

2/12/2019

To the State, Veterans, and Military Affairs Cmte. of the Colorado House, to Reps. Sirota, Kennedy, Humphrey, Rich, Lewis, Lontine, Duran, Melton, Williams Thank you for accepting my testimony in support of the National Popular vote.

"Make every vote equal" often headlines our essays supporting the national popular vote. I will use basic arithmetic to show that the present electoral college system makes votes in different states *unequal*.

Whenever electors are used to select the president, every elector counts the same as every other elector, regardless of their state of origin. In particular one Colorado elector counts the same as one Wyoming elector. In the 2016 election, 255,849 Wyoming votes were represented by 3 electors, so that *each* Wyoming elector represented 85,283 votes. In Colorado the 2.78 million votes were represented by 9 electors, so that *each* Colorado elector represented 309K votes. (K stands for thousands, and some numbers are rounded off)

Start an equation: **One Colo. Elector = One Wyoming Elector**

$$\begin{aligned}
 309\text{K Colo. votes} &= 85.3\text{K Wyo. votes} \\
 1 \text{ Colo. vote} &= ? \\
 \text{Divide by } \frac{309\text{K}}{309\text{K}} \text{ Colo vote} &= \frac{85.3\text{K}}{309\text{K}} \text{ Wyo. vote} \\
 &= 1 \text{ Colo. vote} = .276 \text{ Wyo. vote} \\
 &= \underline{27.6\% \text{ of a Wyo. Vote}} \\
 &\text{(same as } 1 \text{ Wyo. vote} = 3.62 \text{ Colo. votes)}
 \end{aligned}$$

Similarly, comparing Penna. and West Virginia votes in the 2016 election. West Virginia had 714K votes, 5 electors, each elector representing 143K votes. Penna. had 6,165K votes, 20 electors, each elector representing 308.3K votes.

Start equation: **One Penna. Elector = One W.V. Elector**

$$\begin{aligned}
 308.3\text{K Penna. votes} &= 143\text{K W.V. votes} \\
 \text{Divide by } \frac{308.3\text{K}}{308.3\text{K}} \text{ Penna. vote} &= \frac{143\text{K}}{308.3\text{K}} \text{ W.V. votes} \\
 &= 1 \text{ Penna. vote} = .464 \text{ W.V. votes} \\
 &= \underline{46.4\% \text{ of a W.V. vote}}
 \end{aligned}$$

Rewriting, 1 W.V. vote = 2.16 Penna votes, or more than two Penna votes.

The Effective <sup>Power</sup> Number of Votes in each state,

Resulting from the Electoral College

State	No. of Electors	Popular Vote in the State in thousands	Votes per elector in thousands	Effective power of each Vote
AL	9	2123	235.9	1.08
AK	3	319	106.3	2.40
AR	6	1131	188.5	1.35
AZ	11	2573	233.9	1.09
CA	55	14182	257.9	0.98
CO	9	2780	308.9	0.82
CT	7	1645	235.0	1.08
DE	3	444	148.0	1.72
DC	3	311	103.7	2.45
FL	29	9420	324.8	0.78
GA	16	4115	257.2	0.99
HI	4	429	107.3	2.37
ID	4	690	172.5	1.47
IL	20	5536	276.8	0.92
IN	11	2735	248.6	1.02
IA	6	1566	261.0	0.97
KS	6	1184	197.4	1.29
KY	8	1924	240.5	1.06
LA	8	2029	253.6	1.00
ME	4	748	186.9	1.36
MD	10	2781	278.1	0.91
MA	11	3325	302.3	0.84
MI	16	4799	300.0	0.85
MN	10	2945	294.5	0.86
MS	6	1209	201.5	1.26
MO	10	2809	280.9	0.90
MT	3	497	165.7	1.53
NE	5	844	168.8	1.50
NV	6	1125	187.6	1.35
NH	4	744	186.1	1.36
NJ	14	3874	276.7	0.92
NM	5	798	159.6	1.59
NY	29	7721	266.3	0.95
NC	15	4742	316.1	0.80
ND	3	344	114.8	2.22
OH	18	5496	305.4	0.83
OK	7	1453	207.6	1.22
OR	7	2001	285.9	0.89
PA	20	6165	308.3	0.82
RI	4	464	116.0	2.19
SC	9	2103	233.7	1.09
SD	3	370	123.4	2.06
TN	11	2508	228.0	1.11

State	Effective Power of each vote	Votes per elector in thousands
Wyo	2.98	85.3
DC	2.45	103.7
VT	2.42	105
AK	2.40	106.3
HI	2.37	107.3
ND	2.22	114.8
RI	2.19	116
SD	2.06	123.4
WV	1.78	142.8
DE	1.72	148
NM	1.59	159.6
MT	1.53	165.7
NE	1.5	168.8
ID	1.47	172.5
NH	1.36	186.1
ME	1.36	186.9
NV	1.35	187.6
AR	1.35	188.5
UT	1.35	188.6
KS	1.29	197.4
MS	1.26	201.5
OK	1.22	207.6
TN	1.11	228
SC	1.09	233.7
AZ	1.09	233.9
CT	1.08	235
AL	1.08	235.9
TX	1.08	236
KY	1.06	240.5
IN	1.02	248.6
LA	1	253.6
Tot	1	254
GA	0.99	257.2
CAL	0.98	257.9
IA	0.97	261
NY	0.95	266.3
WA	0.92	276.4
NJ	0.92	276.7
ILL	0.92	276.8
MD	0.91	278.1
MO	0.9	280.9
OR	0.89	285.9
MN	0.86	294.5