Winter Storm Uri

Impact, Response and Lessons Learned

Samuel Pena
Fire Chief
Houston Fire Department
The Storm

- Uri was a major coast-to-coast storm Feb 12 – 17, 2021
- Produced snow and damaging ice from the Northwest into the South, Midwest and interior Northeast
- Snow records were smashed in Texas
Winter Storm Uri

Impact

• Storm began in earnest on Monday, Feb 15, 2021
• Utilities did not pre-harden power plants from extreme cold.
• Natural gas, coal, and nuclear plants began to freeze
• Oil refineries were forced to close
• Electric Reliability Council of Texas (ERCOT) declared emergency asking power companies to implement controlled outages to reduce load
• Houston utility company began rolling blackouts on Feb 15, 2021
• As the storm hit Texas, electric prices exceeded the $9,000 per megawatt-hour cap implemented by ERCOT
Winter Storm Uri

Impact

• Severe winter weather in 25 states, affecting 150 million Americans
• Blackouts affecting over 9 million people in the U.S.
• Massive electricity generation failure in Texas
  • Over 4.5 million Texas homes and businesses without power
  • Shortages of water, food, and heat
• 151 direct and indirect fatalities in Texas attributed to the storm
• Winter storm fatalities in Harris County were 27% of total in Texas
Winter Storm Uri Response

Getty Images

Chron

CNN
Winter Storm Uri
Response

Internal
- Safety
- Assessing Staffing Requirements
- Shift Management
- Logistics
- IMT

OEM
- NIMS Implementation
- Planning and Execution
- Public Safety and Security
- Search and Rescue
- Emergency Support Functions
- Mass Care and Housing
- Public Health and Medical Support
## Winter Storm Uri Response

<table>
<thead>
<tr>
<th>HFD Weather Events</th>
<th>Jan '21 Avg/Day</th>
<th>2/15</th>
<th>2/16</th>
<th>2/17</th>
<th>2/18</th>
<th>2/19</th>
<th>2/20</th>
<th>Event Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFD Calls for Service</td>
<td>993</td>
<td>2,186</td>
<td>3,299</td>
<td>2,793</td>
<td>1,757</td>
<td>1,433</td>
<td>1,174</td>
<td>12,642</td>
</tr>
<tr>
<td>% EMS Incidents</td>
<td>88%</td>
<td>71%</td>
<td>73%</td>
<td>75%</td>
<td>80%</td>
<td>75%</td>
<td>78%</td>
<td>75%</td>
</tr>
<tr>
<td>% Fire Incidents</td>
<td>12%</td>
<td>29%</td>
<td>27%</td>
<td>25%</td>
<td>20%</td>
<td>25%</td>
<td>22%</td>
<td>25%</td>
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<tr>
<td># of Transports</td>
<td>377</td>
<td>629</td>
<td>531</td>
<td>531</td>
<td>401</td>
<td>410</td>
<td>382</td>
<td>2,884</td>
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<tr>
<td>Avg at Hospital Time (Min)</td>
<td>35.5</td>
<td>38</td>
<td>54</td>
<td>58</td>
<td>45</td>
<td>40</td>
<td>42</td>
<td>46</td>
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<tr>
<td>&gt;60 min at Hospital Time</td>
<td>41</td>
<td>93</td>
<td>169</td>
<td>199</td>
<td>82</td>
<td>67</td>
<td>67</td>
<td>677</td>
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<tr>
<td>Total Hours on Incidents</td>
<td>1,263.8</td>
<td>3,336.8</td>
<td>3,555.2</td>
<td>3,058.5</td>
<td>1,722.6</td>
<td>1,631.6</td>
<td>1,373.5</td>
<td>14,678</td>
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<tr>
<td>CO Incidents</td>
<td>7</td>
<td>99</td>
<td>124</td>
<td>120</td>
<td>45</td>
<td>41</td>
<td>22</td>
<td>451</td>
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<tr>
<td>Structure Fires</td>
<td>4</td>
<td>16</td>
<td>26</td>
<td>26</td>
<td>9</td>
<td>7</td>
<td>5</td>
<td>89</td>
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<tr>
<td>Dialysis Patients</td>
<td>15</td>
<td>36</td>
<td>51</td>
<td>101</td>
<td>64</td>
<td>45</td>
<td>29</td>
<td>326</td>
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<tr>
<td>Out of Hosp Cardiac Calls</td>
<td>20</td>
<td>34</td>
<td>30</td>
<td>35</td>
<td>41</td>
<td>22</td>
<td>21</td>
<td>183</td>
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<tr>
<td>Response Times</td>
<td>7.30</td>
<td>12.6</td>
<td>12.8</td>
<td>9.9</td>
<td>7.9</td>
<td>7.6</td>
<td>7.7</td>
<td>9.8</td>
</tr>
</tbody>
</table>
Winter Storm Uri
Response

- Average number of incidents rose over 200%
- Water Distribution System Disruptions
  - Frozen and Broken Water Mains
- Hospital System Support
  - Maintain Cooling Tower Levels
- Community Aid
  - Water and Food Distribution
  - Warming Centers
  - Oxygen Refill Units
  - Rehab Units
- Fire Personnel Support
Winter Storm Uri
Lessons Learned

The foremost lesson learned from the devastation caused by Winter Storm Uri: No matter how prepared we think we are; we must work every day to improve
Winter Storm Uri
Lessons Learned

- Trust in the Department’s Personnel
- Review plans with extended operations in mind
- Establish internal Incident Management structure early
- Force Protection and Support
  - Support to Personnel & Family
  - Support for Mental and Physical Health
- Standard Mutual Aid not available
- Unified Command and Area Command Training is Invaluable