GEW34-14
Table 602.2.1, 602.2.3, 603.5.1

Proponent: Charles Foster, Steffes Corporation, representing self (cfoster20187@yahoo.com)

Revise as follows:

602.2.1 Onsite electricity. Emissions associated with use of electric power shall be based on electric power excluding any renewable or recovered waste energy covered under Section 602.2.1. Emissions shall be calculated by converting the electric power used by the building at the electric utility meter or measured point of delivery, to MWHs, and multiplying by the CO_2e conversion factor in Table 602.2.1 based on the EPA eGRID Sub-region in which the building is located.

TABLE 602.2.1
ELECTRICITY EMISSION RATE BY EPA eGRID SUB-REGION[a]

eGRID ~~2007~~ 2012 SUB-REGION ACRONYM	eGRID ~~2007~~ 2012 SUB-REGION NAME	~~2005~~ 2009 CO_2e RATE (lbs/MWh)
AKGD	ASCC Alaska Grid	~~1270~~ 1281
AKMS	ASCC Miscellaneous	~~515~~ 521
ERCT	ERCOT All	~~1417~~ 1182
FRCC	FRCC All	~~1416~~ 1177
HIMS	HICC Miscellaneous	~~1595~~ 1352
HIOA	HICC Oahu	~~18591~~ 1593
~~MORE~~ MROE	MRO East	~~1971~~ 1592
MROW	MRO West	~~1957~~ 1629
NYLI	NPCC Long Island	~~1651~~ 0
NEWE	NPCC New England	~~999~~ 0
NYCW	NPCC NYC/Westchester	~~874~~ 0
NYUP	NPCC Upstate NY	~~774~~ 0
RFCE (except MD and DE)	RFC East	~~1224~~ 947
RFCM	RFC Michigan	~~1680~~ 1659
RFCW (except MD)	RFC West	~~1652~~ 1521
SRMW	SERC Midwest	~~1966~~ 1750
SRMV	SERC Mississippi Valley	~~1094~~ 1022
SRSO	SERC South	~~1601~~ 1326
SRTV	SERC Tennessee Valley	~~1623~~ 1358
SRVC	SERC Virginia/Carolina	~~1220~~ 1036
SPNO	SPP North	~~2106~~ 1816
SPSO	SPP South	~~1780~~ 1599

eGRID ~~2007~~ 2012 SUB-REGION ACRONYM	eGRID ~~2007~~ 2012 SUB-REGION NAME	~~2005~~ 2009 CO_2e RATE (lbs/MWh)
CAMX	WECC California	~~768~~ 0
NWPP (except CA)	WECC Northwest	~~958~~ 819
RMPA	WECC Rockies	~~1999~~ 1825
AZNM (except CA)	WECC Southwest	~~1391~~ 1191

a. Sources: EPA eGRID~~2007~~ 2012 Version ~~1.1~~ 1.0, ~~2005~~ 2009 data; EPA eGrid regional gross grid loss factor.

~~**602.2.3 Annual direct and indirect CO_2e emissions associated with onsite use of fossil fuels and purchased district energy.** Emissions associated with the use of natural gas, fuel oil and, propane shall be calculated by multiplying the natural gas, fuel oil, and propane delivered to the building at the utility meter by the corresponding emission factors in Table 602.2.2. Emissions associated with fossil fuels not listed shall be calculated by multiplying the fossil fuel delivered to the building at the utility meter by 250. Emissions associated with purchased district heating shall be calculated by multiplying the heating energy delivered to the building at the utility meter by 150 for hot water and steam, and for district cooling, the factors from Table 602.2.1 based on the EPA eGRID Sub-region in which the building is located.~~

603.5.1 Annual emissions. The data acquisition and management system shall be capable of providing the data necessary to calculate the annual CO2*e* emissions associated with the operation of the building and its systems using the results of annual energy use measured in accordance with Section 603.5. The calculation shall be based on energy measured for each form of energy delivered to the site on an annual basis. Where reporting of emissions is required, the determination of emissions shall be in accordance with Section 602.2.2 ~~602.2.3~~.

Reason: This proposal does two primary things:

1. it updates Table 602.2.1 with data from 2009, replacing the existing data in the table from 2005, and
2. it deletes Section 602.2.3 as duplicative with Section 602.2.2.

Updated Data.

Table 602.2.1 is updated with more current data taken from EPA's EGrid2012 publication, except for subregions where CO2 emissions are capped. In subregions where CO2 emissions are capped, a value of "0" is supplied.

Where upstream power plant emissions are capped by local, regional, or national laws, there is no impact on emissions as a result of building energy efficiency measures. The US Department of Energy has analyzed the impact of appliance efficiency standards on emissions, and for the past several years, uses the following language when discussing certain emissions that are capped. For example, in the Furnace Fan Motors Technical Support Document, June 2012 http://www.regulations.gov/#!documentDetail;D=EERE-2010-BT-STD-0011-0037 it states for Sulfur Dioxide (Chapter 15.2.2), which is capped on a national basis in the United States:

"While there remains some uncertainty about the ultimate effects of efficiency standards on SO2 emissions covered by the existing cap and trade system, the NEMS-BT modeling system that DOE uses to forecast emissions reductions currently indicates that no physical reductions in power sector emissions would occur for SO2."

It also states for Nitrogen Oxides (Chapter 15.2.3), which is capped on a regional basis in the United States: "Therefore, energy conservation standards for electric motors may have little or no physical effect on these emissions in the 28 eastern states and the D.C."

In the US in 2013, there are two regional programs that cap CO2e emissions from central station power plants: The Regional Greenhouse Gas Initiative (RGGI) that covers 9 states in the New England and mid-Atlantic area (CT, DE, MA, MD, ME, NH, NY, RI, VT) and the California greenhouse gas cap and trade program mandated under state law AB32 and implemented by the California Air Resources Board. In these areas, building energy efficiency improvements have no impact on upstream emissions.

Under the RGGI and CA programs, power plant CO2e emissions are capped. Building energy efficiency upgrades will have no impact on upstream emissions (per the DOE analysis of appliance energy efficiency standards for emissions that are capped at a national or regional level). See the following web sites:

http://www.regulations.gov/#!documentDetail;D=EERE-2010-BT-STD-0011-0037 (Chapter 15)

http://www.rggi.org/design/overview http://www.arb.ca.gov/cc/capandtrade/cap andtrade.htm

It is also a fact that when renewable electric production systems produce electricity, the power is dispatched to the grid, regardless of the time of day. In certain parts of the US, records have been set in terms of renewables as a percentage of the electricity dispatched.

For example: ERCOT Wind Integration Report for 11/10/2012, wind turbines produced 8,521 MW whem the peak load was 36,423 MW, for a wind integration value of 25.9%. During the peak hour of 1900 (7:00 PM), wind turbines produced 22.7% of the power that was used at that time.

On November 27, 2012 the Midwest Independent System Operator reported that on November 23, 2012, the peak wind output topped 10 GW and it represented 25% of the total output.

Xcel Energy in Colorado reported that on April 15, 2012, wind turbines produced 57% of the power used during the early morning hours.

http://money.cnn.com/2012/08/06/news/economy/wind-power-Colorado/index.htm
https://www.midwestiso.org/AboutUs/MediaCenter/PressReleases/Pages/WindOutputSurpasses10GW.aspx
http://www.ercot.com/content/gridinfo/generation/windintegration/2012/11/ERCOT%20Wind%20Integration%20Report%2011-10-12.pdf

Delete Section 602.2.3

Sections 602.2.2 and 602.2.3 are virtually identical and this proposal simply strikes the repetitive language. No substantive change to the code occurs as the result of removing Section 602.2.3.

Cost Impact: Will not increase the cost of construction.

GEW34-14: 602.2.3-FOSTER512