ILLINOIS AND NUCLEAR ENERGY

Key Facts
- Illinois’ 11 reactors — the most of any state — generate 52.2 percent of the state’s electricity while emitting no greenhouse gases
- Nuclear energy is Illinois’ most reliable power source, producing electricity around-the-clock
- Illinois’ nuclear energy facilities employ more than 5,900 workers

Infrastructure for Clean, Reliable Electricity
Illinois is home to 11 nuclear power reactors that produce 88 percent of the state’s emission-free electricity. These nuclear energy facilities protect air quality and public health. Nuclear energy generates nearly 20 percent of our nation’s electricity and provides more than 55 percent of our emission-free power, making it an essential partner to renewable energy.

Nuclear is America’s most reliable source of electricity. Illinois nuclear plants produced power more than 96 percent of the time over the past three years, ensuring power is available whenever it is needed. Nuclear energy is a vital part of U.S. infrastructure that keeps electricity prices and grids stable. It ensures that consumers are not overly reliant on just one or two sources of electricity.

Sources of Electricity in Illinois

- 52.2% Nuclear
- 31.8% Coal
- 8.6% Natural Gas
- 0.5% Other
- 6.8% Wind

Other includes petroleum, biomass and geothermal along with hydro, wind and solar if they account for less than 3% of electricity generated.

Supporting Jobs and the Economy
- Nuclear energy facilities in Illinois employ more than 5,900 workers. Illinois facilities pay more than $180 million in state and local taxes.
- American innovators are developing new nuclear technologies that have the potential to create additional jobs and bring in export dollars.
Comparison of Life Cycle Emissions
Tons of Carbon Dioxide Equivalent per Gigawatt-Hour

<table>
<thead>
<tr>
<th>Source</th>
<th>CO2e per kWh</th>
<th>Tons CO2e per GWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>979</td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td>462</td>
<td></td>
</tr>
<tr>
<td>Biomass</td>
<td>253</td>
<td></td>
</tr>
<tr>
<td>Solar PV</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>Geothermal</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>Hydro</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Nuclear</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Onshore Wind</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Source: Annex III: Technology-specific cost and performance parameters. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Edenhofer, O., et al, Cambridge University Press, 2014. The numbers shown are the median of studies examined by the IPCC in grams CO2e per kWh and are converted to tons CO2e per GWh.

Managing Used Nuclear Fuel

- Each nuclear energy facility stores used fuel safely and securely on-site, awaiting consolidated storage and disposal by the U.S. Department of Energy. As of 2016, Illinois has contributed approximately $2.3 billion to the federal Nuclear Waste Fund.
- There are 10,395 metric tons of used nuclear fuel in storage at nuclear plant sites in Illinois.
- All the used nuclear fuel produced by the nuclear energy industry over 60 years—if stacked end to end—would cover an area the size of a football field to a depth of less than 10 yards.

Nuclear Is Clean Air Energy

- The use of nuclear energy in 2018 prevented the emission of 528 million metric tons of carbon dioxide. This equals the amount released in a year by 112 million passenger cars.
- Nuclear energy is the only clean air electricity source that can produce large amounts of electricity around-the-clock.
- Numerous studies demonstrate that nuclear energy’s life cycle greenhouse gas emissions are comparable to renewable energy, such as wind and hydropower, and far less than coal or natural gas-fueled power plants.
- The nation’s nuclear energy facilities also prevented the emission of 346,485 short tons of sulfur dioxide and 286,516 short tons of nitrogen oxide in 2018.

<table>
<thead>
<tr>
<th>Emissions Prevented in Illinois</th>
<th>Quantity Prevented in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur dioxide (SO2)</td>
<td>62,081 short tons</td>
</tr>
<tr>
<td>Nitrogen oxide (NOX)</td>
<td>38,329 short tons</td>
</tr>
<tr>
<td>Carbon dioxide (CO2)</td>
<td>69.85 million metric tons</td>
</tr>
</tbody>
</table>

Source: U.S. Environmental Protection Agency and U.S. Energy Information Association

Committed to Safety

- America’s nuclear energy facilities are among the safest and most secure industrial facilities.
- The independent U.S. Nuclear Regulatory Commission regulates and monitors plant performance in three areas: reactor safety, radiation safety and security.
- After more than 60 years of commercial nuclear energy production in the United States and more than 4,000 reactor years of operation, there have been no radiation-related health effects linked to the operation of nuclear energy facilities.

Used fuel at nuclear energy facilities is cooled in secure steel-lined concrete pools filled with water.

After the cooling period, nuclear energy facilities store used fuel safely on-site in steel and concrete vaults.

Source: Gutherman Technical Services