

HB 2711 and SB 515 Offset Calculation -- §12(a)(1) ¹

	1,900	"Affected facility" carbon dioxide release rate (lbs/MWh) ²
times	100	Windfarm nameplate capacity (MW) ³
times	0.33	Windfarm capacity factor ⁴
times	8,760	Hours/year
product	549,252,000	Annual Lbs of CO ₂ credit
divided by 2,000	274,626	Yields annual tons of CO ₂ credit (total for wind facility located outside KS).
times	1.5	"In KS" multiplier.
product	<u>411,939</u>	Annual tons of CO ₂ credit if wind facility in KS

In-State Calculation

If	5,500,000	tons CO ₂ released annually (estimate of release at 1,900 lbs./MWh for a 700 MW facility).
then,	1,100,000	credit needed in tons CO ₂ to meet initial emission goal in bill (1,520 lbs CO ₂ /MWh).
divided by	411,939	Credit for 100 MW nameplate wind from KS facility.
equals	267.03	MW nameplate wind capacity at 33% capacity factor required to produce total offset credits if wind facility is located in KS.

Out of State Calculation

If	5,500,000	tons CO ₂ released annually (estimate of release at 1,900 lbs./MWh for a 700 MW facility).
then,	1,100,000	credit needed in tons CO ₂ to meet initial emission goal in bill (1,520 lbs CO ₂ /MWh).
divided by	274,626	Credit for 100 MW nameplate wind from out-of-state facility.
equals	400.54	MW nameplate wind capacity at 33% capacity factor required to produce total offset credits if wind facility is NOT located in KS.

¹ The language of the bill as introduced does not exactly describe the calculation required to determine the amount of credit available for a particular amount of wind-generated electricity. A technical amendment to the bill will be required to describe the calculation above.

² New coal-fuel plant actual emissions estimate ranges between 1900 and 2200 depending upon design.

³ Examples: Spearville or Smokey Hills wind farms -- 100 MW nameplate capacity each.

⁴ Typical wind power capacity factors range from 20% to 40%. Data recently published by the Kansas Energy Council shows the following capacity factors for existing industrial wind farms in Kansas: Grey County 36.6% average capacity factor; Elk River 40.0% average capacity factor; and Spearville 28.7 % average capacity factor. Source: *Kansas Energy Chart Book 2008*. Kansas Energy Council. January 2008. http://kec.kansas.gov/chart_book/chart_book_2008.pdf. Accessed 2/3/2008.