

**Calendar No. 529**

116TH CONGRESS }  
2d Session

SENATE

{ REPORT  
116-266

NATIONAL INFRASTRUCTURE SIMULATION  
AND ANALYSIS CENTER PANDEMIC  
MODELING ACT OF 2020

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R E P O R T

OF THE

COMMITTEE ON HOMELAND SECURITY AND  
GOVERNMENTAL AFFAIRS  
UNITED STATES SENATE

TO ACCOMPANY

S. 4157

TO AMEND THE HOMELAND SECURITY ACT OF 2002 TO  
EXPAND THE AUTHORITY OF THE NATIONAL INFRASTRUCTURE  
SIMULATION AND ANALYSIS CENTER, AND FOR OTHER PURPOSES



SEPTEMBER 9, 2020.—Ordered to be printed

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U.S. GOVERNMENT PUBLISHING OFFICE

99-010

WASHINGTON : 2020

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NATIONAL INFRASTRUCTURE SIMULATION AND  
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SEPTEMBER 9, 2020.—Ordered to be printed

Mr. JOHNSON, from the Committee on Homeland Security and  
Governmental Affairs, submitted the following

**R E P O R T**

[To accompany S. 4157]

[Including cost estimate of the Congressional Budget Office]

The Committee on Homeland Security and Governmental Affairs, to which was referred the bill (S. 4157) to amend the Homeland Security Act of 2002 to expand the authority of the National Infrastructure Simulation and Analysis Center, and for other purposes, having considered the same, reports favorably thereon with an amendment in the nature of a substitute and recommends that the bill, as amended, do pass.

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I. PURPOSE AND SUMMARY

S. 4157, the National Infrastructure Simulation and Analysis Center Pandemic Modeling Act of 2020, incorporates “pandemic,” and “such other activities as determined appropriate” by the Director of the Department of Homeland Security’s (“DHS” or “Department”) Cybersecurity and Infrastructure Security Agency (CISA), into the National Infrastructure Simulation and Analysis Center’s (NISAC) authority and capabilities. It also requires the relevant

Federal agencies and departments, including those designated under Presidential Policy Directive-21 (PPD-21), to receive the NISAC's modeling, simulation, and analysis upon request and within 15 days of completion.

This bill also requires the Director of CISA to comply with a number of reporting requirements to the relevant Federal agencies, departments, and Congress for greater transparency, including additional information on the NISAC's current projects and priorities, a catalogue of the NISAC's projects from fiscal year (FY) 2014 through FY 2020, and a pandemic portfolio summary.

Finally, this bill requires the Director of CISA to brief the Committee on Homeland Security and Governmental Affairs of the Senate and the Committee on Homeland Security of the House of Representatives within six months of the bill's enactment, and every six months thereafter for two years, on the NISAC's ongoing pandemic modeling, simulation, and analysis efforts and activities.

## II. BACKGROUND AND THE NEED FOR LEGISLATION

DHS's NISAC is responsible for conducting simulation, modeling, and analysis of cyber and physical risks to the nation's sixteen critical infrastructure sectors.<sup>1</sup> The NISAC started as a partnership between Sandia National Laboratories and Los Alamos National Laboratory in 1999, and was subsequently integrated into DHS in 2003.<sup>2</sup> The NISAC was previously housed under the former National Protection and Programs Directorate's Office of Cyber and Infrastructure Analysis.<sup>3</sup> The NISAC now resides within CISA's National Risk Management Center (NRMC).<sup>4</sup> The NRMC is CISA's risk advisor, "leveraging sector and stakeholder expertise to identify the most significant risks to the nation, and to coordinate risk reduction activities to ensure critical infrastructure is secure and resilient . . . ." <sup>5</sup> DHS's NISAC has an array of expertise, and still maintains its partnership with the National Laboratories.<sup>6</sup>

Over the years, the NISAC has conducted a range of modeling, simulation, and analysis to support risk mitigation, policymakers, and private sector partners.<sup>7</sup> This includes analyses of the nation's chemical supply chain, water systems, electric grid, and various hurricane scenarios.<sup>8</sup> In addition, the NISAC has completed modeling, simulation, and analysis surrounding pandemics, including the 2007 H5N1 bird flu, 2009 H1N1 influenza, 2014 Ebola virus disease, and 2016 Zika virus disease.<sup>9</sup> The NISAC has also completed more general pandemic work, such as assessing the impact of a pandemic to the nation's lifeline critical infrastructure in

<sup>1</sup>*About the National Infrastructure Simulation and Analysis Center*, U.S. Dep't of Homeland Security, <https://www.dhs.gov/about-national-infrastructure-simulation-and-analysis-center> (last updated June 27, 2016). See also James Platt, U.S. Cybersecurity and Infrastructure Security Agency, National Risk Management Center (June 2019), <https://www.gps.gov/governance/advisory/meetings/2019-06/platt.pdf> (referring to NISAC slide).

<sup>2</sup>*About the National Infrastructure Simulation and Analysis Center*, *supra* note 1.

<sup>3</sup>*Id.* (describing NISAC's then location in OCIA).

<sup>4</sup>Platt, *supra* note 1.

<sup>5</sup>*National Risk Management*, Cybersecurity and Infrastructure Security Agency, <https://www.cisa.gov/national-risk-management> (last visited Aug. 3, 2020).

<sup>6</sup>Platt, *supra* note 1.

<sup>7</sup>*About the National Infrastructure Simulation and Analysis Center*, *supra* note 1.

<sup>8</sup>*Id.*

<sup>9</sup>*Id.* See also Call from Majority and Minority Staff, U.S. Senate Committee on Homeland Security and Governmental Affairs, to Bob Kolasky, Director, National Risk Management Center, and supporting staff, National Risk Management Center and National Infrastructure Simulation and Analysis Center (April 15, 2020, 11:00 AM) (notes on file with Committee Majority staff).

2015,<sup>10</sup> and pandemic modeling focused on the State of Washington in 2017.<sup>11</sup>

On December 31, 2019, the World Health Organization (WHO) was notified of a pneumonia outbreak in Wuhan, China.<sup>12</sup> In early January 2020, Chinese scientists confirmed the discovery of a novel coronavirus,<sup>13</sup> which was later designated “COVID–19” by the WHO.<sup>14</sup> On January 21, 2020, the first COVID–19 case in the United States was confirmed by the Centers for Disease Control and Prevention (CDC) in the State of Washington.<sup>15</sup> Since that time, COVID–19 has spread rapidly throughout the world. As of September 3, 2020, over 26 million cases and 864,153 deaths have been confirmed worldwide, including 6.1 million cases and 186,018 deaths in the United States alone.<sup>16</sup>

As the United States responded to the COVID–19 national emergency,<sup>17</sup> news reports circulated in March that the NISAC ceased its pandemic work in 2017.<sup>18</sup> This was confirmed during a bipartisan Committee staff phone call with officials from the NRMCC and NISAC on April 15, 2020.<sup>19</sup> According to news reports, the pandemic projects were halted to prioritize other work, such as hurricanes, cybersecurity, and election security.<sup>20</sup> In addition, some DHS officials believed the CDC was best suited to conduct such types of analysis.<sup>21</sup>

It was also reported that officials at the Department of Health and Human Services requested DHS provide the NISAC’s prior pandemic reports to assist in their response.<sup>22</sup> However, DHS officials had issues locating these prior pandemic analyses, including reports from 2007 (H5N1), 2009 (H1N1), and a 2014 (Ebola) exer-

<sup>10</sup>Office of Cyber and Infrastructure Analysis, U.S. Dep’t of Homeland Sec., *Pandemic Impacts to Lifeline Critical Infrastructure* 1, 3 (2015), [https://content.govdelivery.com/attachments/MIMSP/2015/08/05/file\\_attachments/414079/OCIA%2B-%2BPandemic%2BImpacts%2Bto%2BLifeline%2BCritical%2BInfrastructure.pdf](https://content.govdelivery.com/attachments/MIMSP/2015/08/05/file_attachments/414079/OCIA%2B-%2BPandemic%2BImpacts%2Bto%2BLifeline%2BCritical%2BInfrastructure.pdf).

<sup>11</sup>Call from Majority and Minority Staff, U.S. Senate Committee on Homeland Security and Governmental Affairs, to Bob Kolasky, Director, National Risk Management Center, and supporting staff, National Risk Management Center and National Infrastructure Simulation and Analysis Center, *supra* note 9.

<sup>12</sup>*Pneumonia Of Unknown Cause—China*, World Health Org. (Jan. 5, 2020), <https://www.who.int/csr/don/05-january-2020-pneumonia-of-unknown-cause-china/en/>.

<sup>13</sup>Natasha Khan, *New Virus Discovered by Chinese Scientists Investigating Pneumonia Outbreak*, Wall St. J., (Jan. 8, 2020), <https://www.wsj.com/articles/new-virus-discovered-by-chinese-scientists-investigating-pneumonia-outbreak-11578485668>.

<sup>14</sup>*Naming the coronavirus disease (COVID-19) and the virus that causes it*, World Health Org., [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it) (last visited Aug. 3, 2020).

<sup>15</sup>Press Release, Ctrs. for Disease Control & Prevention, *First Travel-Related Case of 2019 Novel Coronavirus Detected in United States* (Jan. 21, 2020), <https://www.cdc.gov/media/releases/2020/p0121-novel-coronavirus-travel-case.html>.

<sup>16</sup>*COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE)*, Johns Hopkins U. of Med., Coronavirus Resource Ctr., <https://coronavirus.jhu.edu/map.html>.

<sup>17</sup>Proclamation No. 9994, 85 Fed. Reg. 15,337 (Mar. 18, 2020), <https://www.whitehouse.gov/presidential-actions/proclamation-declaring-national-emergency-concerning-novel-coronavirus-disease-covid-19-outbreak/>.

<sup>18</sup>Daniel Lippman, *DHS Wound Down Pandemic Models Before Coronavirus Struck*, POLITICO (Mar. 24, 2020, 8:47 PM), <https://www.politico.com/news/2020/03/24/dhs-pandemic-coronavirus-146884>; see also Kayla Epstein, *A Bureaucratic Fight Halted a Vital Department of Homeland Security Program that Helped Model Pandemics in 2017*, Bus. Insider (Mar. 25, 2020, 11:44 AM), <https://www.businessinsider.com/coronavirus-dhs-reportedly-shut-down-pandemic-modeling-program-in-2017-2020-3>.

<sup>19</sup>Call from Majority and Minority Staff, U.S. Senate Committee on Homeland Security and Governmental Affairs, to Bob Kolasky, Director, National Risk Management Center, and supporting staff, National Risk Management Center and National Infrastructure Simulation and Analysis Center, *supra* note 9.

<sup>20</sup>Lippman, *supra* note 19; see also Epstein, *supra* note 18.

<sup>21</sup>*Id.*

<sup>22</sup>Lippman, *supra* note 18.

cise.<sup>23</sup> According to one agency official, “[n]obody even knew where any of the documents were anymore . . . .”<sup>24</sup>

If readily available when needed, the past pandemic modeling, simulation, and analyses conducted by the NISAC could have assisted the Federal Government’s response to the COVID–19 pandemic and national emergency. For example, during the 2014 Ebola outbreak, the NISAC was utilized to support policymakers “on deliberations about banning travel from certain countries based on risk, whether to close any borders and how to spend money on airport screening . . . .”<sup>25</sup> In addition, a 2015 report found that the healthcare and public health sector would be one of the most impacted critical infrastructure sectors during a pandemic.<sup>26</sup> Specifically, this sector “will have to prioritize limited resources to treat pandemic victims,”<sup>27</sup> and “may also experience significant shortages in vaccines, antivirals, pharmaceuticals needed to treat secondary infections and complications, personal protective equipment (PPE), and medical equipment, including ventilators.”<sup>28</sup> According to NRMCC and NISAC officials, there are current projects supporting the response to the COVID–19 pandemic and national emergency, as well as work specifically focused on it.<sup>29</sup> This includes how the COVID–19 pandemic is impacting the national critical functions and the use of PPE by critical infrastructure workers.<sup>30</sup>

The NISAC is a valuable tool to increase situational awareness about the threats posed by pandemics. As such, DHS should prioritize efforts to reform the NISAC, particularly surrounding pandemic modeling, simulation, and analysis. S. 4157 clarifies the NISAC’s authority and capabilities. The bill also ensures that the relevant Federal agencies, departments, and Congress receive information on the NISAC’s current projects and priorities, prior work, and specific pandemic information.

### III. LEGISLATIVE HISTORY

On July 2, 2020, Chairman Ron Johnson (R–WI) introduced S. 4157, the National Infrastructure Simulation and Analysis Center Pandemic Modeling Act of 2020, which was referred to the Committee on Homeland Security and Governmental Affairs. Ranking Member Gary Peters (D–MI) and Senator Margaret Wood Hassan (D–NH) later joined as cosponsors.

The Committee considered S. 4157 at a business meeting on July 22, 2020. During the business meeting, Chairman Johnson and Ranking Member Peters offered an amendment in the nature of a substitute. The Johnson-Peters substitute amendment adds an annual reporting requirement for the NISAC to provide Federal agencies a report on its priorities, as well as a summary of each completed project, key findings, and recommendations. The substitute

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> Office of Cyber and Infrastructure Analysis, *supra* note 10, at 1, 4–5.

<sup>27</sup> *Id.* at 4.

<sup>28</sup> *Id.* at 4–5.

<sup>29</sup> Call from Majority and Minority Staff, U.S. Senate Committee on Homeland Security and Governmental Affairs, to Bob Kolasky, Director, National Risk Management Center, and supporting staff, National Risk Management Center and National Infrastructure Simulation and Analysis Center, *supra* note 9.

<sup>30</sup> *Id.*

amendment also requires that this report be provided to appropriate congressional committees along with a briefing on how the NISAC is applying its information and analysis on to the current COVID-19 pandemic and future pandemics.

The Committee favorably reported the bill *en bloc*, as amended by the Johnson-Peters Substitute Amendment, by voice vote. Senators present for the vote were: Johnson, Portman, Paul, Lankford, Romney, Scott, Enzi, Hawley, Peters, Carper, Hassan, Harris, and Rosen.

#### IV. SECTION-BY-SECTION ANALYSIS OF THE BILL, AS REPORTED

##### *Section 1. Short title*

This section provides the bill's short title, the "National Infrastructure Simulation and Analysis Center Pandemic Modeling Act of 2020."

##### *Section 2. National Infrastructure Simulation and Analysis Center*

Section 2 amends the Homeland Security Act of 2002 to incorporate "pandemic" and "such other activities as determined appropriate" by the Director of CISA into the NISAC's authority and capabilities. This section also requires the relevant federal agencies and departments, including those designated under PPD-21, receive the NISAC's modeling, simulation, and analysis upon request and within 15 days of completion.

##### *Section 3. Reporting and briefing requirements*

Subsection (a) adds reporting requirements to the appropriate federal agencies and departments with critical infrastructure duties, as designated under PPD-21. This includes information on the NISAC's current projects and priorities, a catalogue of the NISAC's projects from FY 2014 through FY 2020, and a pandemic portfolio summary.

Subsection (b) adds reporting requirements to the Committee on Homeland Security and Governmental Affairs of the Senate and the Committee on Homeland Security of the House of Representatives. This includes information on the NISAC's current projects and priorities, a catalogue of the NISAC's projects from FY 2014 through FY 2020, and a pandemic portfolio summary.

Finally, subsection (c) requires the Director of CISA to provide a pandemic portfolio briefing to the Committee on Homeland Security and Governmental Affairs of the Senate and the Committee on Homeland Security of the House of Representatives within 180 days, and every six months after for two years. This includes information on the NISAC's ongoing pandemic efforts and how DHS is applying this information to its present and forthcoming work on COVID-19.

#### V. EVALUATION OF REGULATORY IMPACT

Pursuant to the requirements of paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee has considered the regulatory impact of this bill and determined that the bill will have no regulatory impact within the meaning of the rules. The Committee agrees with the Congressional Budget Office's statement that the bill contains no intergovernmental or private-sector

mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local, or tribal governments.

VI. CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

U.S. CONGRESS,  
CONGRESSIONAL BUDGET OFFICE,  
*Washington, DC, August 5, 2020.*

Hon. RON JOHNSON,  
*Chairman, Committee on Homeland Security and Governmental Affairs, U.S. Senate, Washington, DC.*

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for S. 4157, the National Infrastructure Simulation and Analysis Center Pandemic Modeling Act of 2020.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Aldo Prospero.

Sincerely,

PHILLIP L. SWAGEL,  
*Director.*

Enclosure.

<b>S. 4157, National Infrastructure Simulation and Analysis Center Pandemic Modeling Act of 2020</b>			
As ordered reported by the Senate Committee on Homeland Security and Governmental Affairs on July 22, 2020			
By Fiscal Year, Millions of Dollars	2020	2020-2025	2020-2030
Direct Spending (Outlays)	0	0	0
Revenues	0	0	0
Increase or Decrease (-) in the Deficit	0	0	0
Spending Subject to Appropriation (Outlays)	0	1	not estimated
Statutory pay-as-you-go procedures apply?	No	<b>Mandate Effects</b>	
Increases on-budget deficits in any of the four consecutive 10-year periods beginning in 2031?	No	Contains intergovernmental mandate?	No
		Contains private-sector mandate?	No

S. 4157 would require the Cybersecurity and Infrastructure Security Agency (CISA) to create a computer model to simulate the cascading consequences of a pandemic on critical infrastructure such as hospitals and manufacturing supply chains. The bill also would require CISA to report to the Congress and other federal entities on the results of those simulations.

On the basis of information from CISA about the costs to create similar simulations and satisfy reporting requirements, CBO estimates that implementing S. 4157 would cost \$1 million over the 2020–2025 period; such spending would be subject to the availability of appropriations. For this estimate, CBO assumes that the legislation will be enacted near the start of fiscal year 2021. The



CBO staff contact for this estimate is Aldo Prospero. The estimate was reviewed by Leo Lex, Deputy Director of Budget Analysis.

## VII. CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, changes in existing law made by the bill, as reported, are shown as follows: (existing law proposed to be omitted is enclosed in brackets, new matter is printed in italic, and existing law in which no change is proposed is shown in roman):

### HOMELAND SECURITY ACT OF 2002

\* \* \* \* \*

#### TITLE V: NATIONAL EMERGENCY MANAGEMENT

\* \* \* \* \*

#### SEC. 511. THE NATIONAL INFRASTRUCTURE SIMULATION AND ANALYSIS CENTER.

(a) \* \* \*

(b) AUTHORITY.—

(1) IN GENERAL.—There is in the Department the National Infrastructure Simulation and Analysis Center which shall serve as a source of national expertise to address critical infrastructure protection and continuity through support for activities related to—

(A) counterterrorism, threat assessment, and risk mitigation; [and]

(B) a natural disaster, *pandemic*, act of terrorism, or other manmade disaster[.]; and

(C) *such other activities as determined appropriate by the Director of the Cybersecurity and Infrastructure Security Agency.*

(2) INFRASTRUCTURE MODELING.—

(A) \* \* \*

(B) \* \* \*

(C) PURPOSE.—

(i) IN GENERAL.—The purpose of the relationship under subparagraph (B) shall be to permit each Federal agency and department described in subparagraph (B) to take full advantage of the capabilities of the National Infrastructure Simulation and Analysis Center (particularly vulnerability and consequence analysis), consistent with its work load capacity and priorities, for real-time response to reported and projected natural disasters, *pandemics*, acts of terrorism, [and other man-made disasters] *other man-made disasters, and such other activities as determined appropriate by the Director of the Cybersecurity and Infrastructure Security Agency.*

(ii) RECIPIENT OF CERTAIN SUPPORT.—Modeling, simulation, and analysis provided under this subsection shall be provided to relevant Federal agencies and departments *upon request and not later than 15 days after completion*, including Federal agencies and de-

partments with critical infrastructure responsibilities under Homeland Security Presidential Directive 7, or any successor to such directive.

\* \* \* \* \*

