





20 Generations, first builds 4							
Generations	Machines	Reproduction Rate	Dead Machines				
1	1	4	0				
2	4	3.8	1				
3	15	3.6	5				
4	55	3.4	20	Year 1			
5	186	3.2	75		0.2		
6	595	3	261				
7	1,786	2.8	856				
8	5,001	2.6	2,642	Year 2			
9	13,003	2.4	7,643				Years
10	31,206	2.2	20,646			Various growth rates	800
11	68,653	2	51,852			0 (replacement)	30,000
12	137,307	1.8	120,505	Year 3		0.50%	1,621,701
13	247,152	1.6	257,812			1%	85,944,934
14	395,443	1.4	504,964			1.25%	621,078,884
15	553,620	1.2	900,407			1.50%	4,466,373,665
16	664,344	1	1,454,027	Year four		1.75%	31,963,591,563
17	664,344	0.8	2,118,372			2%	227,645,287,434
18	531,476	0.6	2,782,716				
19	318,885	0.4	3,314,192				
20	127,554	0.2	3,633,077	Year Five			
						sq km land on earth	148,940,000
						people on earth	7,000,000,000
						people per sq km	47

1	30,000.00			30,000.00
2	30,150.00			30,150.00
3	30,300.75			30,300.75
4	30,452.25			30,452.25
5	30,604.52			30,604.52
6	30,757.54			30,757.54
7	30,911.33			30,911.33
8	31,065.88			31,065.88
9	31,221.21			31,221.21
10	31,377.32			31,377.32
11	31,534.20			31,534.20
12	31,691.87			31,691.87
13	31,850.33			31,850.33
14	32,009.59			32,009.59
15	32,169.63			32,169.63
16	32,330.48			32,330.48
17	32,492.13			32,492.13
18	32,654.60			32,654.60
19	32,817.87			32,817.87
20	32,981.96			32,981.96
21	33,146.87			33,146.87
22	33,312.60			33,312.60
23	33,479.16			33,479.16
24	33,646.56			33,646.56
25	33,814.79			33,814.79
26	33,983.87			33,983.87
27	34,153.79			34,153.79
28	34,324.56			34,324.56
29	34,496.18			34,496.18
30	34,668.66			34,668.66
31	34,842.00			34,842.00
32	35,016.21			35,016.21
33	35,191.29			35,191.29
34	35,367.25			35,367.25
35	35,544.09			35,544.09
36	35,721.81			35,721.81
37	35,900.42			35,900.42
38	36,079.92			36,079.92
39	36,260.32			36,260.32
40	36,441.62			36,441.62
41	36,623.83			36,623.83
42	36,806.95			36,806.95
43	36,990.98			36,990.98
44	37,175.94			37,175.94
45	37,361.82			37,361.82
46	37,548.62			37,548.62
47	37,736.37			37,736.37
48	37,925.05			37,925.05
49	38,114.67			38,114.67
50	38,305.25			38,305.25
51	38,496.77	Peak start	1.0060	38,535.08
52	38,689.26		1.0080	38,843.36
53	38,882.70		1.0100	39,231.79

54	39,077.12		1.0120	39,702.58
55	39,272.50		1.0140	40,258.41
56	39,468.87		1.0160	40,902.55
57	39,666.21		1.0180	41,638.79
58	39,864.54	Peak top	1.0200	42,471.57
59	40,063.86		1.0195	43,299.76
60	40,264.18		1.0190	44,122.46
61	40,465.50		1.0185	44,938.72
62	40,667.83		1.0180	45,747.62
63	40,871.17		1.0175	46,548.20
64	41,075.53		1.0170	47,339.52
65	41,280.90		1.0165	48,120.63
66	41,487.31		1.0160	48,890.56
67	41,694.75		1.0155	49,648.36
68	41,903.22		1.0150	50,393.09
69	42,112.74		1.0145	51,123.79
70	42,323.30		1.0140	51,839.52
71	42,534.92		1.0135	52,539.35
72	42,747.59		1.0130	53,222.36
73	42,961.33		1.0125	53,887.64
74	43,176.13		1.0120	54,534.29
75	43,392.02		1.0115	55,161.44
76	43,608.98		1.0110	55,768.21
77	43,827.02		1.0105	56,353.78
78	44,046.16		1.0100	56,917.32
79	44,266.39		1.0095	57,458.03
80	44,487.72		1.0090	57,975.16
81	44,710.16		1.0085	58,467.94
82	44,933.71		1.0080	58,935.69
83	45,158.38		1.0075	59,377.71
84	45,384.17		1.0070	59,793.35
85	45,611.09		1.0065	60,182.01
86	45,839.14		1.0060	60,543.10
87	46,068.34	Peak end	1.0055	60,876.09
88	46,298.68			61,180.47
89	46,530.18			61,486.37
90	46,762.83			61,793.80
91	46,996.64			62,102.77
92	47,231.62			62,413.28
93	47,467.78			62,725.35
94	47,705.12			63,038.98
95	47,943.65			63,354.17
96	48,183.36			63,670.94
97	48,424.28			63,989.30
98	48,666.40			64,309.24
99	48,909.73			64,630.79
100	49,154.28			64,953.94
101	49,400.05			65,278.71
102	49,647.06			65,605.11
103	49,895.29			65,933.13
104	50,144.77			66,262.80
105	50,395.49			66,594.11
106	50,647.47			66,927.08

107	50,900.71			67,261.72
108	51,155.21			67,598.03
109	51,410.98			67,936.02
110	51,668.04			68,275.70
111	51,926.38			68,617.07
112	52,186.01			68,960.16
113	52,446.94			69,304.96
114	52,709.18			69,651.49
115	52,972.72			69,999.74
116	53,237.59			70,349.74
117	53,503.77			70,701.49
118	53,771.29			71,055.00
119	54,040.15			71,410.27
120	54,310.35			71,767.32
121	54,581.90			72,126.16
122	54,854.81			72,486.79
123	55,129.09	Peak start	1.0060	72,921.71
124	55,404.73		1.0080	73,505.09
125	55,681.75		1.0100	74,240.14
126	55,960.16		1.0120	75,131.02
127	56,239.96		1.0140	76,182.85
128	56,521.16		1.0160	77,401.78
129	56,803.77		1.0180	78,795.01
130	57,087.79	Peak top	1.0200	80,370.91
131	57,373.23		1.0195	81,938.14
132	57,660.09		1.0190	83,494.97
133	57,948.39		1.0185	85,039.63
134	58,238.14		1.0180	86,570.34
135	58,529.33		1.0175	88,085.32
136	58,821.97		1.0170	89,582.77
137	59,116.08		1.0165	91,060.89
138	59,411.66		1.0160	92,517.86
139	59,708.72		1.0155	93,951.89
140	60,007.27		1.0150	95,361.17
141	60,307.30		1.0145	96,743.90
142	60,608.84		1.0140	98,098.32
143	60,911.88		1.0135	99,422.64
144	61,216.44		1.0130	100,715.14
145	61,522.52		1.0125	101,974.08
146	61,830.14		1.0120	103,197.77
147	62,139.29		1.0115	104,384.54
148	62,449.98		1.0110	105,532.77
149	62,762.23		1.0105	106,640.86
150	63,076.05		1.0100	107,707.27
151	63,391.43		1.0095	108,730.49
152	63,708.38		1.0090	109,709.07
153	64,026.92		1.0085	110,641.59
154	64,347.06		1.0080	111,526.73
155	64,668.79		1.0075	112,363.18
156	64,992.14		1.0070	113,149.72
157	65,317.10		1.0065	113,885.19
158	65,643.68		1.0060	114,568.50
159	65,971.90	Peak end	1.0055	115,198.63

160	66,301.76			115,774.62
161	66,633.27			116,353.50
162	66,966.44			116,935.26
163	67,301.27			117,519.94
164	67,637.78			118,107.54
165	67,975.97			118,698.08
166	68,315.85			119,291.57
167	68,657.42			119,888.03
168	69,000.71			120,487.47
169	69,345.71			121,089.90
170	69,692.44	Peak start	1.0060	121,816.44
171	70,040.91		1.0080	122,790.97
172	70,391.11		1.0100	124,018.88
173	70,743.07		1.0120	125,507.11
174	71,096.78		1.0140	127,264.21
175	71,452.27		1.0160	129,300.44
176	71,809.53		1.0180	131,627.85
177	72,168.57	Peak top	1.0200	134,260.40
178	72,529.42		1.0195	136,878.48
179	72,892.06		1.0190	139,479.17
180	73,256.52		1.0185	142,059.54
181	73,622.81		1.0180	144,616.61
182	73,990.92		1.0175	147,147.40
183	74,360.88		1.0170	149,648.90
184	74,732.68		1.0165	152,118.11
185	75,106.34		1.0160	154,552.00
186	75,481.87		1.0155	156,947.56
187	75,859.28		1.0150	159,301.77
188	76,238.58		1.0145	161,611.65
189	76,619.77		1.0140	163,874.21
190	77,002.87		1.0135	166,086.51
191	77,387.89		1.0130	168,245.64
192	77,774.83		1.0125	170,348.71
193	78,163.70		1.0120	172,392.89
194	78,554.52		1.0115	174,375.41
195	78,947.29		1.0110	176,293.54
196	79,342.03		1.0105	178,144.62
197	79,738.74		1.0100	179,926.07
198	80,137.43		1.0095	181,635.36
199	80,538.12		1.0090	183,270.08
200	80,940.81		1.0085	184,827.88
201	81,345.51		1.0080	186,306.50
202	81,752.24		1.0075	187,703.80
203	82,161.00		1.0070	189,017.73
204	82,571.81		1.0065	190,246.34
205	82,984.67		1.0060	191,387.82
206	83,399.59	Peak end	1.0055	192,440.45
207	83,816.59			193,402.66
208	84,235.67			194,369.67
209	84,656.85			195,341.52
210	85,080.13			196,318.22
211	85,505.53			197,299.82
212	85,933.06			198,286.31

213	86,362.73		199,277.75
214	86,794.54		200,274.13
215	87,228.51		201,275.51
216	87,664.66		202,281.88
217	88,102.98		203,293.29
218	88,543.49		204,309.76
219	88,986.21		205,331.31
220	89,431.14		206,357.96
221	89,878.30		207,389.75
222	90,327.69		208,426.70
223	90,779.33		209,468.84
224	91,233.22		210,516.18
225	91,689.39		211,568.76
226	92,147.84		212,626.61
227	92,608.58		213,689.74
228	93,071.62		214,758.19
229	93,536.98		215,831.98
230	94,004.66		216,911.14
231	94,474.69		217,995.69
232	94,947.06		219,085.67
233	95,421.80		220,181.10
234	95,898.90		221,282.01
235	96,378.40		222,388.42
236	96,860.29		223,500.36
237	97,344.59		224,617.86
238	97,831.31		225,740.95
239	98,320.47		226,869.65
240	98,812.07		228,004.00
241	99,306.13		229,144.02
242	99,802.66		230,289.74
243	100,301.68		231,441.19
244	100,803.19		232,598.40
245	101,307.20		233,761.39
246	101,813.74		234,930.20
247	102,322.81		236,104.85
248	102,834.42		237,285.37
249	103,348.59		238,471.80
250	103,865.34		239,664.16
251	104,384.66		240,862.48
252	104,906.59		242,066.79
253	105,431.12		243,277.12
254	105,958.27		244,493.51
255	106,488.07		245,715.98
256	107,020.51		246,944.56
257	107,555.61		248,179.28
258	108,093.39		249,420.18
259	108,633.85		250,667.28
260	109,177.02		251,920.61
261	109,722.91		253,180.22
262	110,271.52		254,446.12
263	110,822.88		255,718.35
264	111,377.00		256,996.94
265	111,933.88		258,281.92



266	112,493.55	Peak start	1.0060	259,831.62
267	113,056.02		1.0080	261,910.27
268	113,621.30		1.0100	264,529.37
269	114,189.40		1.0120	267,703.72
270	114,760.35		1.0140	271,451.58
271	115,334.15		1.0160	275,794.80
272	115,910.82		1.0180	280,759.11
273	116,490.38	Peak top	1.0200	286,374.29
274	117,072.83		1.0195	291,958.59
275	117,658.19		1.0190	297,505.80
276	118,246.48		1.0185	303,009.66
277	118,837.72		1.0180	308,463.83
278	119,431.91		1.0175	313,861.95
279	120,029.06		1.0170	319,197.60
280	120,629.21		1.0165	324,464.36
281	121,232.36		1.0160	329,655.79
282	121,838.52		1.0155	334,765.46
283	122,447.71		1.0150	339,786.94
284	123,059.95		1.0145	344,713.85
285	123,675.25		1.0140	349,539.85
286	124,293.63		1.0135	354,258.63
287	124,915.09		1.0130	358,864.00
288	125,539.67		1.0125	363,349.80
289	126,167.37		1.0120	367,709.99
290	126,798.20		1.0115	371,938.66
291	127,432.20		1.0110	376,029.98
292	128,069.36		1.0105	379,978.30
293	128,709.70		1.0100	383,778.08
294	129,353.25		1.0095	387,423.97
295	130,000.02		1.0090	390,910.79
296	130,650.02		1.0085	394,233.53
297	131,303.27		1.0080	397,387.40
298	131,959.78		1.0075	400,367.80
299	132,619.58		1.0070	403,170.38
300	133,282.68		1.0065	405,790.99
301	133,949.09		1.0060	408,225.73
302	134,618.84	Peak end	1.0055	410,470.97
303	135,291.93			412,523.33
304	135,968.39			414,585.94
305	136,648.24			416,658.87
306	137,331.48			418,742.17
307	138,018.13			420,835.88
308	138,708.22			422,940.06
309	139,401.77			425,054.76
310	140,098.77			427,180.03
311	140,799.27	Peak start	1.0060	429,743.11
312	141,503.27		1.0080	433,181.06
313	142,210.78		1.0100	437,512.87
314	142,921.84		1.0120	442,763.02
315	143,636.44		1.0140	448,961.71
316	144,354.63		1.0160	456,145.09
317	145,076.40		1.0180	464,355.70
318	145,801.78	Peak top	1.0200	473,642.82

319	146,530.79		1.0195	482,878.85
320	147,263.44		1.0190	492,053.55
321	147,999.76		1.0185	501,156.54
322	148,739.76		1.0180	510,177.36
323	149,483.46		1.0175	519,105.46
324	150,230.88		1.0170	527,930.26
325	150,982.03		1.0165	536,641.11
326	151,736.94		1.0160	545,227.36
327	152,495.63		1.0155	553,678.39
328	153,258.10		1.0150	561,983.56
329	154,024.39		1.0145	570,132.33
330	154,794.52		1.0140	578,114.18
331	155,568.49		1.0135	585,918.72
332	156,346.33		1.0130	593,535.66
333	157,128.06		1.0125	600,954.86
334	157,913.70		1.0120	608,166.32
335	158,703.27		1.0115	615,160.23
336	159,496.79		1.0110	621,926.99
337	160,294.27		1.0105	628,457.23
338	161,095.74		1.0100	634,741.80
339	161,901.22		1.0095	640,771.84
340	162,710.73		1.0090	646,538.79
341	163,524.28		1.0085	652,034.37
342	164,341.90		1.0080	657,250.65
343	165,163.61		1.0075	662,180.03
344	165,989.43		1.0070	666,815.29
345	166,819.38		1.0065	671,149.59
346	167,653.48		1.0060	675,176.48
347	168,491.74	Peak end	1.0055	678,889.95
348	169,334.20			682,284.40
349	170,180.87			685,695.83
350	171,031.78			689,124.30
351	171,886.94			692,569.93
352	172,746.37			696,032.78
353	173,610.10			699,512.94
354	174,478.15			703,010.50
355	175,350.54			706,525.56
356	176,227.30			710,058.18
357	177,108.43	Peak start	1.0060	714,318.53
358	177,993.97		1.0080	720,033.08
359	178,883.94		1.0100	727,233.41
360	179,778.36		1.0120	735,960.21
361	180,677.26		1.0140	746,263.66
362	181,580.64		1.0160	758,203.88
363	182,488.55		1.0180	771,851.55
364	183,400.99	Peak top	1.0200	787,288.58
365	184,317.99		1.0195	802,640.70
366	185,239.58		1.0190	817,890.88
367	186,165.78		1.0185	833,021.86
368	187,096.61		1.0180	848,016.25
369	188,032.09		1.0175	862,856.54
370	188,972.25		1.0170	877,525.10
371	189,917.12		1.0165	892,004.26

372	190,866.70		1.0160	906,276.33
373	191,821.03		1.0155	920,323.61
374	192,780.14		1.0150	934,128.47
375	193,744.04		1.0145	947,673.33
376	194,712.76		1.0140	960,940.76
377	195,686.32		1.0135	973,913.46
378	196,664.76		1.0130	986,574.33
379	197,648.08		1.0125	998,906.51
380	198,636.32		1.0120	1,010,893.39
381	199,629.50		1.0115	1,022,518.66
382	200,627.65		1.0110	1,033,766.37
383	201,630.79		1.0105	1,044,620.91
384	202,638.94		1.0100	1,055,067.12
385	203,652.14		1.0095	1,065,090.26
386	204,670.40		1.0090	1,074,676.07
387	205,693.75		1.0085	1,083,810.82
388	206,722.22		1.0080	1,092,481.31
389	207,755.83		1.0075	1,100,674.92
390	208,794.61		1.0070	1,108,379.64
391	209,838.58		1.0065	1,115,584.11
392	210,887.77		1.0060	1,122,277.61
393	211,942.21	Peak end	1.0055	1,128,450.14
394	213,001.92			1,134,092.39
395	214,066.93			1,139,762.85
396	215,137.27			1,145,461.67
397	216,212.95			1,151,188.98
398	217,294.02			1,156,944.92
399	218,380.49			1,162,729.64
400	219,472.39			1,168,543.29
401	220,569.75			1,174,386.01
402	221,672.60			1,180,257.94
403	222,780.97			1,186,159.23
404	223,894.87			1,192,090.03
405	225,014.34			1,198,050.48
406	226,139.42			1,204,040.73
407	227,270.11			1,210,060.93
408	228,406.46			1,216,111.24
409	229,548.50			1,222,191.79
410	230,696.24			1,228,302.75
411	231,849.72			1,234,444.27
412	233,008.97			1,240,616.49
413	234,174.01			1,246,819.57
414	235,344.88			1,253,053.67
415	236,521.61			1,259,318.94
416	237,704.22			1,265,615.53
417	238,892.74			1,271,943.61
418	240,087.20			1,278,303.33
419	241,287.64			1,284,694.84
420	242,494.07	Peak start	1.0060	1,292,403.01
421	243,706.54		1.0080	1,302,742.24
422	244,925.08		1.0100	1,315,769.66
423	246,149.70		1.0120	1,331,558.89
424	247,380.45		1.0140	1,350,200.72

425	248,617.35		1.0160	1,371,803.93
426	249,860.44		1.0180	1,396,496.40
427	251,109.74	Peak top	1.0200	1,424,426.33
428	252,365.29		1.0195	1,452,202.64
429	253,627.12		1.0190	1,479,794.49
430	254,895.25		1.0185	1,507,170.69
431	256,169.73		1.0180	1,534,299.76
432	257,450.58		1.0175	1,561,150.01
433	258,737.83		1.0170	1,587,689.56
434	260,031.52		1.0165	1,613,886.44
435	261,331.68		1.0160	1,639,708.62
436	262,638.34		1.0155	1,665,124.10
437	263,951.53		1.0150	1,690,100.96
438	265,271.29		1.0145	1,714,607.43
439	266,597.64		1.0140	1,738,611.93
440	267,930.63		1.0135	1,762,083.19
441	269,270.28		1.0130	1,784,990.27
442	270,616.63		1.0125	1,807,302.65
443	271,969.72		1.0120	1,828,990.28
444	273,329.57		1.0115	1,850,023.67
445	274,696.21		1.0110	1,870,373.93
446	276,069.70		1.0105	1,890,012.86
447	277,450.04		1.0100	1,908,912.99
448	278,837.29		1.0095	1,927,047.66
449	280,231.48		1.0090	1,944,391.09
450	281,632.64		1.0085	1,960,918.42
451	283,040.80		1.0080	1,976,605.76
452	284,456.01		1.0075	1,991,430.31
453	285,878.29		1.0070	2,005,370.32
454	287,307.68		1.0065	2,018,405.22
455	288,744.22		1.0060	2,030,515.66
456	290,187.94	Peak end	1.0055	2,041,683.49
457	291,638.88			2,051,891.91
458	293,097.07			2,062,151.37
459	294,562.56			2,072,462.13
460	296,035.37			2,082,824.44
461	297,515.55			2,093,238.56
462	299,003.12			2,103,704.75
463	300,498.14			2,114,223.28
464	302,000.63			2,124,794.39
465	303,510.63			2,135,418.36
466	305,028.19			2,146,095.46
467	306,553.33			2,156,825.93
468	308,086.09			2,167,610.06
469	309,626.52			2,178,448.11
470	311,174.66			2,189,340.35
471	312,730.53			2,200,287.06
472	314,294.18			2,211,288.49
473	315,865.65			2,222,344.93
474	317,444.98			2,233,456.66
475	319,032.21			2,244,623.94
476	320,627.37			2,255,847.06
477	322,230.50			2,267,126.30

478	323,841.66			2,278,461.93
479	325,460.86			2,289,854.24
480	327,088.17			2,301,303.51
481	328,723.61			2,312,810.03
482	330,367.23			2,324,374.08
483	332,019.06			2,335,995.95
484	333,679.16			2,347,675.93
485	335,347.56			2,359,414.31
486	337,024.29			2,371,211.38
487	338,709.41			2,383,067.43
488	340,402.96			2,394,982.77
489	342,104.98			2,406,957.69
490	343,815.50			2,418,992.47
491	345,534.58			2,431,087.44
492	347,262.25			2,443,242.87
493	348,998.56			2,455,459.09
494	350,743.56			2,467,736.38
495	352,497.27			2,480,075.06
496	354,259.76			2,492,475.44
497	356,031.06			2,504,937.82
498	357,811.21			2,517,462.51
499	359,600.27			2,530,049.82
500	361,398.27			2,542,700.07
501	363,205.26			2,555,413.57
502	365,021.29			2,568,190.64
503	366,846.40			2,581,031.59
504	368,680.63			2,593,936.75
505	370,524.03			2,606,906.43
506	372,376.65			2,619,940.96
507	374,238.53			2,633,040.67
508	376,109.73			2,646,205.87
509	377,990.28			2,659,436.90
510	379,880.23			2,672,734.09
511	381,779.63			2,686,097.76
512	383,688.53			2,699,528.24
513	385,606.97			2,713,025.89
514	387,535.00			2,726,591.02
515	389,472.68			2,740,223.97
516	391,420.04			2,753,925.09
517	393,377.14			2,767,694.72
518	395,344.03			2,781,533.19
519	397,320.75			2,795,440.85
520	399,307.35			2,809,418.06
521	401,303.89			2,823,465.15
522	403,310.41	Peak start	1.0060	2,840,405.94
523	405,326.96		1.0080	2,863,129.19
524	407,353.59		1.0100	2,891,760.48
525	409,390.36		1.0120	2,926,461.61
526	411,437.31		1.0140	2,967,432.07
527	413,494.50		1.0160	3,014,910.98
528	415,561.97		1.0180	3,069,179.38
529	417,639.78	Peak top	1.0200	3,130,562.97
530	419,727.98		1.0195	3,191,608.94

531	421,826.62		1.0190	3,252,249.51
532	423,935.76		1.0185	3,312,416.13
533	426,055.43		1.0180	3,372,039.62
534	428,185.71		1.0175	3,431,050.31
535	430,326.64		1.0170	3,489,378.17
536	432,478.27		1.0165	3,546,952.91
537	434,640.66		1.0160	3,603,704.16
538	436,813.87		1.0155	3,659,561.57
539	438,997.94		1.0150	3,714,454.99
540	441,192.93		1.0145	3,768,314.59
541	443,398.89		1.0140	3,821,071.00
542	445,615.89		1.0135	3,872,655.45
543	447,843.97		1.0130	3,922,999.97
544	450,083.19		1.0125	3,972,037.47
545	452,333.60		1.0120	4,019,701.92
546	454,595.27		1.0115	4,065,928.50
547	456,868.25		1.0110	4,110,653.71
548	459,152.59		1.0105	4,153,815.57
549	461,448.35		1.0100	4,195,353.73
550	463,755.59		1.0095	4,235,209.59
551	466,074.37		1.0090	4,273,326.48
552	468,404.74		1.0085	4,309,649.75
553	470,746.77		1.0080	4,344,126.95
554	473,100.50		1.0075	4,376,707.90
555	475,466.00		1.0070	4,407,344.86
556	477,843.33		1.0065	4,435,992.60
557	480,232.55		1.0060	4,462,608.55
558	482,633.71	Peak end	1.0055	4,487,152.90
559	485,046.88			4,509,588.67
560	487,472.11			4,532,136.61
561	489,909.47			4,554,797.29
562	492,359.02			4,577,571.28
563	494,820.82			4,600,459.13
564	497,294.92			4,623,461.43
565	499,781.40			4,646,578.74
566	502,280.30			4,669,811.63
567	504,791.70			4,693,160.69
568	507,315.66			4,716,626.49
569	509,852.24			4,740,209.62
570	512,401.50			4,763,910.67
571	514,963.51			4,787,730.23
572	517,538.33			4,811,668.88
573	520,126.02			4,835,727.22
574	522,726.65			4,859,905.86
575	525,340.28			4,884,205.39
576	527,966.98			4,908,626.41
577	530,606.82			4,933,169.55
578	533,259.85			4,957,835.39
579	535,926.15			4,982,624.57
580	538,605.78			5,007,537.69
581	541,298.81			5,032,575.38
582	544,005.31			5,057,738.26
583	546,725.33			5,083,026.95

584	549,458.96			5,108,442.09
585	552,206.25			5,133,984.30
586	554,967.28			5,159,654.22
587	557,742.12			5,185,452.49
588	560,530.83			5,211,379.75
589	563,333.49			5,237,436.65
590	566,150.15			5,263,623.83
591	568,980.90			5,289,941.95
592	571,825.81			5,316,391.66
593	574,684.94			5,342,973.62
594	577,558.36			5,369,688.49
595	580,446.15			5,396,536.93
596	583,348.38			5,423,519.62
597	586,265.13			5,450,637.21
598	589,196.45			5,477,890.40
599	592,142.43			5,505,279.85
600	595,103.15	Peak start	1.0060	5,538,311.53
601	598,078.66		1.0080	5,582,618.02
602	601,069.06		1.0100	5,638,444.20
603	604,074.40		1.0120	5,706,105.53
604	607,094.77		1.0140	5,785,991.01
605	610,130.25		1.0160	5,878,566.87
606	613,180.90		1.0180	5,984,381.07
607	616,246.80	Peak top	1.0200	6,104,068.69
608	619,328.04		1.0195	6,223,098.03
609	622,424.68		1.0190	6,341,336.89
610	625,536.80		1.0185	6,458,651.63
611	628,664.48		1.0180	6,574,907.36
612	631,807.81		1.0175	6,689,968.23
613	634,966.85		1.0170	6,803,697.69
614	638,141.68		1.0165	6,915,958.71
615	641,332.39		1.0160	7,026,614.05
616	644,539.05		1.0155	7,135,526.56
617	647,761.75		1.0150	7,242,559.46
618	651,000.55		1.0145	7,347,576.57
619	654,255.56		1.0140	7,450,442.65
620	657,526.84		1.0135	7,551,023.62
621	660,814.47		1.0130	7,649,186.93
622	664,118.54		1.0125	7,744,801.77
623	667,439.13		1.0120	7,837,739.39
624	670,776.33		1.0115	7,927,873.39
625	674,130.21		1.0110	8,015,080.00
626	677,500.86		1.0105	8,099,238.34
627	680,888.37		1.0100	8,180,230.72
628	684,292.81		1.0095	8,257,942.91
629	687,714.27		1.0090	8,332,264.40
630	691,152.84		1.0085	8,403,088.65
631	694,608.61		1.0080	8,470,313.36
632	698,081.65		1.0075	8,533,840.71
633	701,572.06		1.0070	8,593,577.59
634	705,079.92		1.0065	8,649,435.84
635	708,605.32		1.0060	8,701,332.46
636	712,148.35	Peak end	1.0055	8,749,189.79

637	715,709.09			8,792,935.74
638	719,287.63			8,836,900.42
639	722,884.07			8,881,084.92
640	726,498.49			8,925,490.34
641	730,130.98			8,970,117.79
642	733,781.64			9,014,968.38
643	737,450.55			9,060,043.22
644	741,137.80			9,105,343.44
645	744,843.49			9,150,870.16
646	748,567.71			9,196,624.51
647	752,310.55			9,242,607.63
648	756,072.10			9,288,820.67
649	759,852.46			9,335,264.77
650	763,651.72			9,381,941.10
651	767,469.98			9,428,850.80
652	771,307.33			9,475,995.06
653	775,163.87			9,523,375.03
654	779,039.69			9,570,991.91
655	782,934.88			9,618,846.87
656	786,849.56			9,666,941.10
657	790,783.81			9,715,275.81
658	794,737.72			9,763,852.19
659	798,711.41			9,812,671.45
660	802,704.97			9,861,734.80
661	806,718.50			9,911,043.48
662	810,752.09			9,960,598.69
663	814,805.85			10,010,401.69
664	818,879.88			10,060,453.70
665	822,974.28			10,110,755.97
666	827,089.15			10,161,309.75
667	831,224.59			10,212,116.29
668	835,380.72			10,263,176.88
669	839,557.62			10,314,492.76
670	843,755.41			10,366,065.22
671	847,974.19			10,417,895.55
672	852,214.06			10,469,985.03
673	856,475.13			10,522,334.95
674	860,757.50			10,574,946.63
675	865,061.29			10,627,821.36
676	869,386.60			10,680,960.47
677	873,733.53			10,734,365.27
678	878,102.20			10,788,037.10
679	882,492.71			10,841,977.28
680	886,905.17			10,896,187.17
681	891,339.70	Peak start	1.0060	10,961,564.29
682	895,796.40		1.0080	11,049,256.81
683	900,275.38		1.0100	11,159,749.37
684	904,776.75		1.0120	11,293,666.37
685	909,300.64		1.0140	11,451,777.69
686	913,847.14		1.0160	11,635,006.14
687	918,416.38		1.0180	11,844,436.25
688	923,008.46	Peak top	1.0200	12,081,324.97
689	927,623.50		1.0195	12,316,910.81



690	932,261.62		1.0190	12,550,932.12
691	936,922.93		1.0185	12,783,124.36
692	941,607.54		1.0180	13,013,220.60
693	946,315.58		1.0175	13,240,951.96
694	951,047.16		1.0170	13,466,048.14
695	955,802.39		1.0165	13,688,237.94
696	960,581.41		1.0160	13,907,249.74
697	965,384.31		1.0155	14,122,812.11
698	970,211.23		1.0150	14,334,654.30
699	975,062.29		1.0145	14,542,506.78
700	979,937.60		1.0140	14,746,101.88
701	984,837.29		1.0135	14,945,174.25
702	989,761.48		1.0130	15,139,461.52
703	994,710.28		1.0125	15,328,704.79
704	999,683.83		1.0120	15,512,649.25
705	1,004,682.25		1.0115	15,691,044.71
706	1,009,705.67		1.0110	15,863,646.20
707	1,014,754.19		1.0105	16,030,214.49
708	1,019,827.96		1.0100	16,190,516.63
709	1,024,927.10		1.0095	16,344,326.54
710	1,030,051.74		1.0090	16,491,425.48
711	1,035,202.00		1.0085	16,631,602.60
712	1,040,378.01		1.0080	16,764,655.42
713	1,045,579.90		1.0075	16,890,390.33
714	1,050,807.80		1.0070	17,008,623.07
715	1,056,061.84		1.0065	17,119,179.12
716	1,061,342.15		1.0060	17,221,894.19
717	1,066,648.86	Peak end	1.0055	17,316,614.61
718	1,071,982.10			17,403,197.68
719	1,077,342.01			17,490,213.67
720	1,082,728.72			17,577,664.74
721	1,088,142.37			17,665,553.06
722	1,093,583.08			17,753,880.83
723	1,099,050.99			17,842,650.23
724	1,104,546.25			17,931,863.48
725	1,110,068.98	Peak start	1.0060	18,039,454.66
726	1,115,619.32		1.0080	18,183,770.30
727	1,121,197.42		1.0100	18,365,608.00
728	1,126,803.41		1.0120	18,585,995.30
729	1,132,437.42		1.0140	18,846,199.23
730	1,138,099.61		1.0160	19,147,738.42
731	1,143,790.11		1.0180	19,492,397.71
732	1,149,509.06	Peak top	1.0200	19,882,245.67
733	1,155,256.61		1.0195	20,269,949.46
734	1,161,032.89		1.0190	20,655,078.50
735	1,166,838.05		1.0185	21,037,197.45
736	1,172,672.24		1.0180	21,415,867.00
737	1,178,535.60		1.0175	21,790,644.68
738	1,184,428.28		1.0170	22,161,085.64
739	1,190,350.42		1.0165	22,526,743.55
740	1,196,302.18		1.0160	22,887,171.45
741	1,202,283.69		1.0155	23,241,922.60
742	1,208,295.11		1.0150	23,590,551.44

743	1,214,336.58		1.0145	23,932,614.44
744	1,220,408.26		1.0140	24,267,671.04
745	1,226,510.31		1.0135	24,595,284.60
746	1,232,642.86		1.0130	24,915,023.30
747	1,238,806.07		1.0125	25,226,461.09
748	1,245,000.10		1.0120	25,529,178.62
749	1,251,225.10		1.0115	25,822,764.18
750	1,257,481.23		1.0110	26,106,814.58
751	1,263,768.63		1.0105	26,380,936.14
752	1,270,087.48		1.0100	26,644,745.50
753	1,276,437.91		1.0095	26,897,870.58
754	1,282,820.10		1.0090	27,139,951.42
755	1,289,234.20		1.0085	27,370,641.00
756	1,295,680.38		1.0080	27,589,606.13
757	1,302,158.78		1.0075	27,796,528.18
758	1,308,669.57		1.0070	27,991,103.87
759	1,315,212.92		1.0065	28,173,046.05
760	1,321,788.98		1.0060	28,342,084.33
761	1,328,397.93	Peak end	1.0055	28,497,965.79
762	1,335,039.92			28,640,455.62
763	1,341,715.12			28,783,657.90
764	1,348,423.69			28,927,576.19
765	1,355,165.81			29,072,214.07
766	1,361,941.64			29,217,575.14
767	1,368,751.35			29,363,663.01
768	1,375,595.11			29,510,481.33
769	1,382,473.08			29,658,033.73
770	1,389,385.45			29,806,323.90
771	1,396,332.37			29,955,355.52
772	1,403,314.04			30,105,132.30
773	1,410,330.61			30,255,657.96
774	1,417,382.26			30,406,936.25
775	1,424,469.17			30,558,970.93
776	1,431,591.52			30,711,765.79
777	1,438,749.47			30,865,324.62
778	1,445,943.22			31,019,651.24
779	1,453,172.94			31,174,749.50
780	1,460,438.80			31,330,623.24
781	1,467,741.00			31,487,276.36
782	1,475,079.70			31,644,712.74
783	1,482,455.10			31,802,936.31
784	1,489,867.37			31,961,950.99
785	1,497,316.71			32,121,760.74
786	1,504,803.30			32,282,369.55
787	1,512,327.31			32,443,781.39
788	1,519,888.95			32,606,000.30
789	1,527,488.39			32,769,030.30
790	1,535,125.84			32,932,875.45
791	1,542,801.46			33,097,539.83
792	1,550,515.47			33,263,027.53
793	1,558,268.05			33,429,342.67
794	1,566,059.39			33,596,489.38
795	1,573,889.69			33,764,471.83

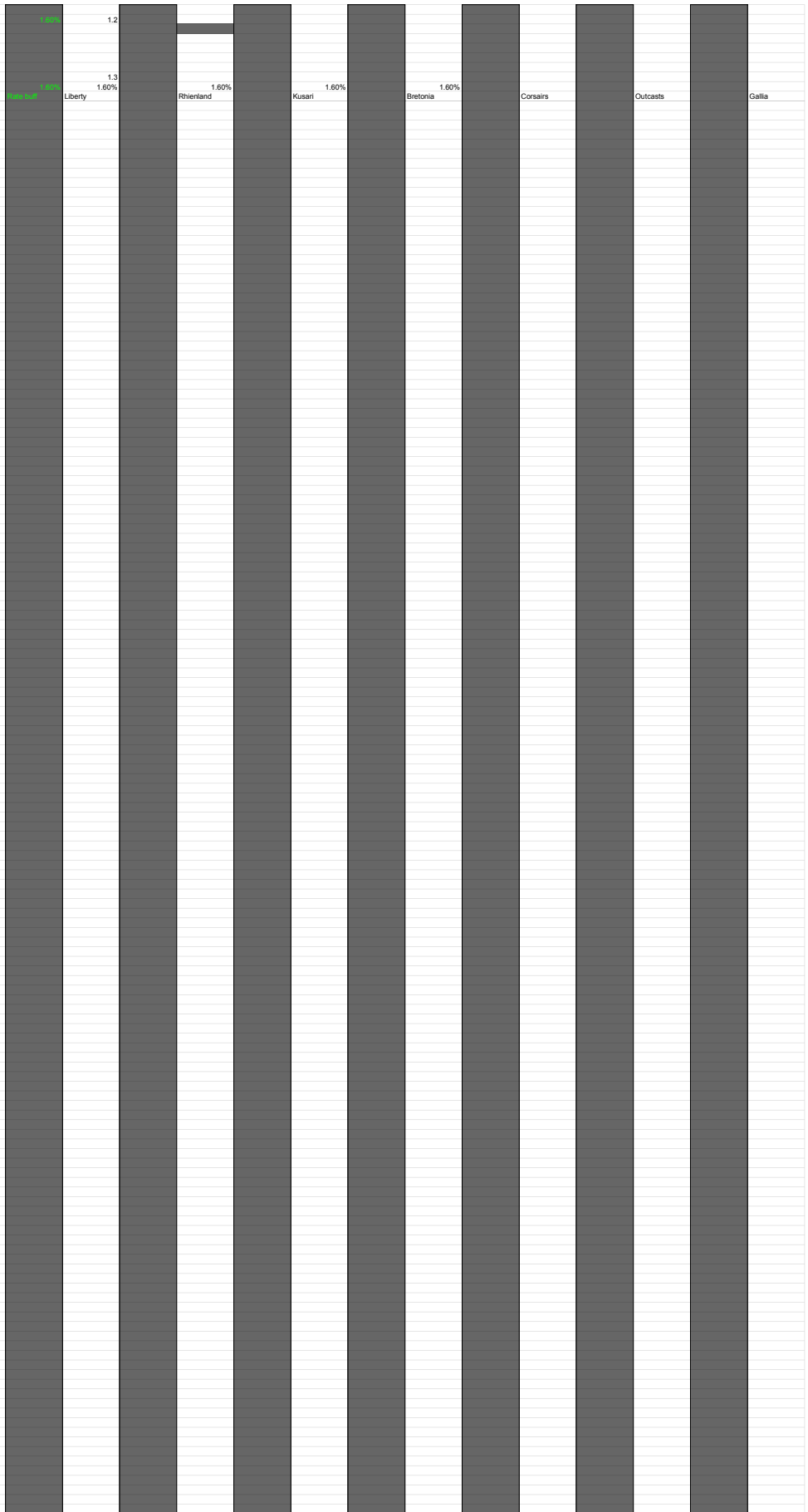
796	1,581,759.13			33,933,294.19
797	1,589,667.93			34,102,960.66
798	1,597,616.27			34,273,475.46
799	1,605,604.35			34,444,842.84
800	1,613,632.37			34,617,067.05
801	1,621,700.53			34,790,152.39
802	1,629,809.04			34,964,103.15
803	1,637,958.08			35,138,923.67
804	1,646,147.87			35,314,618.28
805	1,654,378.61			35,491,191.37
806	1,662,650.51			35,668,647.33
807	1,670,963.76			35,846,990.57
808	1,679,318.58			36,026,225.52
809	1,687,715.17			36,206,356.65
810	1,696,153.75			36,387,388.43
811	1,704,634.51			36,569,325.37
812	1,713,157.69			36,752,172.00
813	1,721,723.48			36,935,932.86
814	1,730,332.09			37,120,612.53
815	1,738,983.75			37,306,215.59
816	1,747,678.67			37,492,746.67
817	1,756,417.07			37,680,210.40
818	1,765,199.15			37,868,611.45
819	1,774,025.15			38,057,954.51
820	1,782,895.27			38,248,244.28
821	1,791,809.75			38,439,485.50
822	1,800,768.80			38,631,682.93
823	1,809,772.64			38,824,841.34
824	1,818,821.50			39,018,965.55
825	1,827,915.61			39,214,060.38



Gallia  
Liberty  
Kusari  
Rhenland  
Bretonia

23.4B  
17.8B  
20.9B  
14.4B

Growth Base  
Growth Rate  
Year



Galla  
Liberty  
Kusari  
Rhenland  
Bretonia

23.4B  
17.8B  
20.9B  
14.4B

Growth Base

1.2%

1.2

Growth Rate  
Year

1.3%

1.3

Liberty

1.60%

Rhenland

1.60%

Kusari

1.60%

Bretonia

1.60%

Corsairs

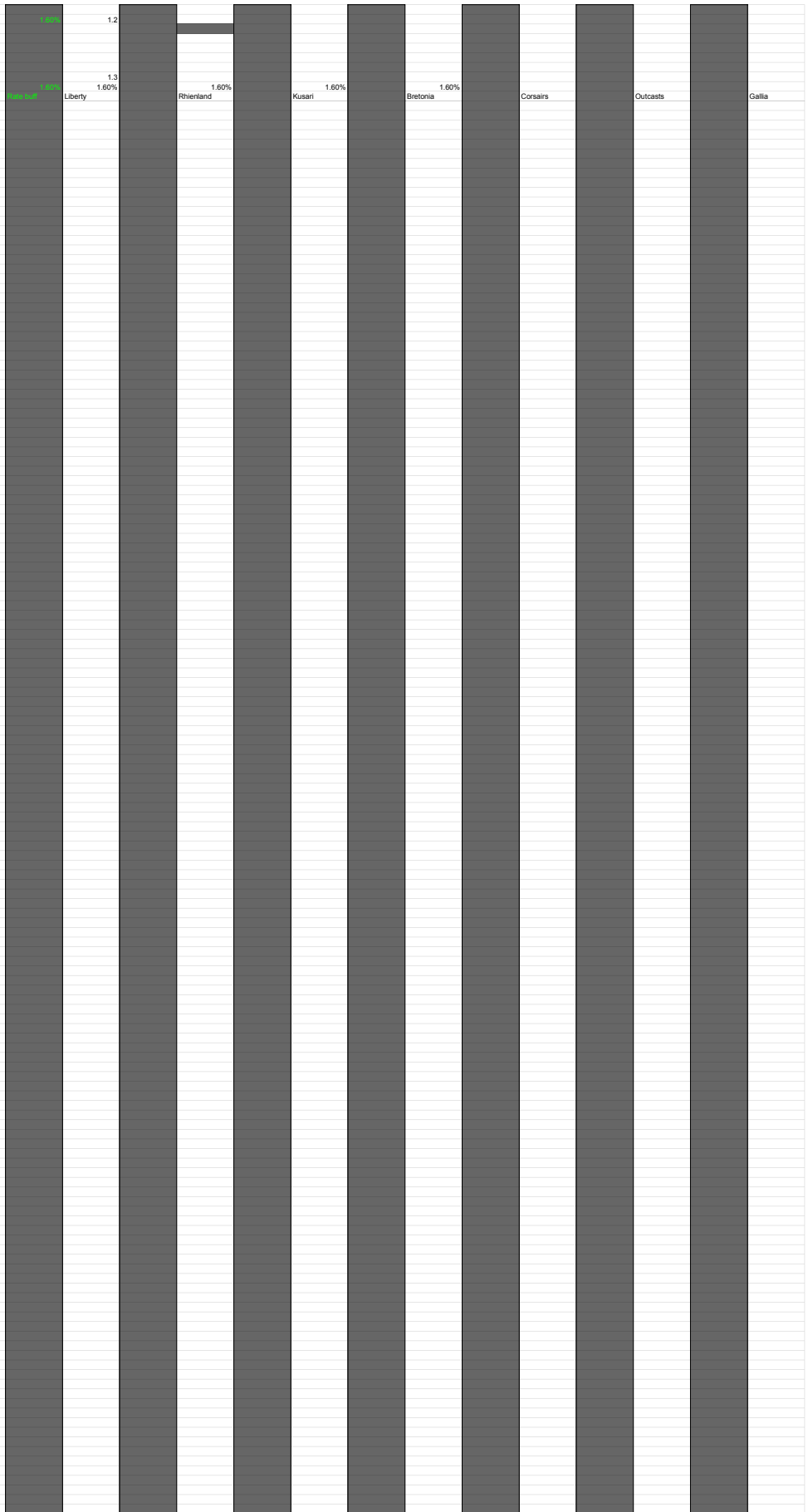
Outcasts

Galla

Galla  
Liberty  
Kusari  
Rhenland  
Bretonia

23.4B  
17.8B  
20.9B  
14.4B

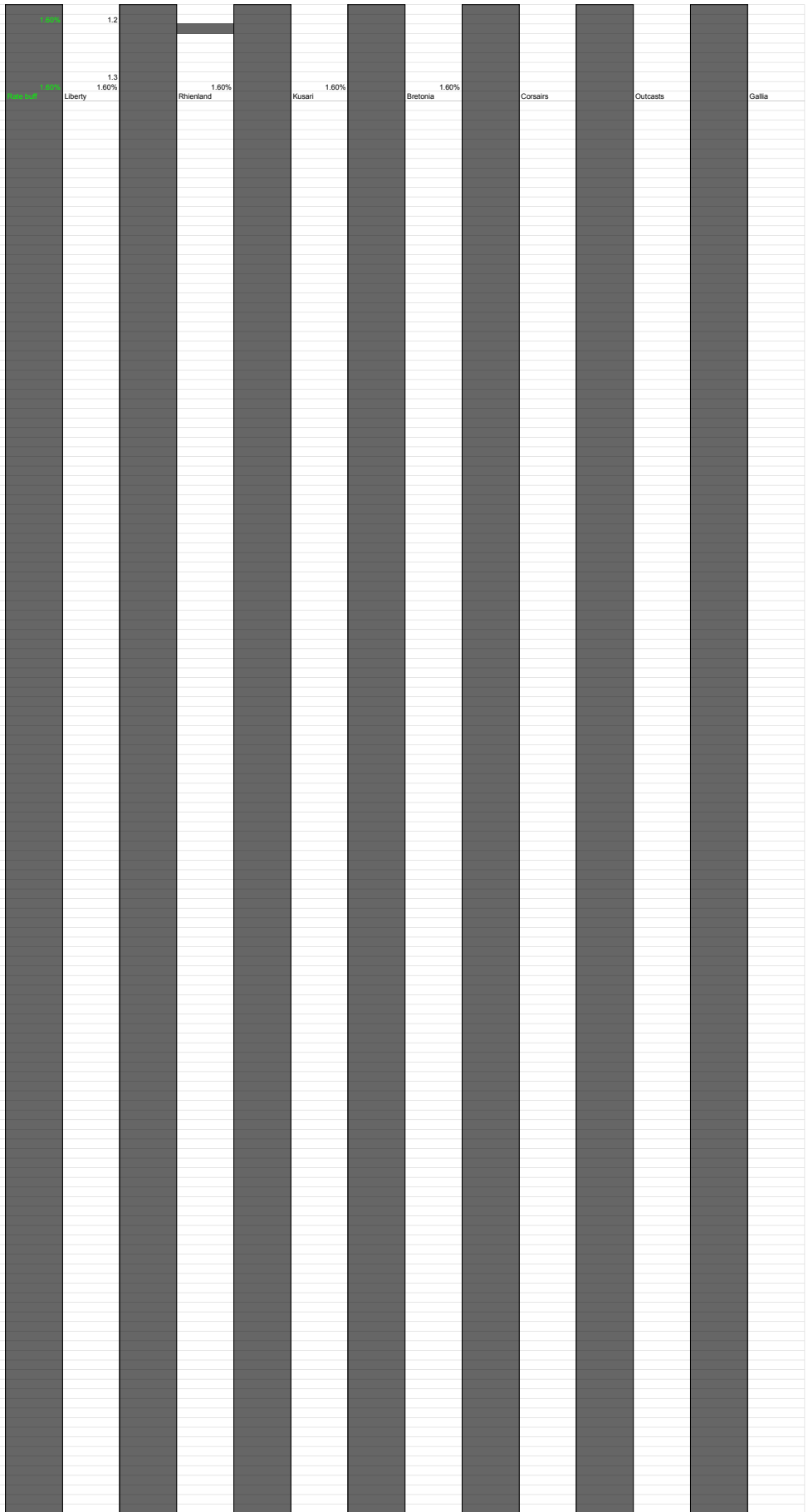
Growth Base  
Growth Rate  
Year



Galla  
Liberty  
Kusari  
Rhenland  
Bretonia

23.4B  
17.8B  
20.9B  
14.4B

Growth Base  
Growth Rate  
Year

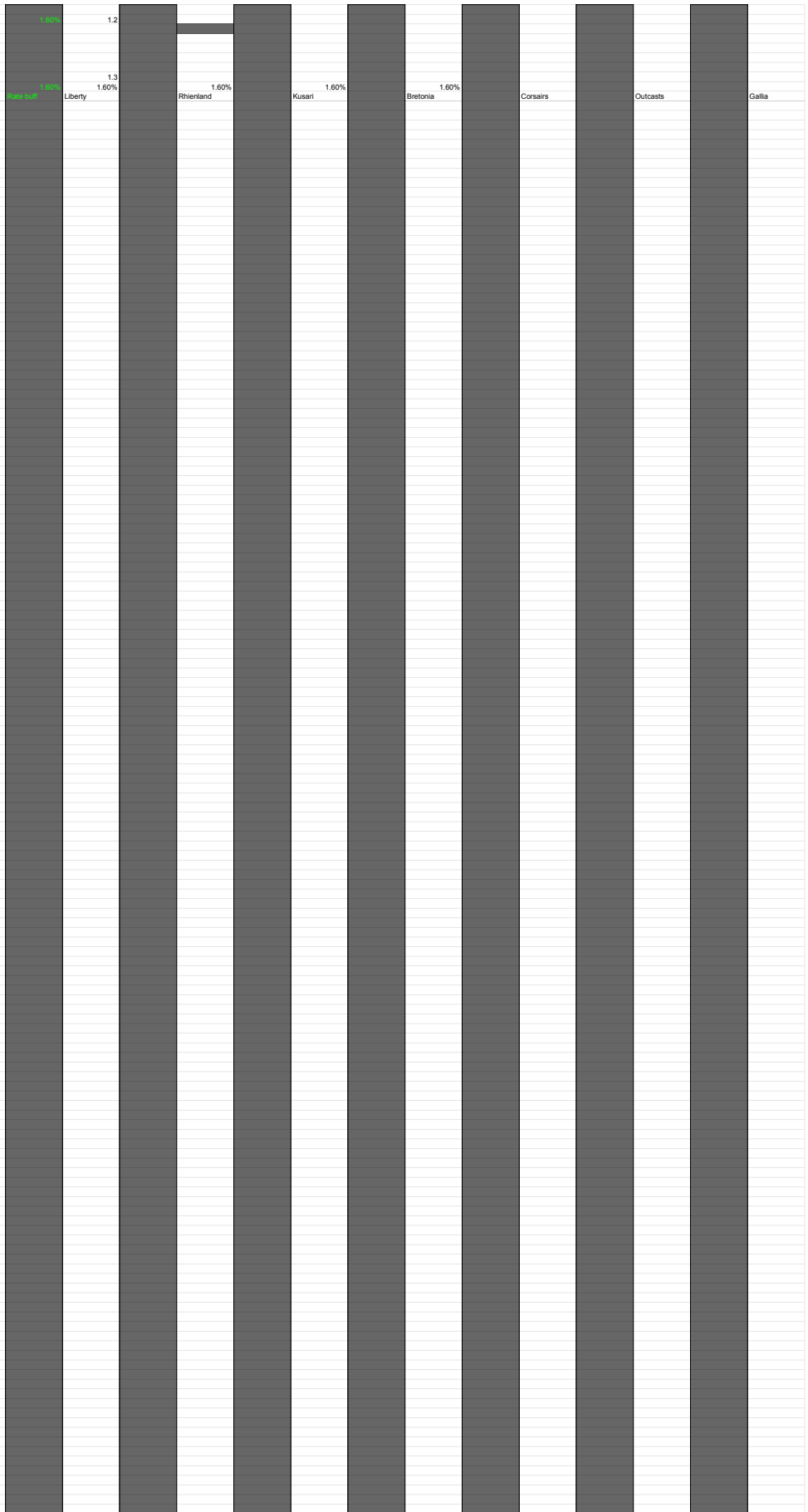




Galla  
Liberty  
Kusari  
Rhenland  
Bretonia

23.4B  
17.8B  
20.9B  
14.4B

Growth Base  
Growth Rate  
Year



Gallia  
Liberty  
Kusari  
Rhenland  
Bretonia

23.4B  
17.8B  
20.9B  
14.4B

Growth Base  
1.2%

1.2

Growth Rate  
Year

1.3%

1.3

Liberty

1.60%

Rhenland

1.60%

Kusari

1.60%

Bretonia

1.60%

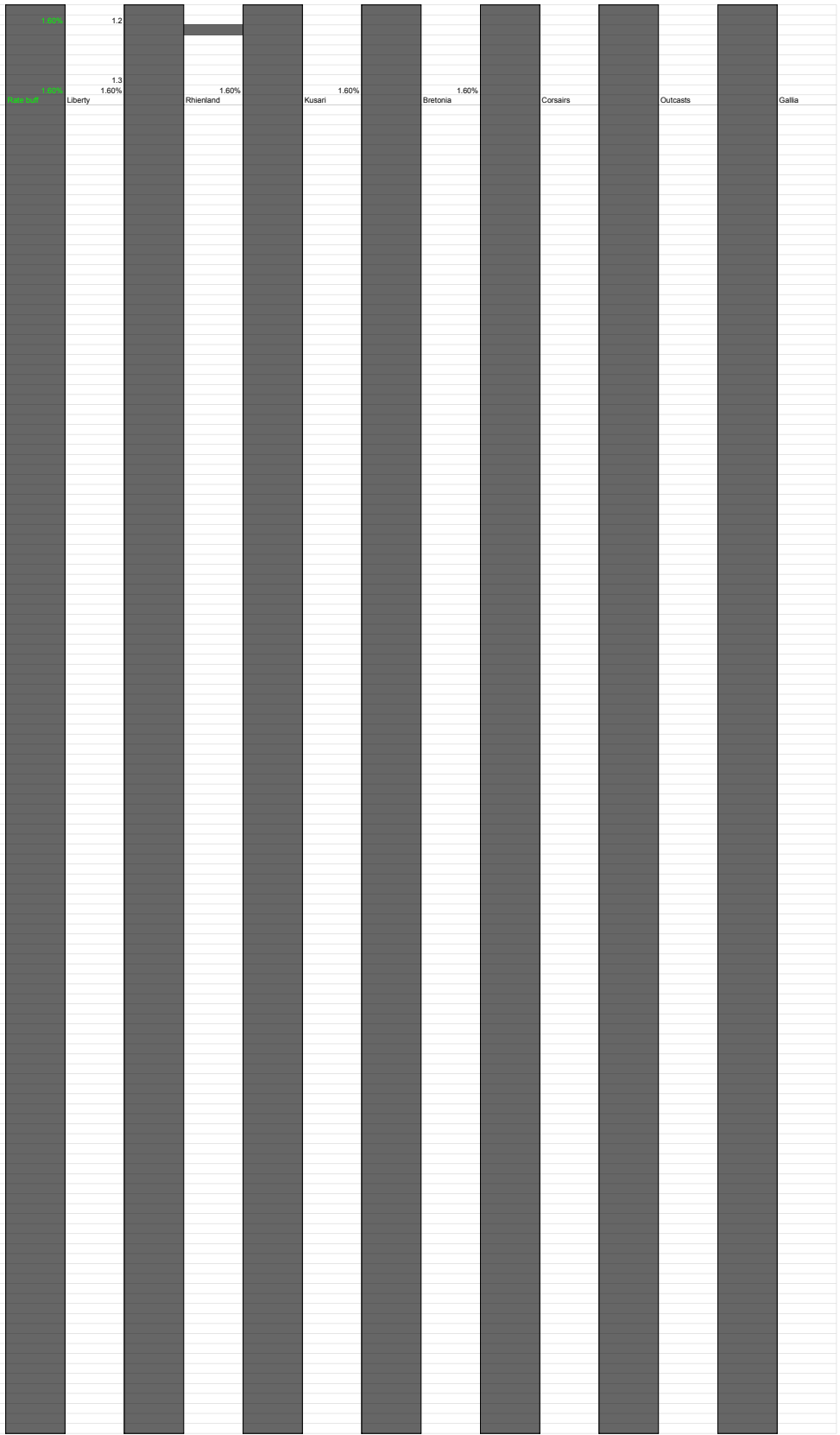
Corsairs

1.60%

Outcasts

1.60%

Gallia



Millions of people by 825	14	Millions of people by 825	1,374	target should be 25k millions per world to get to 100 billion
		Base Growth rate	Boom multiplier	
		0.007	1.5000	
Year	Growth at Base		Growth after booms	
1	45,000		45,000	
2	45,315		45,315	
3	45,632		45,632	
4	45,952		45,952	
5	46,273		46,273	
6	46,597		46,597	
7	46,923		46,923	
8	47,252		47,252	
9	47,583		47,583	
10	47,916		47,916	
11	48,251		48,251	
12	48,589		48,589	
13	48,929		48,929	
14	49,271		49,271	
15	49,616		49,616	
16	49,964		49,964	
17	50,313		50,313	
18	50,666		50,666	
19	51,020		51,020	
20	51,377		51,377	
21	51,737		51,737	
22	52,099		52,099	
23	52,464		52,464	
24	52,831		52,831	
25	53,201		53,201	
26	53,573		53,573	
27	53,948		53,948	
28	54,326		54,326	
29	54,706		54,706	
30	55,089		55,089	
31	55,475		55,475	
32	55,863		55,863	
33	56,254		56,254	
34	56,648		56,648	
35	57,045		57,045	
36	57,444		57,444	
37	57,846		57,846	
38	58,251		58,251	
39	58,659		58,659	
40	59,069		59,069	
41	59,483		59,483	
42	59,899		59,899	
43	60,318		60,318	
44	60,741		60,741	
45	61,166		61,166	
46	61,594		61,594	
47	62,025		62,025	
48	62,459		62,459	

49	62,897			62,897		
50	63,337			63,337		
51	63,780	Peak start	1.0060	63,780	0.002	0.009
52	64,227		1.0080	64,322	0.005	0.012
53	64,676		1.0100	65,062	0.008	0.015
54	65,129		1.0120	66,005	0.011	0.018
55	65,585		1.0140	67,161	0.014	0.021
56	66,044		1.0160	68,537	0.017	0.024
57	66,506		1.0180	70,148	0.020	0.027
58	66,972	Peak top	1.0200	72,007	0.023	0.030
59	67,441		1.0195	74,131	0.022	0.029
60	67,913		1.0190	76,262	0.021	0.028
61	68,388		1.0185	78,398	0.020	0.027
62	68,867		1.0180	80,534	0.020	0.027
63	69,349		1.0175	82,668	0.019	0.026
64	69,834		1.0170	84,797	0.018	0.025
65	70,323		1.0165	86,917	0.017	0.024
66	70,815		1.0160	89,025	0.017	0.024
67	71,311		1.0155	91,117	0.016	0.023
68	71,810		1.0150	93,190	0.015	0.022
69	72,313		1.0145	95,240	0.014	0.021
70	72,819		1.0140	97,264	0.014	0.021
71	73,329		1.0135	99,257	0.013	0.020
72	73,842		1.0130	101,218	0.012	0.019
73	74,359		1.0125	103,141	0.011	0.018
74	74,880		1.0120	105,023	0.011	0.018
75	75,404		1.0115	106,861	0.010	0.017
76	75,932		1.0110	108,651	0.009	0.016
77	76,463		1.0105	110,390	0.008	0.015
78	76,998		1.0100	112,073	0.008	0.015
79	77,537		1.0095	113,698	0.007	0.014
80	78,080		1.0090	115,261	0.006	0.013
81	78,627		1.0085	116,760	0.005	0.012
82	79,177		1.0080	118,190	0.005	0.012
83	79,731		1.0075	119,549	0.004	0.011
84	80,289		1.0070	120,834	0.003	0.010
85	80,851		1.0065	122,043	0.002	0.009
86	81,417		1.0060	123,172	0.002	0.009
87	81,987	Peak end	1.0055	124,219	0.001	0.008
88	82,561			125,181		
89	83,139			126,058		
90	83,721			126,940		
91	84,307			127,829		
92	84,897			128,723		
93	85,492			129,624		
94	86,090			130,532		
95	86,693			131,446		
96	87,300			132,366		
97	87,911			133,292		
98	88,526			134,225		
99	89,146			135,165		
100	89,770			136,111		
101	90,398			137,064		
102	91,031			138,023		
103	91,668			138,989		
104	92,310			139,962		
105	92,956			140,942		

106	93,607			141,929	
107	94,262			142,922	
108	94,922			143,923	
109	95,586			144,930	
110	96,255			145,945	
111	96,929			146,966	
112	97,608			147,995	
113	98,291			149,031	
114	98,979			150,074	
115	99,672			151,125	
116	100,369			152,182	
117	101,072			153,248	
118	101,780			154,320	
119	102,492			155,401	
120	103,209			156,489	
121	103,932			157,584	
122	104,659			158,687	
123	105,392	Peak start	1.0060	159,798	0.002
124	106,130		1.0080	161,156	0.005
125	106,873		1.0100	163,009	0.008
126	107,621		1.0120	165,373	0.011
127	108,374		1.0140	168,267	0.014
128	109,133		1.0160	171,717	0.017
129	109,897		1.0180	175,752	0.020
130	110,666	Peak top	1.0200	180,409	0.023
131	111,441		1.0195	185,731	0.022
132	112,221		1.0190	191,071	0.021
133	113,006		1.0185	196,421	0.020
134	113,797		1.0180	201,774	0.020
135	114,594		1.0175	207,121	0.019
136	115,396		1.0170	212,454	0.018
137	116,204		1.0165	217,765	0.017
138	117,017		1.0160	223,046	0.017
139	117,836		1.0155	228,288	0.016
140	118,661		1.0150	233,481	0.015
141	119,492		1.0145	238,618	0.014
142	120,328		1.0140	243,689	0.014
143	121,171		1.0135	248,684	0.013
144	122,019		1.0130	253,596	0.012
145	122,873		1.0125	258,414	0.011
146	123,733		1.0120	263,130	0.011
147	124,599		1.0115	267,735	0.010
148	125,471		1.0110	272,219	0.009
149	126,350		1.0105	276,575	0.008
150	127,234		1.0100	280,793	0.008
151	128,125		1.0095	284,864	0.007
152	129,022		1.0090	288,781	0.006
153	129,925		1.0085	292,535	0.005
154	130,834		1.0080	296,119	0.005
155	131,750		1.0075	299,524	0.004
156	132,672		1.0070	302,744	0.003
157	133,601		1.0065	305,771	0.002
158	134,536		1.0060	308,600	0.002
159	135,478	Peak end	1.0055	311,223	0.001
160	136,426			313,635	
161	137,381			315,830	
162	138,343			318,041	

163	139,311			320,267	
164	140,287			322,509	
165	141,269			324,767	
166	142,257			327,040	
167	143,253			329,329	
168	144,256			331,635	
169	145,266			333,956	
170	146,283	Peak start	1.0060	336,294	0.002
171	147,307		1.0080	339,152	0.005
172	148,338		1.0100	343,053	0.008
173	149,376		1.0120	348,027	0.011
174	150,422		1.0140	354,117	0.014
175	151,475		1.0160	361,377	0.017
176	152,535		1.0180	369,869	0.020
177	153,603	Peak top	1.0200	379,671	0.023
178	154,678		1.0195	390,871	0.022
179	155,761		1.0190	402,109	0.021
180	156,851		1.0185	413,368	0.020
181	157,949		1.0180	424,632	0.020
182	159,055		1.0175	435,885	0.019
183	160,168		1.0170	447,109	0.018
184	161,289		1.0165	458,286	0.017
185	162,418		1.0160	469,400	0.017
186	163,555		1.0155	480,431	0.016
187	164,700		1.0150	491,360	0.015
188	165,853		1.0145	502,170	0.014
189	167,014		1.0140	512,842	0.014
190	168,183		1.0135	523,355	0.013
191	169,360		1.0130	533,691	0.012
192	170,546		1.0125	543,831	0.011
193	171,740		1.0120	553,756	0.011
194	172,942		1.0115	563,447	0.010
195	174,153		1.0110	572,885	0.009
196	175,372		1.0105	582,051	0.008
197	176,599		1.0100	590,927	0.008
198	177,835		1.0095	599,495	0.007
199	179,080		1.0090	607,738	0.006
200	180,334		1.0085	615,639	0.005
201	181,596		1.0080	623,181	0.005
202	182,867		1.0075	630,347	0.004
203	184,147		1.0070	637,123	0.003
204	185,436		1.0065	643,495	0.002
205	186,734		1.0060	649,447	0.002
206	188,042	Peak end	1.0055	654,967	0.001
207	189,358			660,043	
208	190,683			664,664	
209	192,018			669,316	
210	193,362			674,001	
211	194,716			678,719	
212	196,079			683,471	
213	197,451			688,255	
214	198,834			693,073	
215	200,225			697,924	
216	201,627			702,810	
217	203,038			707,729	
218	204,460			712,683	
219	205,891			717,672	

220	207,332			722,696	
221	208,783			727,755	
222	210,245			732,849	
223	211,717			737,979	
224	213,199			743,145	
225	214,691			748,347	
226	216,194			753,585	
227	217,707			758,860	
228	219,231			764,172	
229	220,766			769,522	
230	222,311			774,908	
231	223,867			780,333	
232	225,434			785,795	
233	227,012			791,295	
234	228,602			796,835	
235	230,202			802,412	
236	231,813			808,029	
237	233,436			813,685	
238	235,070			819,381	
239	236,715			825,117	
240	238,372			830,893	
241	240,041			836,709	
242	241,721			842,566	
243	243,413			848,464	
244	245,117			854,403	
245	246,833			860,384	
246	248,561			866,407	
247	250,301			872,472	
248	252,053			878,579	
249	253,817			884,729	
250	255,594			890,922	
251	257,383			897,158	
252	259,185			903,439	
253	260,999			909,763	
254	262,826			916,131	
255	264,666			922,544	
256	266,519			929,002	
257	268,384			935,505	
258	270,263			942,053	
259	272,155			948,648	
260	274,060			955,288	
261	275,978			961,975	
262	277,910			968,709	
263	279,855			975,490	
264	281,814			982,318	
265	283,787			989,195	
266	285,774	Peak start	1.0060	996,119	0.002
267	287,774		1.0080	1,004,586	0.005
268	289,789		1.0100	1,016,139	0.008
269	291,817		1.0120	1,030,873	0.011
270	293,860		1.0140	1,048,913	0.014
271	295,917		1.0160	1,070,416	0.017
272	297,988		1.0180	1,095,570	0.020
273	300,074	Peak top	1.0200	1,124,603	0.023
274	302,175		1.0195	1,157,779	0.022
275	304,290		1.0190	1,191,065	0.021
276	306,420		1.0185	1,224,415	0.020

277	308,565		1.0180	1,257,780	0.020
278	310,725		1.0175	1,291,111	0.019
279	312,900		1.0170	1,324,357	0.018
280	315,090		1.0165	1,357,466	0.017
281	317,296		1.0160	1,390,385	0.017
282	319,517		1.0155	1,423,059	0.016
283	321,753		1.0150	1,455,434	0.015
284	324,006		1.0145	1,487,453	0.014
285	326,274		1.0140	1,519,061	0.014
286	328,558		1.0135	1,550,202	0.013
287	330,858		1.0130	1,580,819	0.012
288	333,174		1.0125	1,610,854	0.011
289	335,506		1.0120	1,640,252	0.011
290	337,854		1.0115	1,668,957	0.010
291	340,219		1.0110	1,696,912	0.009
292	342,601		1.0105	1,724,062	0.008
293	344,999		1.0100	1,750,354	0.008
294	347,414		1.0095	1,775,735	0.007
295	349,846		1.0090	1,800,151	0.006
296	352,295		1.0085	1,823,553	0.005
297	354,761		1.0080	1,845,891	0.005
298	357,244		1.0075	1,867,119	0.004
299	359,745		1.0070	1,887,191	0.003
300	362,263		1.0065	1,906,063	0.002
301	364,799		1.0060	1,923,694	0.002
302	367,353	Peak end	1.0055	1,940,045	0.001
303	369,924			1,955,080	
304	372,514			1,968,766	
305	375,121			1,982,547	
306	377,747			1,996,425	
307	380,391			2,010,400	
308	383,054			2,024,473	
309	385,735			2,038,644	
310	388,436			2,052,915	
311	391,155	Peak start	1.0060	2,067,285	0.002
312	393,893		1.0080	2,084,857	0.005
313	396,650		1.0100	2,108,833	0.008
314	399,426		1.0120	2,139,411	0.011
315	402,222		1.0140	2,176,851	0.014
316	405,038		1.0160	2,221,476	0.017
317	407,873		1.0180	2,273,681	0.020
318	410,728	Peak top	1.0200	2,333,933	0.023
319	413,603		1.0195	2,402,784	0.022
320	416,499		1.0190	2,471,864	0.021
321	419,414		1.0185	2,541,077	0.020
322	422,350		1.0180	2,610,321	0.020
323	425,307		1.0175	2,679,494	0.019
324	428,284		1.0170	2,748,491	0.018
325	431,282		1.0165	2,817,204	0.017
326	434,301		1.0160	2,885,521	0.017
327	437,341		1.0155	2,953,331	0.016
328	440,402		1.0150	3,020,519	0.015
329	443,485		1.0145	3,086,970	0.014
330	446,589		1.0140	3,152,568	0.014
331	449,715		1.0135	3,217,196	0.013
332	452,863		1.0130	3,280,736	0.012
333	456,033		1.0125	3,343,070	0.011



334	459,226		1.0120	3,404,081	0.011
335	462,440		1.0115	3,463,652	0.010
336	465,677		1.0110	3,521,668	0.009
337	468,937		1.0105	3,578,015	0.008
338	472,220		1.0100	3,632,580	0.008
339	475,525		1.0095	3,685,252	0.007
340	478,854		1.0090	3,735,924	0.006
341	482,206		1.0085	3,784,491	0.005
342	485,581		1.0080	3,830,851	0.005
343	488,980		1.0075	3,874,906	0.004
344	492,403		1.0070	3,916,561	0.003
345	495,850		1.0065	3,955,727	0.002
346	499,321		1.0060	3,992,318	0.002
347	502,816	Peak end	1.0055	4,026,252	0.001
348	506,336			4,057,456	
349	509,880			4,085,858	
350	513,450			4,114,459	
351	517,044			4,143,260	
352	520,663			4,172,263	
353	524,308			4,201,469	
354	527,978			4,230,879	
355	531,674			4,260,495	
356	535,395			4,290,319	
357	539,143	Peak start	1.0060	4,320,351	0.002
358	542,917		1.0080	4,357,074	0.005
359	546,717		1.0100	4,407,180	0.008
360	550,545		1.0120	4,471,084	0.011
361	554,398		1.0140	4,549,328	0.014
362	558,279		1.0160	4,642,590	0.017
363	562,187		1.0180	4,751,690	0.020
364	566,122	Peak top	1.0200	4,877,610	0.023
365	570,085		1.0195	5,021,500	0.022
366	574,076		1.0190	5,165,868	0.021
367	578,094		1.0185	5,310,512	0.020
368	582,141		1.0180	5,455,224	0.020
369	586,216		1.0175	5,599,787	0.019
370	590,320		1.0170	5,743,982	0.018
371	594,452		1.0165	5,887,581	0.017
372	598,613		1.0160	6,030,355	0.017
373	602,803		1.0155	6,172,068	0.016
374	607,023		1.0150	6,312,483	0.015
375	611,272		1.0145	6,451,357	0.014
376	615,551		1.0140	6,588,449	0.014
377	619,860		1.0135	6,723,512	0.013
378	624,199		1.0130	6,856,301	0.012
379	628,568		1.0125	6,986,571	0.011
380	632,968		1.0120	7,114,076	0.011
381	637,399		1.0115	7,238,572	0.010
382	641,861		1.0110	7,359,818	0.009
383	646,354		1.0105	7,477,575	0.008
384	650,878		1.0100	7,591,609	0.008
385	655,434		1.0095	7,701,687	0.007
386	660,022		1.0090	7,807,585	0.006
387	664,643		1.0085	7,909,084	0.005
388	669,295		1.0080	8,005,970	0.005
389	673,980		1.0075	8,098,039	0.004
390	678,698		1.0070	8,185,092	0.003

391	683,449		1.0065	8,266,943	0.002
392	688,233		1.0060	8,343,413	0.002
393	693,051	Peak end	1.0055	8,414,332	0.001
394	697,902			8,479,543	
395	702,787			8,538,900	
396	707,707			8,598,672	
397	712,661			8,658,863	
398	717,649			8,719,475	
399	722,673			8,780,511	
400	727,732			8,841,974	
401	732,826			8,903,868	
402	737,956			8,966,195	
403	743,121			9,028,959	
404	748,323			9,092,161	
405	753,561			9,155,807	
406	758,836			9,219,897	
407	764,148			9,284,436	
408	769,497			9,349,428	
409	774,884			9,414,874	
410	780,308			9,480,778	
411	785,770			9,547,143	
412	791,270			9,613,973	
413	796,809			9,681,271	
414	802,387			9,749,040	
415	808,004			9,817,283	
416	813,660			9,886,004	
417	819,355			9,955,206	
418	825,091			10,024,893	
419	830,866			10,095,067	
420	836,682	Peak start	1.0060	10,165,732	0.002
421	842,539		1.0080	10,252,141	0.005
422	848,437		1.0100	10,370,041	0.008
423	854,376		1.0120	10,520,406	0.011
424	860,357		1.0140	10,704,513	0.014
425	866,379		1.0160	10,923,956	0.017
426	872,444		1.0180	11,180,669	0.020
427	878,551	Peak top	1.0200	11,476,956	0.023
428	884,701		1.0195	11,815,527	0.022
429	890,894		1.0190	12,155,223	0.021
430	897,130		1.0185	12,495,569	0.020
431	903,410		1.0180	12,836,074	0.020
432	909,734		1.0175	13,176,230	0.019
433	916,102		1.0170	13,515,517	0.018
434	922,515		1.0165	13,853,405	0.017
435	928,972		1.0160	14,189,350	0.017
436	935,475		1.0155	14,522,800	0.016
437	942,023		1.0150	14,853,194	0.015
438	948,618		1.0145	15,179,964	0.014
439	955,258		1.0140	15,502,538	0.014
440	961,945		1.0135	15,820,340	0.013
441	968,678		1.0130	16,132,792	0.012
442	975,459		1.0125	16,439,315	0.011
443	982,287		1.0120	16,739,333	0.011
444	989,163		1.0115	17,032,271	0.010
445	996,087		1.0110	17,317,562	0.009
446	1,003,060		1.0105	17,594,643	0.008
447	1,010,081		1.0100	17,862,961	0.008

448	1,017,152		1.0095	18,121,974	0.007
449	1,024,272		1.0090	18,371,151	0.006
450	1,031,442		1.0085	18,609,976	0.005
451	1,038,662		1.0080	18,837,948	0.005
452	1,045,933		1.0075	19,054,585	0.004
453	1,053,254		1.0070	19,259,421	0.003
454	1,060,627		1.0065	19,452,016	0.002
455	1,068,051		1.0060	19,631,947	0.002
456	1,075,528	Peak end	1.0055	19,798,818	0.001
457	1,083,056			19,952,259	
458	1,090,638			20,091,925	
459	1,098,272			20,232,568	
460	1,105,960			20,374,196	
461	1,113,702			20,516,816	
462	1,121,498			20,660,433	
463	1,129,348			20,805,056	
464	1,137,254			20,950,692	
465	1,145,215			21,097,347	
466	1,153,231			21,245,028	
467	1,161,304			21,393,743	
468	1,169,433			21,543,500	
469	1,177,619			21,694,304	
470	1,185,862			21,846,164	
471	1,194,163			21,999,087	
472	1,202,522			22,153,081	
473	1,210,940			22,308,152	
474	1,219,417			22,464,310	
475	1,227,952			22,621,560	
476	1,236,548			22,779,911	
477	1,245,204			22,939,370	
478	1,253,920			23,099,946	
479	1,262,698			23,261,645	
480	1,271,537			23,424,477	
481	1,280,437			23,588,448	
482	1,289,401			23,753,567	
483	1,298,426			23,919,842	
484	1,307,515			24,087,281	
485	1,316,668			24,255,892	
486	1,325,885			24,425,683	
487	1,335,166			24,596,663	
488	1,344,512			24,768,840	
489	1,353,924			24,942,222	
490	1,363,401			25,116,817	
491	1,372,945			25,292,635	
492	1,382,555			25,469,683	
493	1,392,233			25,647,971	
494	1,401,979			25,827,507	
495	1,411,793			26,008,299	
496	1,421,675			26,190,358	
497	1,431,627			26,373,690	
498	1,441,648			26,558,306	
499	1,451,740			26,744,214	
500	1,461,902			26,931,423	
501	1,472,136			27,119,943	
502	1,482,440			27,309,783	
503	1,492,818			27,500,952	
504	1,503,267			27,693,458	

505	1,513,790			27,887,312	
506	1,524,387			28,082,524	
507	1,535,057			28,279,101	
508	1,545,803			28,477,055	
509	1,556,623			28,676,394	
510	1,567,520			28,877,129	
511	1,578,492			29,079,269	
512	1,589,542			29,282,824	
513	1,600,669			29,487,804	
514	1,611,873			29,694,218	
515	1,623,156			29,902,078	
516	1,634,519			30,111,392	
517	1,645,960			30,322,172	
518	1,657,482			30,534,427	
519	1,669,084			30,748,168	
520	1,680,768			30,963,405	
521	1,692,533			31,180,149	
522	1,704,381	Peak start	1.0060	31,398,410	0.002
523	1,716,312		1.0080	31,665,297	0.005
524	1,728,326		1.0100	32,029,448	0.008
525	1,740,424		1.0120	32,493,875	0.011
526	1,752,607		1.0140	33,062,518	0.014
527	1,764,875		1.0160	33,740,299	0.017
528	1,777,229		1.0180	34,533,196	0.020
529	1,789,670	Peak top	1.0200	35,448,326	0.023
530	1,802,198		1.0195	36,494,052	0.022
531	1,814,813		1.0190	37,543,256	0.021
532	1,827,517		1.0185	38,594,467	0.020
533	1,840,309		1.0180	39,646,166	0.020
534	1,853,192		1.0175	40,696,789	0.019
535	1,866,164		1.0170	41,744,732	0.018
536	1,879,227		1.0165	42,788,350	0.017
537	1,892,382		1.0160	43,825,967	0.017
538	1,905,628		1.0155	44,855,878	0.016
539	1,918,968		1.0150	45,876,349	0.015
540	1,932,401		1.0145	46,885,629	0.014
541	1,945,927		1.0140	47,881,948	0.014
542	1,959,549		1.0135	48,863,528	0.013
543	1,973,266		1.0130	49,828,583	0.012
544	1,987,079		1.0125	50,775,326	0.011
545	2,000,988		1.0120	51,701,976	0.011
546	2,014,995		1.0115	52,606,760	0.010
547	2,029,100		1.0110	53,487,923	0.009
548	2,043,304		1.0105	54,343,730	0.008
549	2,057,607		1.0100	55,172,472	0.008
550	2,072,010		1.0095	55,972,473	0.007
551	2,086,514		1.0090	56,742,094	0.006
552	2,101,120		1.0085	57,479,742	0.005
553	2,115,828		1.0080	58,183,868	0.005
554	2,130,638		1.0075	58,852,983	0.004
555	2,145,553		1.0070	59,485,652	0.003
556	2,160,572		1.0065	60,080,509	0.002
557	2,175,696		1.0060	60,636,254	0.002
558	2,190,926	Peak end	1.0055	61,151,662	0.001
559	2,206,262			61,625,587	
560	2,221,706			62,056,966	
561	2,237,258			62,491,365	

562	2,252,919			62,928,805	
563	2,268,689			63,369,306	
564	2,284,570			63,812,891	
565	2,300,562			64,259,582	
566	2,316,666			64,709,399	
567	2,332,882			65,162,364	
568	2,349,213			65,618,501	
569	2,365,657			66,077,831	
570	2,382,217			66,540,375	
571	2,398,892			67,006,158	
572	2,415,684			67,475,201	
573	2,432,594			67,947,528	
574	2,449,622			68,423,160	
575	2,466,770			68,902,122	
576	2,484,037			69,384,437	
577	2,501,425			69,870,128	
578	2,518,935			70,359,219	
579	2,536,568			70,851,734	
580	2,554,324			71,347,696	
581	2,572,204			71,847,130	
582	2,590,210			72,350,060	
583	2,608,341			72,856,510	
584	2,626,599			73,366,506	
585	2,644,986			73,880,071	
586	2,663,501			74,397,232	
587	2,682,145			74,918,012	
588	2,700,920			75,442,438	
589	2,719,826			75,970,535	
590	2,738,865			76,502,329	
591	2,758,037			77,037,845	
592	2,777,344			77,577,110	
593	2,796,785			78,120,150	
594	2,816,362			78,666,991	
595	2,836,077			79,217,660	
596	2,855,930			79,772,184	
597	2,875,921			80,330,589	
598	2,896,053			80,892,903	
599	2,916,325			81,459,153	
600	2,936,739	Peak start	1.0060	82,029,368	0.002
601	2,957,296		1.0080	82,726,617	0.005
602	2,977,997		1.0100	83,677,973	0.008
603	2,998,843		1.0120	84,891,304	0.011
604	3,019,835		1.0140	86,376,902	0.014
605	3,040,974		1.0160	88,147,628	0.017
606	3,062,261		1.0180	90,219,097	0.020
607	3,083,697	Peak top	1.0200	92,609,904	0.023
608	3,105,283		1.0195	95,341,896	0.022
609	3,127,020		1.0190	98,082,975	0.021
610	3,148,909		1.0185	100,829,298	0.020
611	3,170,951		1.0180	103,576,897	0.020
612	3,193,148		1.0175	106,321,685	0.019
613	3,215,500		1.0170	109,059,468	0.018
614	3,238,008		1.0165	111,785,955	0.017
615	3,260,674		1.0160	114,496,764	0.017
616	3,283,499		1.0155	117,187,438	0.016
617	3,306,484		1.0150	119,853,452	0.015
618	3,329,629		1.0145	122,490,228	0.014

619	3,352,936		1.0140	125,093,146	0.014
620	3,376,407		1.0135	127,657,555	0.013
621	3,400,042		1.0130	130,178,792	0.012
622	3,423,842		1.0125	132,652,189	0.011
623	3,447,809		1.0120	135,073,091	0.011
624	3,471,944		1.0115	137,436,870	0.010
625	3,496,247		1.0110	139,738,938	0.009
626	3,520,721		1.0105	141,974,761	0.008
627	3,545,366		1.0100	144,139,876	0.008
628	3,570,184		1.0095	146,229,904	0.007
629	3,595,175		1.0090	148,240,565	0.006
630	3,620,341		1.0085	150,167,693	0.005
631	3,645,683		1.0080	152,007,247	0.005
632	3,671,203		1.0075	153,755,330	0.004
633	3,696,902		1.0070	155,408,200	0.003
634	3,722,780		1.0065	156,962,282	0.002
635	3,748,839		1.0060	158,414,183	0.002
636	3,775,081	Peak end	1.0055	159,760,704	0.001
637	3,801,507			160,998,849	
638	3,828,117			162,125,841	
639	3,854,914			163,260,722	
640	3,881,899			164,403,547	
641	3,909,072			165,554,372	
642	3,936,435			166,713,253	
643	3,963,991			167,880,245	
644	3,991,738			169,055,407	
645	4,019,681			170,238,795	
646	4,047,818			171,430,467	
647	4,076,153			172,630,480	
648	4,104,686			173,838,893	
649	4,133,419			175,055,765	
650	4,162,353			176,281,156	
651	4,191,489			177,515,124	
652	4,220,830			178,757,730	
653	4,250,376			180,009,034	
654	4,280,128			181,269,097	
655	4,310,089			182,537,981	
656	4,340,260			183,815,747	
657	4,370,642			185,102,457	
658	4,401,236			186,398,174	
659	4,432,045			187,702,961	
660	4,463,069			189,016,882	
661	4,494,311			190,340,000	
662	4,525,771			191,672,380	
663	4,557,451			193,014,087	
664	4,589,353			194,365,185	
665	4,621,479			195,725,742	
666	4,653,829			197,095,822	
667	4,686,406			198,475,493	
668	4,719,211			199,864,821	
669	4,752,245			201,263,875	
670	4,785,511			202,672,722	
671	4,819,010			204,091,431	
672	4,852,743			205,520,071	
673	4,886,712			206,958,712	
674	4,920,919			208,407,423	
675	4,955,365			209,866,275	

676	4,990,053			211,335,338	
677	5,024,983			212,814,686	
678	5,060,158			214,304,389	
679	5,095,579			215,804,519	
680	5,131,248			217,315,151	
681	5,167,167	Peak start	1.0060	218,836,357	0.002
682	5,203,337		1.0080	220,696,466	0.005
683	5,239,760		1.0100	223,234,475	0.008
684	5,276,439		1.0120	226,471,375	0.011
685	5,313,374		1.0140	230,434,624	0.014
686	5,350,567		1.0160	235,158,534	0.017
687	5,388,021		1.0180	240,684,760	0.020
688	5,425,738	Peak top	1.0200	247,062,906	0.023
689	5,463,718		1.0195	254,351,262	0.022
690	5,501,964		1.0190	261,663,860	0.021
691	5,540,478		1.0185	268,990,448	0.020
692	5,579,261		1.0180	276,320,438	0.020
693	5,618,316		1.0175	283,642,930	0.019
694	5,657,644		1.0170	290,946,735	0.018
695	5,697,247		1.0165	298,220,404	0.017
696	5,737,128		1.0160	305,452,248	0.017
697	5,777,288		1.0155	312,630,376	0.016
698	5,817,729		1.0150	319,742,717	0.015
699	5,858,453		1.0145	326,777,057	0.014
700	5,899,462		1.0140	333,721,070	0.014
701	5,940,759		1.0135	340,562,351	0.013
702	5,982,344		1.0130	347,288,458	0.012
703	6,024,220		1.0125	353,886,939	0.011
704	6,066,390		1.0120	360,345,375	0.011
705	6,108,855		1.0115	366,651,419	0.010
706	6,151,617		1.0110	372,792,831	0.009
707	6,194,678		1.0105	378,757,516	0.008
708	6,238,041		1.0100	384,533,568	0.008
709	6,281,707		1.0095	390,109,305	0.007
710	6,325,679		1.0090	395,473,308	0.006
711	6,369,959		1.0085	400,614,461	0.005
712	6,414,548		1.0080	405,521,988	0.005
713	6,459,450		1.0075	410,185,491	0.004
714	6,504,666		1.0070	414,594,985	0.003
715	6,550,199		1.0065	418,740,934	0.002
716	6,596,050		1.0060	422,614,288	0.002
717	6,642,223	Peak end	1.0055	426,206,510	0.001
718	6,688,718			429,509,610	
719	6,735,539			432,516,177	
720	6,782,688			435,543,791	
721	6,830,167			438,592,597	
722	6,877,978			441,662,745	
723	6,926,124			444,754,384	
724	6,974,607			447,867,665	
725	7,023,429	Peak start	1.0060	451,002,739	0.002
726	7,072,593		1.0080	454,836,262	0.005
727	7,122,101		1.0100	460,066,879	0.008
728	7,171,956		1.0120	466,737,849	0.011
729	7,222,160		1.0140	474,905,761	0.014
730	7,272,715		1.0160	484,641,329	0.017
731	7,323,624		1.0180	496,030,401	0.020
732	7,374,889	Peak top	1.0200	509,175,206	0.023

733	7,426,513		1.0195	524,195,875	0.022
734	7,478,499		1.0190	539,266,506	0.021
735	7,530,848		1.0185	554,365,968	0.020
736	7,583,564		1.0180	569,472,441	0.020
737	7,636,649		1.0175	584,563,461	0.019
738	7,690,106		1.0170	599,615,970	0.018
739	7,743,936		1.0165	614,606,369	0.017
740	7,798,144		1.0160	629,510,573	0.017
741	7,852,731		1.0155	644,304,072	0.016
742	7,907,700		1.0150	658,961,990	0.015
743	7,963,054		1.0145	673,459,153	0.014
744	8,018,795		1.0140	687,770,160	0.014
745	8,074,927		1.0135	701,869,449	0.013
746	8,131,452		1.0130	715,731,370	0.012
747	8,188,372		1.0125	729,330,266	0.011
748	8,245,690		1.0120	742,640,544	0.011
749	8,303,410		1.0115	755,636,753	0.010
750	8,361,534		1.0110	768,293,669	0.009
751	8,420,065		1.0105	780,586,367	0.008
752	8,479,005		1.0100	792,490,310	0.008
753	8,538,358		1.0095	803,981,419	0.007
754	8,598,127		1.0090	815,036,164	0.006
755	8,658,314		1.0085	825,631,634	0.005
756	8,718,922		1.0080	835,745,621	0.005
757	8,779,954		1.0075	845,356,696	0.004
758	8,841,414		1.0070	854,444,280	0.003
759	8,903,304		1.0065	862,988,723	0.002
760	8,965,627		1.0060	870,971,369	0.002
761	9,028,386	Peak end	1.0055	878,374,625	0.001
762	9,091,585			885,182,029	
763	9,155,226			891,378,303	
764	9,219,313			897,617,951	
765	9,283,848			903,901,277	
766	9,348,835			910,228,586	
767	9,414,277			916,600,186	
768	9,480,177			923,016,387	
769	9,546,538			929,477,502	
770	9,613,364			935,983,844	
771	9,680,657			942,535,731	
772	9,748,422			949,133,481	
773	9,816,661			955,777,416	
774	9,885,377			962,467,858	
775	9,954,575			969,205,133	
776	10,024,257			975,989,569	
777	10,094,427			982,821,496	
778	10,165,088			989,701,246	
779	10,236,243			996,629,155	
780	10,307,897			1,003,605,559	
781	10,380,052			1,010,630,798	
782	10,452,713			1,017,705,213	
783	10,525,882			1,024,829,150	
784	10,599,563			1,032,002,954	
785	10,673,760			1,039,226,975	
786	10,748,476			1,046,501,563	
787	10,823,716			1,053,827,074	
788	10,899,482			1,061,203,864	
789	10,975,778			1,068,632,291	



790	11,052,608			1,076,112,717		
791	11,129,977			1,083,645,506		
792	11,207,886			1,091,231,024		
793	11,286,342			1,098,869,642		
794	11,365,346			1,106,561,729		
795	11,444,903			1,114,307,661		
796	11,525,018			1,122,107,815		
797	11,605,693			1,129,962,570		
798	11,686,933			1,137,872,308		
799	11,768,741			1,145,837,414		
800	11,851,122			1,153,858,276		
801	11,934,080			1,161,935,284		
802	12,017,619			1,170,068,831		
803	12,101,742			1,178,259,312		
804	12,186,454			1,186,507,128		
805	12,271,760			1,194,812,677		
806	12,357,662			1,203,176,366		
807	12,444,166			1,211,598,601		
808	12,531,275			1,220,079,791		
809	12,618,994			1,228,620,349		
810	12,707,327			1,237,220,692		
811	12,796,278			1,245,881,237		
812	12,885,852			1,254,602,405		
813	12,976,053			1,263,384,622		
814	13,066,885			1,272,228,315		
815	13,158,353			1,281,133,913		
816	13,250,462			1,290,101,850		
817	13,343,215			1,299,132,563		
818	13,436,618			1,308,226,491		
819	13,530,674			1,317,384,077		
820	13,625,389			1,326,605,765		
821	13,720,766			1,335,892,005		
822	13,816,812			1,345,243,249		
823	13,913,529			1,354,659,952		
824	14,010,924			1,364,142,572		
825	14,109,001			1,373,691,570		





