



### **MCE 2017 Emission Factor Certification Template, as provided by The Climate Registry:**

[Member] may use Marin Clean Energy's (MCE) 2017 emission factor in their voluntary greenhouse gas report submitted to The Climate Registry. Please note that during the 2017 calendar year MCE, the first operating Community Choice Aggregation program in California, offered three distinct retail supply options: 1) Light Green, which is the default retail supply option (MCE has committed to delivering Light Green customers a minimum 50% renewable energy supply); 2) Deep Green, a voluntary retail supply option that procures 100% renewable energy for participating MCE customers; and 3) Local Sol, a voluntary retail supply options that sources 100% of participating customer energy requirements from photovoltaic solar generators located within MCE's service territory.

With respect to the **Light Green** retail supply option, **the 2017 emission factor attributed to this offering was determined to be 114 pounds of carbon dioxide equivalent per megawatt hour (lbs. CO<sub>2</sub>e/MWh<sup>1</sup>)**. For the **Deep Green** and **Local Sol** retail supply options, **the 2017 emission factor attributed to each service options was determined to be zero lbs. CO<sub>2</sub>e/MWh**, as a result of MCE delivering 100% renewable energy to participating customers. **When considered in aggregate, the emission factor attributed to MCE's total portfolio, which reflects the procurement of resources sufficient to supply all MCE customers (Light Green, Deep Green and Local Sol), was determined to be 109 lbs. CO<sub>2</sub>e/MWh for the 2017 calendar year** – this statistic has been calculated for informational purposes only. In reporting to The Climate Registry, [Member] has selected the appropriate emissions factor corresponding with the retail supply option(s) under which [Member] received electric service during the 2017 calendaryear.

MCE has calculated its 2017 emission factor of 114 lbs. CO<sub>2</sub>e/MWh for the Light Green product and zero lbs. CO<sub>2</sub>e/MWh for the Deep Green and Local Sol products based on the following independently developed methodology:

1. Light Green retail electricity product: MCE diligently plans for and procures electricity to provide clean power supply for Light Green customers. During the 2017 calendar year, MCE delivered a total of 2,697,310 MWh to Light Green customers of which 1,642,286 MWh (60.89% of total) were supplied from California Renewables Portfolio Standard (RPS) eligible sources, such as landfill gas, geothermal, small hydroelectric, solar and wind – these RPS-eligible renewable energy volumes were used to demonstrate compliance with California's RPS and were retired through the Western Renewable Energy Generation Information System (WREGIS) consistent with applicable regulatory guidelines. MCE also delivered 707,099 MWh (26.21% of total) from non-polluting hydroelectric generators. The aforementioned resources, which comprised 87.10% of MCE's Light Green supply portfolio, were all determined to be carbon-free, low-carbon or carbon-neutral based on specified fuel sources. An additional 31,804 MWh, or 1.18%, of the Light Green supply portfolio was provided by Asset Controlling Suppliers (ACS), which offer low-carbon supply from generating resources that rely heavily on hydroelectricity and renewable

<sup>1</sup> Based on available emission factors for the carbon-emitting power sources included in MCE's 2017 supply portfolio, MCE has elected to use CO<sub>2</sub>e, or carbon dioxide equivalent, when expressing the emissions intensity of its power supply portfolio to retail customers, which reflects the impacts of multiple greenhouse gasses, such as carbon dioxide, nitrous oxide and methane, in a single unit of measurement.

energy; ACS portfolios are assigned CARB-certified emission factors, which compare favorably to fossil-fuel resources. The balance of Light Green resource requirements were supplied from specific natural gas generators and unspecified sources, or "system power". In the case of electricity produced via the combustion of natural gas, MCE procured a total of 143,675 MWh, or 5.33% of total supply, from Calpine's Metcalf Energy Center; such volumes were assigned a GHG emissions factor of 863.00 lbs. CO<sub>2</sub>e/MWh, consistent with guidance provided by the generator owner/operator. For system power purchases, which totaled 172,445 MWh, or 6.39% of total Light Green purchases, the California Air Resources Board (CARB) has assigned an emission rate of 943.58 lbs. CO<sub>2</sub>e/MWh – MCE applied this emission factor to all system power volumes when compiling its Light Green emissions statistic for 2017. This emission rate is publicly available via CARB's website. CARB previously advised MCE to use this published emission factor when determining GHG emissions associated with system power purchases. For purposes of determining MCE's Light Green emission factor for the 2017 calendar year, total portfolio emissions were determined to be approximately 307 million pounds. The total of 307 million pounds of CO<sub>2</sub> equivalent was divided by the total delivered Light Green electricity volume of 2,697,310 MWh, resulting in a 2017 Light Green emission factor of 114 lbs. CO<sub>2</sub>e/MWh.

2. Deep Green retail electricity product: MCE offers the Deep Green, 100% renewable energy retail supply option on a voluntary basis. During the 2017 calendar year, MCE supplied a total of 106,616 MWh to Deep Green customers, all of which was supplied by RPS-eligible generators; associated renewable energy certificates were retired through WREGIS consistent with applicable regulatory guidelines and Green-e Energy certification guidelines (as MCE's Deep Green product continues to remain Green-e Energy certified). As a result of the 100% renewable energy supply that was delivered to Deep Green customers, the attributed emission factor was determined to be zero lbs. CO<sub>2</sub>e/MWh.

3. Local Sol retail electricity product: MCE's inaugural offering of the Local Sol service option occurred in 2017. This voluntary service option provided participating customers with 100% renewable energy produced by a photovoltaic solar generator located within MCE's service territory. During the 2017 calendar year, MCE supplied a total of 352 MWh to Local Sol customers, all of which was supplied by an RPS-eligible solar generator; associated renewable energy certificates were retired through WREGIS consistent with applicable regulatory guidelines and Green-e Energy certification guidelines (as MCE's Local Sol is a Green-e Energy certified energy product). As a result of the 100% renewable energy supply that was delivered to Local Sol customers, the attributed emission factor was determined to be zero lbs. CO<sub>2</sub>e/MWh.

MCE's Total Attributed Portfolio Emission Factor (2017): to determine MCE's total attributed portfolio emission factor for the 2017 calendar year, which reflects the procurement of resources sufficient to supply Light Green, Deep Green and Local Sol customers, MCE's total portfolio emissions of 307 million pounds of CO<sub>2</sub> was divided by total retail sales to all MCE customers (Light Green, Deep Green and Local Sol), which equaled 2,804,277 MWhs.<sup>2</sup> The resultant attributed emission factor for MCE's total supply portfolio was determined to be 109 lbs. CO<sub>2</sub>e/MWh.

With respect to the noted renewable energy and hydroelectric purchases included within MCE's Light Green, Deep Green and Local Sol energy supply portfolios, MCE has retained all pertinent transaction records, including evidence of applicable renewable energy certificate retirements (within WREGIS), to substantiate its procurement activities and emission factor calculations. When determining the aforementioned attributed emission factors, MCE has only reflected the impacts of renewable and carbon-neutral/carbon-free resources for which it owns and possesses applicable renewable energy certificates and/or transaction records. All applicable renewable energy certificates are held in MCE's

<sup>2</sup> The sum of MCE's Light Green, Deep Green and Local Sol energy sales may not equal total reported MCE retail sales due to numeric rounding.

WREGIS account until such time that certain certificates must be “retired” to demonstrate mandatory and/or voluntary compliance.

Any questions regarding the previously noted emission factors and/or related calculations should be directed to the following point of contact:

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