\$75
Residential Electricity	10.9 c/kwh	0.9 c/kwh	1.8 c/kwh	2.8 c/kwh
Commercial Electricity	8.7 c/kwh	0.9 c/kwh	1.8 c/kwh	2.8 c/kwh
Industrial Electricity	6.4 c/kwh	0.9 c/kwh	1.8 c/kwh	2.8 c/kwh
Residential Natural Gas	\$12.11 / tcf	\$1.33 / tcf	\$2.66 / tcf	\$3.98 / tcf
Commercial Natural Gas	\$8.48 / tcf	\$1.33 / tcf	\$2.66 / tcf	\$3.98 / tcf
Industrial Natural Gas	\$6.18 / tcf	\$1.33 / tcf	\$2.66 / tcf	\$3.98 / tcf
Gasoline	\$2.35 /gallon	22.2 c/gallon	44.4 c/gallon	66.6 c/gallon
Diesel	\$2.81 /gallon	25.5 c/gallon	51.0 c/gallon	75.5 c/gallon

Notes: electricity prices from <https://www.electricitylocal.com/states/north-carolina/>. Electricity emission factor 0.37 tons/MWh from <https://www.eia.gov/electricity/state/northcarolina/>. Natural gas prices https://www.eia.gov/dnav/ng/ng_pri_sum_dcu_SNC_a.htm. Gasoline/diesel prices https://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_r1z_m.htm (padd 1C). Emission factors (8.89 kg/gallon for gasoline, 10.16 kg/gallon for diesel, 53.12 kg/tcf) from https://www.eia.gov/environment/emissions/co2_vol_mass.php.

Who would have the obligation to pay a carbon tax? (based on CA and BC design)

- Electric generators
 - ~200 generators
(EPA NEEDS data base, <https://www.epa.gov/airmarkets/national-electric-energy-data-system-needs-v6>)
 - ~20-30 facilities with emissions above 25,000 tons/year.
(EPA GHG Reporting Program <https://ghgdata.epa.gov/ghgp/main.do>)
- Industrial facilities
 - ~100-200 with emissions above 25,000 tons/year.
(EPA GHG Reporting Program <https://ghgdata.epa.gov/ghgp/main.do>)
- Fuel distributors
 - Natural gas companies
4
(<https://www.ncuc.net/Industries/naturalgas/naturalgas.html>)
 - Fuel oil / LPG / gasoline / diesel distributors
~30
(<https://www.thomasnet.com/nsearch.html?cov=NC&heading=33460601>)