

# GEW33-14

## 602.1.2.1, Table 602.1.2.1, 602.2.1, Table 602.2.1

**Proponent:** Ben Edwards, Mathis Consulting Company, representing self

**Revise as follows:**

**602.1.2.1 Modifications to Appendix G of ASHRAE 90.1.** The performance rating in Section G1.2 of ASHRAE 90.1 shall be based on energy use converted to consistent units in accordance with Sections 602.1.2.2 and 602.1.2.3, instead of energy cost.

**TABLE 602.1.2.1  
ELECTRICITY GENERATION ENERGY CONVERSION FACTORS BY EPA eGRID SUB-REGION<sup>a</sup>**

eGRID 2007 SUB-REGION ACRONYM	eGRID 2007 SUB-REGION NAME	ENERGY CONVERSION FACTOR
AKGD	ASCC Alaska Grid	<del>2.97</del> <u>3.27</u>
AKMS	ASCC Miscellaneous	<del>1.76</del> <u>1.93</u>
ERCT	ERCOT All	<del>2.93</del> <u>3.11</u>
FRCC	FRCC All	<del>2.97</del> <u>3.17</u>
HIMS	HICC Miscellaneous	<del>3.82</del> <u>3.78</u>
HIOA	HICC Oahu	<del>3.14</del> <u>3.29</u>
MORE	MRO East	<del>3.40</del> <u>3.28</u>
MROW	MRO West	<del>3.41</del> <u>3.49</u>
NYLI	NPCC Long Island	<del>3.20</del> <u>3.41</u>
NEWE	NPCC New England	<del>3.04</del> <u>2.94</u>
NYCW	NPCC NYC/Westchester	<del>3.32</del> <u>3.09</u>
NYUP	NPCC Upstate NY	<del>2.54</del> <u>2.55</u>
RFCE	RFC East	<del>3.15</del> <u>3.23</u>
RFCM	RFC Michigan	<del>3.05</del> <u>3.29</u>
RFCW	RFC West	<del>3.14</del> <u>3.27</u>
SRMW	SERC Midwest	<del>3.24</del> <u>3.33</u>
SRMV	SERC Mississippi Valley	<del>3.00</del> <u>3.13</u>
SRSO	SERC South	<del>3.08</del> <u>3.06</u>
SRTV	SERC Tennessee Valley	<del>3.11</del> <u>3.10</u>
SRVC	SERC Virginia/Carolina	<del>3.13</del> <u>3.23</u>
SPNO	SPP North	<del>3.53</del> <u>3.58</u>
SPSO	SPP South	<del>3.05</del> <u>3.22</u>
CAMX	WECC California	<del>2.64</del> <u>2.93</u>

NWPP	WECC Northwest	<del>2.26</del> <u>2.36</u>
RMPA	WECC Rockies	<del>3.18</del> <u>3.48</u>
AZNM	WECC Southwest	<del>2.95</del> <u>3.18</u>

a. Sources: EPA eGrid2007 version 1.1, 2005 data; EPA eGrid regional gross grid loss factors; EIA Table 8.4a (Sum tables 8.4b and 8.4c) and Table 8.2c (Breakout of Table 8.2b), 2005 data.

**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<sub>2</sub>e 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<sup>a</sup>**

eGRID 2007 SUB-REGION ACRONYM	eGRID 2007 SUB-REGION NAME	2005 CO <sub>2</sub> e RATE (lbs/MWh)
AKGD	ASCC Alaska Grid	<del>1270</del> <u>1577</u>
AKMS	ASCC Miscellaneous	<del>515</del> <u>639</u>
ERCT	ERCOT All	<del>1417</del> <u>1445</u>
FRCC	FRCC All	<del>1416</del> <u>1322</u>
HIMS	HICC Miscellaneous	<del>1595</del> <u>1566</u>
HIOA	HICC Oahu	<del>18594</del> <u>1873</u>
<del>MORE</del> <u>MROE</u>	MRO East	<del>1971</del> <u>1813</u>
MROW	MRO West	<del>1957</del> <u>1851</u>
NYLI	NPCC Long Island	<del>1651</del> <u>1447</u>
NEWE	NPCC New England	<del>999</del> <u>813</u>
NYCW	NPCC NYC/Westchester	<del>874</del> <u>768</u>
NYUP	NPCC Upstate NY	<del>774</del> <u>590</u>
RFCE	RFC East	<del>1224</del> <u>1065</u>
RFCM	RFC Michigan	<del>1680</del> <u>1874</u>
RFCW	RFC West	<del>1652</del> <u>1711</u>
SRMW	SERC Midwest	<del>1966</del> <u>1976</u>
SRMV	SERC Mississippi Valley	<del>1094</del> <u>1221</u>
SRSO	SERC South	<del>1601</del> <u>1519</u>
SRTV	SERC Tennessee Valley	<del>1623</del> <u>1538</u>
SRVC	SERC Virginia/Carolina	<del>1220</del> <u>1180</u>
SPNO	SPP North	<del>2106</del> <u>2062</u>
SPSO	SPP South	<del>1780</del> <u>1860</u>
CAMX	WECC California	<del>768</del> <u>835</u>

NWPP	WECC Northwest	<del>958</del> <u>959</u>
RMPA	WECC Rockies	<del>1999</del> <u>2131</u>
AZNM	WECC Southwest	<del>1391</del> <u>1428</u>

a. Sources: EPA eGRID2007 Version 1.1, 2005 data; EPA eGrid regional gross grid loss factor.

**Reason:** Updated factors based on the eGRID 2012 database (the most current eGRID data available) as described in detail in the peer-reviewed ASHRAE conference paper listed in the bibliography.

**Bibliography:**

EPA eGRID original data: <http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html>

Leslie, N. and Marek Czachorski. 2014. Options for Determining Marginal Primary Energy and Greenhouse Gas Emission Factors (NY-14-C057). ASHRAE Transactions, Vol. 120, pt. 1. Atlanta: American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc..

**Cost Impact:** Will not increase the cost of construction.

GEW33-14: TABLE602.1.2.1-EDWARDS996