


Cooperation and collaboration: a survival strategy



Mark Asmundson




We share the air, our waterways
connect. Our separation is
artificial.

Legal, but artificial nonetheless.









Huge health benefits
gained by reducing
emission of air pollutants






Early 21st century: Air
quality issues continue
to be complex



- 
- Ground level ozone
 - Particulates-diesel and wood smoke
 - Air toxics
 - Climate change





Right now, regional
issues are significantly
affected by the energy
sector





Regional energy issues:

- Transport
- Processing
- Production



Energy Transport




Traditional



New wave





Three NWCAA refineries
have crude by rail
permitted and either
built or in construction





TESORO







Ferndale Refinery





Crude by rail and feed stock
by rail in application process

Proposed: Gateway Pacific Terminal






Powder
River coal
trains

Along
Columbia
River





Will additional rail traffic
lead to a significant
increase in fine particle
emissions?



December 2012

PM 2.5 - 24 Hour averages
ug/m3

Station	Date																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Bellingham-Yew		1.7	0.4	1.1	1.8	4.6	4.2	6.4	4.4	3.7	1.6	5.2	3.7	7.2	2.5	1.5	1.2	4.1	0.5	2.0	3.5	2.7	3.3	8.8	5.7	6.7	6.9	8.1	7.8	9.4	10.9
Bellingham-Cornwall	2.6	2.2	2.1	2.1	3.1	2.1	1.9	3.5	3.8	3.1	2.0	4.6	3.0	2.3	1.7	1.6	1.6	2.1	0.8	0.9	2.2	1.8	2.1	5.4	2.3	2.7	3.9	4.3	3.5	4.7	5.6
Mount Vernon	1.7	1.7	1.4	1.9	2.9	2.5	3.0	5.3	3.7	5.4	2.5	2.9	2.6	3.2	1.5	1.6	2.2	2.2	1.3	1.4	3.4	2.2	2.3	2.5	1.6	1.2	3.3	4.1	5.1	5.0	5.3
FCC-Custer	0.7	0.6	0.8	0.6	1.0	0.8	0.8	0.7	0.7	0.6	0.7	0.6	0.8	0.7	1.0	0.7	0.9	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.8	0.7	0.9	0.8	0.8	1.3	1.0
March Point	1.8	1.9	1.5	1.8	2.3	1.9	2.2	3.1	2.1	3.7	2.3	2.9	3.9	3.1	2.1	1.9	2.2	3.2	1.7	1.9	2.0	2.0	2.0	3.6	1.9	1.6	3.1	2.3	3.2	4.3	4.0
Anacortes	5.9	5.6	5.9	6.2	6.6	5.5	5.3	7.7	4.0	8.7	5.9	6.9	7.7	5.8	3.7	2.8	2.8	5.1	2.5	4.0	3.8	4.6	4.3	6.4	2.5	3.8	6.6	7.6	6.2	6.7	6.0
Sierra Pacific	3.8	2.9	4.1	3.5	4.4	4.2	4.3	7.3	5.4	8.0	6.9	6.3	6.5	4.9	4.3	5.1	4.6	3.3	2.5	4.5	6.8	5.3	5.0	6.5	5.0	6.2	6.2	6.3	5.3	7.0	
Oak Harbor	2.0	1.6	1.6	2.4	2.3	1.7	1.9	3.6	1.9	2.5	1.9	3.3	3.3	2.7	1.8	1.7	2.2	2.0	1.7	1.6	2.1	1.9	1.6	1.7	1.7	1.6	1.9	2.2	1.9	3.8	4.1
Columbia Valley	9.9	9.2	15.7	8.2	5.7	7.9	13.0	24.7						32.2	19.6	12.9	9.4	11.6	18.4	14.8	33.1	36.9	37.3	25.9	26.3	31.7	17.1	20.1	31.1	38.0	51.1

■ Good (0 to 15.4)
 ■ Moderate (15.5 to 35.4)
 ■ Unhealthy for Sensitive Groups (35.5 to 65.4)
 ■ Unhealthy (>65.5)

Ozone - 8 hour max
ppb

Station	Date																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
FCC-Custer	39	36	33	37	38	31	38	34	25	17	24	22	23	21	28	36	40	35	36	34	31	32	34	18	31	30	18	11	14	22	
Anacortes	39	35	29	33	42	32	37	24	29	23	22	22	21	24	31	35	43	37	34	31	30	36	36	25	35	30	26	18	21	16	18

■ Good (0 to 59)
 ■ Moderate (60 to 75)
 ■ Unhealthy for Sensitive Groups (76 to 95)
 ■ Unhealthy (>95)






Energy Processing

Over the long run—how have emissions from the largest sources in NWCAA changed?





Between 2000 and 2013 emissions
of criteria pollutants from all four
refineries decreased by 19,939 tons
per year:

2000 = 32,376 tons

2013 = 12,437 tons



Energy Processing



4 NWCAA
Refineries



Energy Processing



Emission reductions 2010-2013

36.3%

Energy Processing



Ferndale Refinery



Energy Processing



Emission reductions 2000-2013

53.4%

Energy Processing



TESORO



Energy Processing



Emission reductions 2010-2013

76.6%

Energy Processing



Energy Processing

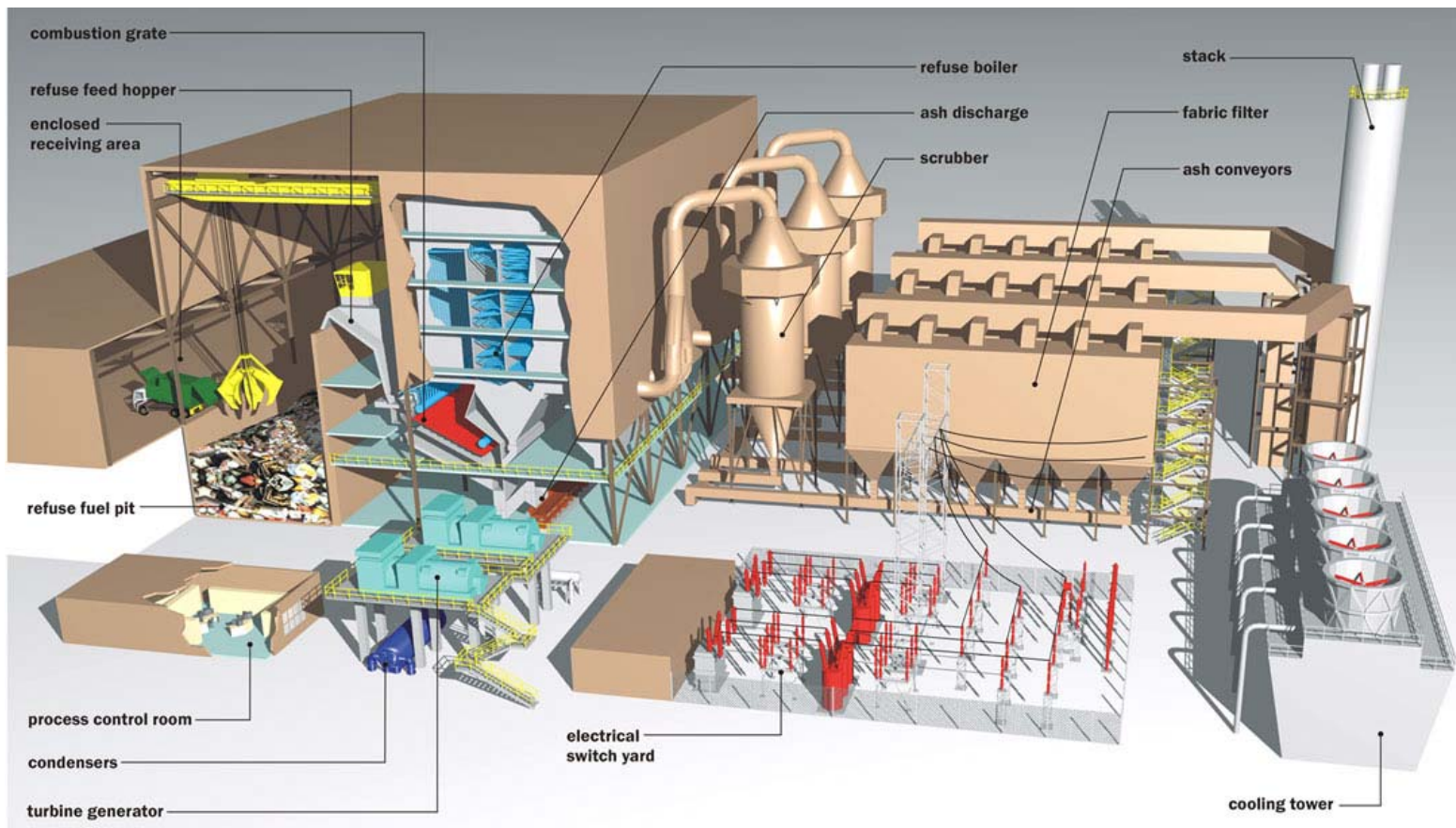



Emission reductions 2010-2013

57.3%

Energy Production

Planned





While energy related activity may
dominate public attention, other
air quality issues persist



Sumas Mountain-Swift Creek





Mutual respect and concern

Sharing of science, information concerning major project activity, and ongoing collaboration to achieve ever better air quality in our region has worked.

Continuation of this approach is an effective strategy to overcome the artificial legal barrier which separates our shared ecosystem.