

**STATE ENVIRONMENTAL HEALTH INDICATORS COLLABORATIVE (SEHIC)
CLIMATE CHANGE INDICATORS**

Indicator: CC4: Mitigation Indicators

Measure(s): CC4.2: Renewable Energy Generation per Capita

MEASURE: Renewable Energy Generation per Capita

Last updated:	April 25, 2010
Measurement units:	Thousand Kilowatthours of renewable energy generation per person
Geographic scale:	Statewide
Time scale:	Annual 2008, 2007, and 2006 available
Significance/background:	Renewable energy currently represents 7% of total energy use in the U.S. (http://tonto.eia.doe.gov/energy_in_brief/renewable_energy.cfm). As the percentage of energy generated from alternative fuel sources increases, it is likely that air quality will also improve.
Rationale:	Renewable energy generation offsets demand for energy generated from fossil fuel sources. Renewable energy policies encourage development of both centralized renewable energy sources such as hydroelectric and wind and distributed sources such as solar thermal and photovoltaic installations on individual homes and businesses. An indicator showing increased renewable generation per capita will allow for epidemiological research into the health benefits associated with offset emissions.
Limitations:	This measure does not consider state differences in factors that impact energy use and needs, such as weather and temperature information. There may be issues and limitations not yet considered when dividing the thousand kilowatthours value by state population and obtaining a per person value.
Data resources:	Energy Information Administration's Renewable Energy Annual: http://www.eia.doe.gov/cneaf/solar.renewables/page/rea_data/rea_sum.html
Data limitations:	This methodology does not incorporate energy efficiency or percentage of total energy use. For example, this indicator would not reflect the benefits to air quality if a state's population increases energy efficiency substantially while renewable energy generation remains constant.
Related SEHIC measures:	CC 1.1: Greenhouse Gas Emissions CC 4.1: Total Energy Consumption per Capita CC 6.2: Number, Percent, and Percent of Population Living in Cities Participating in the U.S. Conference of Mayors Climate Protection Agreement CC 6.3: Creation of a State Climate Change Advisory Board CC 6.4: Completion of a Greenhouse Gas Inventory CC 6.5: Development of a State/Local Climate Change Action Plan

Recommendations:	The EIA website breaks down renewable energy generation by category (such as wind). The measure could be revised to include measures by category if the team feels this is the more appropriate measure.
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HOW-TO GUIDE: Renewable Energy Generation per Capita

1. Go to the Energy Information Administration's Renewable Energy Annual website:
http://www.eia.doe.gov/cneaf/solar.renewables/page/rea_data/rea_sum.html
2. Scroll down to the State Electricity section and click on the html link for items:
 - 1.17 Total Renewable Net Generation by Energy Source and State, 2007
 - 1.20 Total Renewable Net Generation by Energy Source and State, 2008

Provided: Table 1.17 Total Renewable Net Generation by Energy Source and State, 2006

3. The last column in the table that appears after clicking on the link is the Total renewable net generation from all renewable sources, measured in Thousand Kilowatthours. Record the value for your state.
4. Go to the census website <http://www.census.gov/popest/eval-estimates/eval-est2010.html>. Choose the Excel file associated with "Preliminary Annual Estimates of the Resident Population" and get the population estimates for the year 2008, 2007, and 2006 for your state.
5. Divide the Thousand Kilowatthours value by the total state population to obtain the measure of thousand kilowatthours of renewable energy generation per person in your state for the years 2006, 2007, and 2008 and record it on the template.