Homeland Security

National Protection and Programs Directorate
Office of Cyber and Infrastructure Analysis (OCIA)

CRITICAL INFRASTRUCTURE SECURITY AND RESILIENCE NOTE

September 7, 2017; 2315 EDT

EXECUTIVE SUMMARY: OCIA HURRICANE IRMA PRODUCTS

Prepared By: Office of Cyber and Infrastructure Analysis (OCIA)

STORM CHARACTERISTICS

As of 1100 EDT, September 7, 2017, the National Hurricane Center (NHC) continues to classify Hurricane Irma as a Category 5 hurricane, located approximately 110 miles north of Punta Cana, Dominican Republic moving west northwest at 16 miles per hour (mph). Maximum sustained winds continue to be reported at 175 mph with higher gusts. The storm is forecasted to be near the Turks and Caicos and southeastern Bahamas by this evening, September 7, 2017. On Friday, September, 8, 2017, Hurricane Irma will be near the central Bahamas. Some fluctuations in intensity are likely during the next several days, but Hurricane Irma is forecasted to remain a powerful Category 4 or 5 hurricane during the period of September 7-9, 2017. According to the 1100 EDT September 7, 2017, NHC report, Hurricane Irma is expected to make landfall on the southeastern tip of Florida by Sunday September 10, 2017. All Caribbean islands within the forecast track are currently under a hurricane warning and South Florida is under a hurricane watch.

SCOPE NOTE: This Executive Summary highlights the most recent Department of Homeland Security/Office of Cyber and Infrastructure Analysis (OCIA) products, as of September 7, 2017, related to Hurricane Irma for Private Sector Partners.

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Hurricane Irma: Infrastructure Impact Summary – South Florida

OCIA assesses medium to high local impacts to several Critical Infrastructure Sectors. Some short term national impacts are possible within the Maritime Sector. OCIA will continue to monitor and will provide updates as warranted.

Rain, flooding, and wind generated by Hurricane Irma is expected to produce medium to high local impacts to critical infrastructure across southern and central Florida. Based on current National Oceanographic and Atmospheric Administration (NOAA) projections, local impacts to Florida will likely be due to storm surge inundation, flooding businesses and residences, and producing widespread damage to critical infrastructure sectors in the area. High-speed winds will disrupt segments of power distribution systems, as well as damage physical structures, further delaying recovery.

Hurricane Irma Infrastructure Impact Assessment: Energy – Electric Power

OCIA assesses that there will be a local and regional impact to the Electricity Subsector from Hurricane Irma due to the number of electric power infrastructure assets affected.

The 51- to 100 percent electric power outage zone contains 62 electric generating stations and 157 substations that operate at 230 kilovolts (kV) and above. Two of the 62 electric generating facilities are nuclear generators with a summer generating capacity of approximately 3,500 megawatts (MW).

Hurricane Irma: Infrastructure Impact Assessment: Commercial Facilities

OCIA assesses wind and flood-related damage to commercial facilities will have high local and regional impacts, and low national impacts.

OCIA modeling projects that five indoor arenas and 14 convention centers are likely to be in the 76-100 percent electric power outage zone. Backup generators will likely mitigate the consequences from short-term (1-3 day) power outages, but longer outages could be a concern if facilities are unable to refuel generators due to flooding, debris covered roads or other issues.

OCIA modeling projects that 17 sports venues and amusement parks are likely to be in the 76-100 percent electric power outage zone. Outdoor facilities, such as amusement parks, might be more susceptible to flooding and wind damage because they are often located in relatively flat areas.

Hurricane Irma: Infrastructure Impact Assessment: Impacts to Florida Ports

The Port of Miami, Port Everglades, Port of Palm Beach, and Port Canaveral will experience significant physical damage due to storm surge. Port facilities will also be impacted by wind damage, loss of power and communications, and roadway blockages.

Cargo receipts and shipments along the east coast of Florida will be significantly disrupted for weeks, including the movement of containers at all ports, the receipt of gasoline at Port Everglades, and exports from the Port of Palm Beach.

Hurricane Irma: Infrastructure Impact Assessment: South Florida Healthcare and Public Health

OCIA assesses that there will be a medium impact at the local and regional level to the Healthcare and Public Health Sector along the east coast of South Florida from Hurricane Irma. Healthcare facilities will be impacted by severe storm surge and electric power outages, which decreases healthcare facilities ability to administer routine and emergency medical services. Some of the potentially impacted hospitals in Monroe and Miami-Dade counties have started to evacuate patients and reduce clinical functions.

Storm surge will occur along Florida's east coast, causing transportation disruptions because of flooding and debris, impacting the Healthcare and Public Health Sector. Flooding and debris will disrupt the ability to continue evacuating patients from hospitals and nursing homes. Further, flooding and debris could delay patients' ability to receive emergency care, prevent some staff from traveling to facilities, and blocking the delivery of emergency supplies (e.g. fuel for generators, medical supplies, blood).

Hurricane Irma: Infrastructure Impact Assessment: Transportation

OCIA assesses that Hurricane Irma will have a high local impact to the Transportation Systems Sector. Most transportation nodes in the affected areas will cease during the storm. Recovery efforts can take days or weeks, depending on the level of damage and restoration priorities.

Rail damage may take one to two weeks to repair, causing economic loss and stranded passengers. Interstates, state highways, and local roads will experience flooding and debris that will hinder evacuations and emergency response. Storm surge can heavily damage and wash out roads and bridges, potentially impacting local traffic for days or weeks following the storm. The Port of Miami, Port Everglades, the Port of Palm Beach, and Port Canaveral are likely to experience physical damage due to storm surge. Port facilities will also be impacted by wind damage, loss of power and communications, and roadway blockages.

Hurricane Irma: Infrastructure Impact Assessment: Communications

OCIA and the National Cybersecurity & Communications Integration Center (NCCIC) assess that Hurricane Irma will have moderate to high regional impacts and low national impacts on the Communications Sector because of power loss, flooding, and wind damage. Impacts to communications assets are mostly attributable to lack of electric power, wind damage, and degraded transportation networks, which can interrupt and postpone recovery efforts. Wired communications will be moderately impacted across the projected power outage zone. The overall impact to wireless systems within the power outage zone will be moderate to high. High wind speeds will cause power outages and damage communication towers. Storm damage on public safety answering points (PSAPs) will have moderate impacts over the near term. Rerouting of PSAPs will mitigate most outages.

Hurricane Irma: Infrastructure Impact Assessment: Water and Waste Water

OCIA assesses that there will be medium-to-high local impacts to the Water and Wastewater Sector from Hurricane Irma due to the number of infrastructure assets affected. Hurricane Irma will have medium-to-high local impact to the Water and Wastewater Systems Sector as a result of electric power (EP) loss in South Florida. OCIA assesses a low impact from storm surge to water and wastewater facilities with two wastewater facilities within the storm surge zone. Access to essential chemicals will be limited during and after the hurricane. Water and wastewater treatment facilities in Florida typically stock a 10 to14 day supply of essential chemicals.

The Office of Cyber and Infrastructure Analysis (OCIA) provides innovative analysis to support public and private-sector stakeholders' operational activities and effectiveness and to inform key decisions affecting the security and resilience of the Nation's critical infrastructure. All OCIA products are visible to authorized users at HSIN-CI and Intelink. For more information, contact OCIA@hq.dhs.gov or visit http://www.dhs.gov/office-cyber-infrastructure-analysis.

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NPPD Customer Feedback Survey

1. Product Title: Hurricane Irma - Executive Summary

2. Please rate your satisfaction with each of the following:

	Very Satisfied (5)	Somewhat Satisfied (4)	Neither Satisfied Nor Dissatisfied (3)	Somewhat Dissatisfied (2)	Very Dissatisfied (1)
Timeliness of product	◯	◯	◯	◯	◯
Relevance of product	◯	◯	◯	◯	◯

3. How did you use this product in support of your mission?

☐ Yes ☐ No Integrated into one of my own organization's information or analytic products
If so, which products?

☐ Yes ☐ No Used contents to improve my own organization's security or resiliency efforts or plans
If so, which efforts?

☐ Yes ☐ No Shared contents with government, private sector, or other partners
If so, which partners?

☐ Yes ☐ No Other uses (please specify)

4. Do you have questions that this product didn't answer?

Yes ◯ No ◯ (Please specify)

5. How could this product be improved?

6. Would you like to see more on this topic?

Yes ◯ No ◯ (Please specify)

7. Are there other topics or questions you would like to see addressed by OCIA?

To help us understand more about your organization so we can better tailor future products, please provide (OPTIONAL):

Name:
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