

## California Methane Inventory for 2000-2015 — by Sector and Activity

Methane

million tonnes of CO<sub>2</sub> equivalent - (based upon IPCC Fourth Assessment Report's 100-yr Global Warming Potentials)

| Included Emissions                                | 2000         | 2001         | 2002         | 2003         | 2004         | 2005         | 2006         | 2007         | 2008         | 2009         | 2010         | 2011         | 2012         | 2013         | 2014         | 2015         |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Electricity Generation (In State)</b>          | <b>0.10</b>  | <b>0.10</b>  | <b>0.10</b>  | <b>0.10</b>  | <b>0.09</b>  | <b>0.09</b>  | <b>0.09</b>  | <b>0.09</b>  | <b>0.09</b>  | <b>0.10</b>  | <b>0.09</b>  | <b>0.17</b>  | <b>0.08</b>  | <b>0.22</b>  | <b>0.22</b>  | <b>0.21</b>  |
| <i>CHP: Commercial</i>                            | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>CHP: Industrial</i>                            | 0.04         | 0.04         | 0.04         | 0.04         | 0.03         | 0.03         | 0.03         | 0.03         | 0.03         | 0.03         | 0.03         | 0.03         | 0.02         | 0.02         | 0.02         | 0.02         |
| <i>Merchant Owned</i>                             | 0.06         | 0.06         | 0.06         | 0.06         | 0.06         | 0.05         | 0.06         | 0.06         | 0.06         | 0.06         | 0.06         | 0.14         | 0.05         | 0.15         | 0.15         | 0.14         |
| <i>Utility Owned</i>                              | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.05         | 0.05         | 0.05         |
| <b>Electricity Generation (Imports)</b>           | <b>0.01</b>  | <b>0.02</b>  | <b>0.02</b>  | <b>0.02</b>  | <b>0.02</b>  | <b>0.02</b>  | <b>0.02</b>  | <b>0.02</b>  | <b>0.02</b>  | <b>0.02</b>  | <b>0.02</b>  | <b>0.02</b>  | <b>0.03</b>  | <b>0.03</b>  | <b>0.02</b>  | <b>0.03</b>  |
| <i>Specified Imports</i>                          | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.02         | 0.01         | 0.02         | 0.03         | 0.02         | 0.02         |
| <i>Unspecified Imports</i>                        | 0.00         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         |
| <b>Transportation</b>                             | <b>0.58</b>  | <b>0.52</b>  | <b>0.48</b>  | <b>0.44</b>  | <b>0.53</b>  | <b>0.47</b>  | <b>0.42</b>  | <b>0.38</b>  | <b>0.33</b>  | <b>0.31</b>  | <b>0.29</b>  | <b>0.27</b>  | <b>0.24</b>  | <b>0.23</b>  | <b>0.21</b>  | <b>0.20</b>  |
| <i>Aviation</i>                                   | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>Not Specified Transportation</i>               | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>Off Road</i>                                   | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>On Road</i>                                    | 0.57         | 0.51         | 0.46         | 0.42         | 0.52         | 0.45         | 0.40         | 0.36         | 0.32         | 0.29         | 0.27         | 0.25         | 0.23         | 0.21         | 0.19         | 0.18         |
| <i>Rail</i>                                       | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>Water-borne</i>                                | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <b>Industrial</b>                                 | <b>13.92</b> | <b>14.15</b> | <b>14.46</b> | <b>14.34</b> | <b>14.42</b> | <b>14.96</b> | <b>15.22</b> | <b>15.10</b> | <b>15.29</b> | <b>15.42</b> | <b>15.60</b> | <b>15.87</b> | <b>15.82</b> | <b>16.03</b> | <b>16.25</b> | <b>16.42</b> |
| <i>CHP: Industrial</i>                            | 0.03         | 0.02         | 0.02         | 0.02         | 0.03         | 0.03         | 0.03         | 0.03         | 0.03         | 0.03         | 0.02         | 0.03         | 0.02         | 0.02         | 0.02         | 0.02         |
| <i>Landfills</i>                                  | 7.21         | 7.36         | 7.31         | 7.42         | 7.41         | 7.59         | 7.65         | 7.71         | 7.88         | 8.02         | 8.11         | 8.19         | 8.20         | 8.22         | 8.28         | 8.40         |
| <i>Manufacturing</i>                              | 0.12         | 0.14         | 0.10         | 0.10         | 0.09         | 0.09         | 0.08         | 0.08         | 0.07         | 0.06         | 0.07         | 0.07         | 0.06         | 0.05         | 0.06         | 0.06         |
| <i>Mining</i>                                     | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>Not Specified Industrial</i>                   | 0.04         | 0.06         | 0.09         | 0.09         | 0.10         | 0.37         | 0.41         | 0.21         | 0.17         | 0.11         | 0.20         | 0.30         | 0.30         | 0.33         | 0.35         | 0.30         |
| <i>Oil &amp; Gas: Production &amp; Processing</i> | 1.39         | 1.43         | 1.46         | 1.49         | 1.52         | 1.54         | 1.58         | 1.62         | 1.65         | 1.67         | 1.72         | 1.79         | 1.85         | 2.03         | 2.15         | 2.26         |
| <i>Petroleum Marketing</i>                        | 0.01         | 0.01         | 0.01         | 0.01         | 0.00         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>Petroleum Refining &amp; Hydrogen</i>          | 0.13         | 0.10         | 0.10         | 0.09         | 0.08         | 0.09         | 0.09         | 0.09         | 0.08         | 0.10         | 0.08         | 0.11         | 0.09         | 0.08         | 0.08         | 0.07         |
| <i>Solid Waste Treatment</i>                      | 0.09         | 0.10         | 0.11         | 0.12         | 0.13         | 0.14         | 0.14         | 0.15         | 0.16         | 0.17         | 0.18         | 0.19         | 0.20         | 0.21         | 0.21         | 0.22         |
| <i>Transmission and Distribution [1]</i>          | 3.63         | 3.69         | 4.02         | 3.78         | 3.85         | 3.89         | 4.03         | 4.00         | 4.07         | 4.11         | 4.07         | 4.07         | 3.97         | 3.98         | 3.99         | 4.05         |
| <i>Wastewater Treatment</i>                       | 1.26         | 1.24         | 1.25         | 1.22         | 1.21         | 1.21         | 1.20         | 1.20         | 1.17         | 1.15         | 1.14         | 1.13         | 1.12         | 1.11         | 1.09         | 1.03         |
| <b>Commercial</b>                                 | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  | <b>0.01</b>  |
| <i>CHP: Commercial</i>                            | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>Communication</i>                              | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>Domestic Utilities</i>                         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>Education</i>                                  | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>Food Services</i>                              | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>Health Care</i>                                | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>Hotels</i>                                     | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>National Security</i>                          | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <i>Not Specified Commercial</i>                   | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         | 0.01         |
| <i>Offices</i>                                    | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |

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Methane

million tonnes of CO<sub>2</sub> equivalent - (based upon IPCC Fourth Assessment Report's 100-yr Global Warming Potentials)

| <b>Included Emissions</b>                    | <b>2000</b>  | <b>2001</b>  | <b>2002</b>  | <b>2003</b>  | <b>2004</b>  | <b>2005</b>  | <b>2006</b>  | <b>2007</b>  | <b>2008</b>  | <b>2009</b>  | <b>2010</b>  | <b>2011</b>  | <b>2012</b>  | <b>2013</b>  | <b>2014</b>  | <b>2015</b>  |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Retail & Wholesale                           | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Transportation Services                      | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| <b>Residential</b>                           | <b>0.04</b>  | <b>0.04</b>  | <b>0.04</b>  | <b>0.04</b>  | <b>0.05</b>  | <b>0.04</b>  | <b>0.03</b>  | <b>0.03</b>  | <b>0.04</b>  | <b>0.04</b>  | <b>0.04</b>  | <b>0.04</b>  | <b>0.04</b>  | <b>0.05</b>  | <b>0.05</b>  | <b>0.05</b>  |
| Household Use                                | 0.04         | 0.04         | 0.04         | 0.04         | 0.05         | 0.04         | 0.03         | 0.03         | 0.04         | 0.04         | 0.04         | 0.04         | 0.04         | 0.05         | 0.05         | 0.05         |
| <b>Agriculture &amp; Forestry</b>            | <b>19.46</b> | <b>19.53</b> | <b>20.85</b> | <b>21.19</b> | <b>20.67</b> | <b>21.13</b> | <b>21.42</b> | <b>23.74</b> | <b>23.75</b> | <b>23.15</b> | <b>23.74</b> | <b>23.64</b> | <b>24.18</b> | <b>23.26</b> | <b>23.30</b> | <b>22.71</b> |
| Ag Energy Use                                | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         | 0.00         |
| Ag Residue Burning                           | 0.03         | 0.02         | 0.02         | 0.02         | 0.02         | 0.02         | 0.02         | 0.02         | 0.03         | 0.03         | 0.03         | 0.03         | 0.03         | 0.03         | 0.03         | 0.03         |
| Enteric Fermentation                         | 10.36        | 10.25        | 10.91        | 11.00        | 10.77        | 11.08        | 11.13        | 12.31        | 12.04        | 11.65        | 12.13        | 11.98        | 12.10        | 11.78        | 11.85        | 11.54        |
| Manure Management                            | 7.88         | 8.23         | 8.76         | 9.06         | 8.60         | 8.89         | 9.13         | 10.25        | 10.56        | 10.26        | 10.38        | 10.38        | 10.84        | 10.23        | 10.46        | 10.23        |
| Rice Cultivation                             | 1.19         | 1.02         | 1.15         | 1.10         | 1.28         | 1.14         | 1.13         | 1.15         | 1.12         | 1.20         | 1.20         | 1.26         | 1.22         | 1.22         | 0.96         | 0.91         |
| <b>Summary for Included Emissions</b>        | <b>2000</b>  | <b>2001</b>  | <b>2002</b>  | <b>2003</b>  | <b>2004</b>  | <b>2005</b>  | <b>2006</b>  | <b>2007</b>  | <b>2008</b>  | <b>2009</b>  | <b>2010</b>  | <b>2011</b>  | <b>2012</b>  | <b>2013</b>  | <b>2014</b>  | <b>2015</b>  |
| Included Inventory CH <sub>4</sub> Emissions | 34.1         | 34.4         | 36.0         | 36.1         | 35.8         | 36.7         | 37.2         | 39.4         | 39.5         | 39.0         | 39.8         | 40.0         | 40.4         | 39.8         | 40.1         | 39.6         |

[1] The exceptional Aliso Canyon natural gas leak event released 1.96 MMTCO<sub>2</sub>e of unanticipated emissions in calendar year 2015 and an additional 0.52 MMTCO<sub>2</sub>e in 2016. These emissions will be mitigated in the future according to legal settlement and are presented alongside but tracked separately from routine inventory emissions.

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**Methane**million tonnes of CO<sub>2</sub> equivalent - (based upon IPCC Fourth Assessment Report's 100-yr Global Warming Potentials)

| <b>Excluded Emissions</b>                              | <b>2000</b> | <b>2001</b> | <b>2002</b> | <b>2003</b> | <b>2004</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Transportation</b>                                  | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.03</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> |
| <i>Aviation</i>  | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> |
| <i>Water-borne</i>                                     | <i>0.02</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.01</i> | <i>0.02</i> | <i>0.02</i> | <i>0.02</i> | <i>0.02</i> | <i>0.02</i> | <i>0.02</i> | <i>0.02</i> | <i>0.02</i> | <i>0.02</i> | <i>0.02</i> |
| <b>Industrial</b>                                      | <b>0.55</b> | <b>0.54</b> | <b>0.55</b> | <b>0.55</b> | <b>0.56</b> | <b>0.57</b> | <b>0.59</b> | <b>0.62</b> | <b>0.62</b> | <b>0.61</b> | <b>0.60</b> | <b>0.60</b> | <b>0.60</b> | <b>0.57</b> | <b>0.59</b> | <b>0.59</b> |
| <i>Oil &amp; Gas: Production &amp; Processing</i>      | <i>0.55</i> | <i>0.54</i> | <i>0.55</i> | <i>0.55</i> | <i>0.56</i> | <i>0.57</i> | <i>0.59</i> | <i>0.62</i> | <i>0.62</i> | <i>0.61</i> | <i>0.60</i> | <i>0.60</i> | <i>0.60</i> | <i>0.57</i> | <i>0.59</i> | <i>0.59</i> |
| <b>Military</b>  | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| <i>Not Specified Military</i>                          | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> |
| <b>Summary for Excluded Emissions</b>                  | <b>2000</b> | <b>2001</b> | <b>2002</b> | <b>2003</b> | <b>2004</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> |
| International and Interstate CH <sub>4</sub> Emissions | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.6</b>  |

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**Methane**

*million tonnes of CO2 equivalent - (based upon IPCC Fourth Assessment Report's 100-yr Global Warming Potentials)*

**Forested Lands & Wood Products**    **2000**   **2001**   **2002**   **2003**   **2004**   **2005**   **2006**   **2007**   **2008**   **2009**   **2010**   **2011**   **2012**   **2013**   **2014**   **2015**

This section of the inventory is currently under development