ENERGY-WATER NEXUS: Texas

Kate Zerrenner
Manager, Energy-Water Initiatives
Environmental Defense Fund
Texas: With Climate Change Impacts

Water Supply Sustainability Index (2050)
Number of Counties for each Category in Parentheses
- Extreme (162)
- Moderate (14)
- High (73)
- Low (5)
How much water does it take to power Texas?
Every fuel source requires a certain amount of water, but some are far more thirsty than others.

<table>
<thead>
<tr>
<th>Gallons of water used per MWh on average</th>
<th>Percent of ERCOT Energy (2006-2013 avg.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>580 gallons</td>
<td>37%</td>
</tr>
<tr>
<td>460 gallons</td>
<td>13%</td>
</tr>
<tr>
<td>RENEWABLES 0 gallons</td>
<td>7%</td>
</tr>
<tr>
<td>310 gallons</td>
<td>43%</td>
</tr>
</tbody>
</table>

/ Negligible amounts of water used in 2012
August 23, 2016
(Released Thursday, Aug. 25, 2016)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>D0-D4</th>
<th>D1-D4</th>
<th>D2-D4</th>
<th>D3-D4</th>
<th>D4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>85.07</td>
<td>14.93</td>
<td>3.61</td>
<td>0.74</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Last Week</td>
<td>71.24</td>
<td>29.76</td>
<td>5.31</td>
<td>0.63</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>3 Months Ago</td>
<td>97.30</td>
<td>2.70</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Start of Calendar Year</td>
<td>95.48</td>
<td>4.62</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Start of Water Year</td>
<td>34.51</td>
<td>65.49</td>
<td>38.32</td>
<td>17.65</td>
<td>6.27</td>
<td>0.00</td>
</tr>
<tr>
<td>One Year Ago</td>
<td>59.34</td>
<td>41.66</td>
<td>23.52</td>
<td>6.37</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Intensity:
- **D0** Abnormally Dry
- **D1** Moderate Drought
- **D2** Severe Drought
- **D3** Extreme Drought
- **D4** Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Brad Rippey
U.S. Department of Agriculture

http://droughtmonitor.unl.edu/
U.S. Drought Monitor
Texas

Drought Conditions (Percent Area)

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<tr>
<th></th>
<th>None</th>
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<th>D2-D4</th>
<th>D3-D4</th>
<th>D4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0.00</td>
<td>100.00</td>
<td>99.93</td>
<td>99.01</td>
<td>95.68</td>
<td>81.06</td>
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<tr>
<td>Last Week (08/30/2011 map)</td>
<td>0.00</td>
<td>100.00</td>
<td>99.92</td>
<td>99.01</td>
<td>95.04</td>
<td>81.08</td>
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<tr>
<td>3 Months Ago (06/07/2011 map)</td>
<td>1.97</td>
<td>98.03</td>
<td>96.53</td>
<td>94.05</td>
<td>85.41</td>
<td>57.83</td>
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<tr>
<td>Start of Calendar Year (12/28/2010 map)</td>
<td>7.89</td>
<td>92.11</td>
<td>69.43</td>
<td>37.46</td>
<td>9.59</td>
<td>0.00</td>
</tr>
<tr>
<td>Start of Water Year (09/28/2010 map)</td>
<td>75.57</td>
<td>24.43</td>
<td>2.43</td>
<td>0.99</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>One Year Ago (08/31/2010 map)</td>
<td>51.29</td>
<td>48.71</td>
<td>11.50</td>
<td>0.68</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Intensity:
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- D2 Drought - Severe
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http://drought.unl.edu/dm
The best way to save water is to save energy.

Drought conditions impact water production.

1. Less rain means less water.
2. Smaller bodies of water warm more easily.
3. Power plants require more water for cooling.
4. Power plants operate less efficiently.
5. Hotter weather creates more energy demand.
The best way to save energy is to save water.

Water processing consumes energy throughout the production cycle.

1. Raw water extracted.
3. Water treated for drinking.
4. Treated water distributed to consumers.
5. Waste water collected.
Adopted
2017 State Water Plan
I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that.

Thomas Edison
1931

CLIMATE SUMMIT

WHAT IF IT'S A BIG HOAX AND WE CREATE A BETTER WORLD FOR NOTHING?

- ENERGY INDEPENDENCE
- PRESERVE RAINFORESTS
- SUSTAINABILITY
- GREEN JOBS
- LIVABLE CITIES
- RENEWABLES
- CLEAN WATER, AIR
- HEALTHY CHILDREN
- ETC. ETC.
Kate Zerrenner
kzerrenner@edf.org
512-691 3423

Twitter: @KateZerrenner