

## EFFECT OF GROWTH ON WOODSMOKE EMISSIONS

### Assumptions:

Annual growth rate of w-b devices = .7% (annual average sales of w-b devices, 2000-06)  
 Split between uncertified & certified stoves and inserts, adjusted from 2005 survey  
     Uncertified = 70%  
     Certified = 30%  
 Annual sales of wood-burning devices are split:  
     70% manufactured fireplaces  
     30% WA certified wood stoves

### 2005 Ecology Survey Data

Type of Device	number %	tons/year	Emiss %
Uncert St, Ins	22%	8435	58%
Cert St, Ins	20%	3600	25%
Fireplaces	58%	2509	17%
Total		14544	

\*Source: Dept. of Ecology 2005 Emission Invent

### EFFECT OF 20 YEARS GROWTH

Emission Source (2005 survey)	2005 Survey	Adjusted	# Devices,	Adj 2005	20 years of	2025 Emiss	2025 Emiss		
	Devices Owned	% stv/ins owned:	Adj to 70/30	Emissions tons/year	emissions growth	no replacement	% Tot	50% change-out	% Tot
Uncertif stoves & Inserts (52%)	272,103	70%	363,492	11,268		11,268	66.7%	8,026	58.8%
Certified stoves & inserts (48%)	247,171	30%	155,782	2,025	673	2,698	16.0%	2,698	19.8%
<i>subtotal</i>	<i>519,274</i>		<i>519,274</i>	<i>13,293</i>	<i>673</i>	<i>13,967</i>		<i>10,725</i>	
Fireplaces*	705,985		705,985	2,509	424	2,933	17.4%	2,933	21.5%
total	1,225,259			15,802	1,097	16,900		13,658	
<b>2025 emiss as % of 2005</b>						<b>107%</b>		<b>86%</b>	

\*Emission factor is same for manufactured and masonry fireplaces

### Annual Emissions and 20 yr Growth

	Average sales 00-06	Emissions lbs/device	Annual emiss	Years of growth	Emissions Grwth-20 yr
Uncertif stoves & Inserts	0	62.0	0.0		
Certif stoves & inserts (30%)	2560	26.3	33.7	20	673
Manuf & Masonry frplaces (70 %)	5,974	7.1	21.2	20	424
	8,534				1097

### Wood to gas

	2025 Emiss	% Tot
Uncert	5,634	50.0%
Cert	2,698	24.0%
subt	8,333	74.0%
Firepl	2,933	26.0%
Tot	11,266	
	<b>71.29%</b>	

### CONCLUSIONS:

- 1 Emissions from uncertified stoves are still the largest source, now and in the future
- 2 2025 emissions from fireplaces and certified stoves are about equal
- 3 Future emissions from fireplaces are important and should be addressed if possible
- 4 Large future reductions will require: a higher % change-out, reductions from all sources, or max reduction from each change