



August 28, 2020

## DETERMINATION OF EXCEPTIONAL CIRCUMSTANCES UNDER THE BAYH-DOLE ACT FOR QUANTUM INFORMATION SCIENCE TECHNOLOGIES

Pursuant to the Bayh-Dole Act, 35 U.S.C. §§ 200-12 (“Bayh-Dole”), the United States (U.S.) Department of Energy (“DOE”) has determined that exceptional circumstances exist to establish a U.S. Competitiveness requirement for the disposition of patent rights arising under research, development, demonstration, and market transformation projects involving quantum information science (QIS) technologies and applications, as described herein, to better promote U.S. Competitiveness and protect critical national interests in U.S. leadership in QIS. The U.S. Competitiveness requirement is narrowly tailored to provide stronger support for U.S. national security and economic interests, such as U.S. manufacturing, while maintaining the rights of small businesses and non-profit organizations to commercialize their federally funded inventions.

QIS generally refers to the ability to exploit intricate quantum mechanical phenomena to create fundamentally new ways of obtaining and processing information. QIS is at the threshold of a revolution. The rapid progress in this field promises profound impacts on scientific discovery and technological innovation in the coming decades. In competitive terms, QIS has the potential to create transformative opportunities and technically complex, urgent challenges for the U.S., as growing international interest and investments fuel accelerating global activity in QIS and QIS technology. These opportunities and challenges demand a long-term, large-scale commitment of U.S. scientific and technological resources to multi-institutional, multi-disciplinary efforts that are commensurate with world leadership in this pivotal field. DOE, with its unparalleled breadth and depth of activity as the U.S.’s leading supporter of basic research in the physical sciences and drawing on the unique expertise and capabilities of the DOE National Laboratory complex, has key resources and infrastructure that are integral to this strategic and targeted U.S. initiative.

In response to these opportunities and challenges, the National Strategic Overview<sup>1</sup> for QIS was drafted by the National Science and Technology Council, Committee on Science, Subcommittee on Quantum Information Science (SCQIS). The SCQIS “coordinates federal research and development (R&D) in quantum information science and related technologies” and “aims to ensure that U.S. leadership in quantum information science and its applications is maintained and expanded over the next decade.”<sup>2</sup> The National Strategic Overview divided the current QIS portfolio into seven broad categories: four in fundamental science (S1-S4) and three in technological development (T1-T3)<sup>3</sup>. The four fundamental sciences include (S1) quantum sensing, (S2) quantum computing, (S3)

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<sup>1</sup> National Science and Technology Council publication, <https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Strategic-Overview-for-Quantum-Information-Science.pdf>

<sup>2</sup> National Strategic Overview for QIS at i.

<sup>3</sup> National Strategic Overview for QIS, Appendix.

quantum networking, and (S4) scientific advances enabled by quantum devices and theory advances. The three technology development categories include (T1) supporting technology, (T2) future applications, and (T3) risk mitigation. The National Strategic Overview identifies DOE as one of the agency leaders for three of the fundamental sciences (S1, S2, and S4) and one of the technology developments (T2). QIS technologies may be used for a variety of applications including, but not limited to, “the development of quantum processors which may enable limited computing applications; new sensors for biotechnology and defense; next-generation positioning, navigation, and timing systems for military and commercial applications; new approaches to understanding materials, chemistry, and even gravity through quantum information theory; novel algorithms for machine learning and optimization; and transformative cyber security systems including quantum-resistant cryptography in response to developments in QIS.”<sup>4</sup>

On December 21, 2018, the President signed into law the National Quantum Initiative Act<sup>5</sup> (the “Act”) in part “to ensure the continued leadership of the United States in [QIS] and its technology applications.”<sup>6</sup> The Act establishes a National Quantum Coordination Office within the White House Office of Science and Technology Policy, an outside advisory group<sup>7</sup>, and an interagency working group to lead and oversee a ten-year National Quantum Initiative Program. The National Quantum Initiative Program includes, in part, various QIS research activities by DOE, the National Institute of Standards and Technology (NIST), and the National Science Foundation (NSF). The Act directs DOE to carry out a basic research program in QIS and to establish and operate at least two, but no more than five, QIS Centers (“Centers”). The Act also addresses U.S. competitiveness and specifically requires that “[t]o the maximum extent practicable, the Centers developed, constructed, operated, or maintained under this section shall serve the needs of the Department of Energy, industry, the academic community, and other relevant entities to create and develop processes for the purpose of advancing basic research in QIS and its technology applications through the use of the designated Centers thereby improving the competitiveness of the United States.”<sup>8</sup>

On December 20, 2019, the President signed into law the Further Consolidated Appropriations Act, 2020, which, provides \$195 million for QIS across Office of Science programs, including \$120 million for a QIS basic research program and \$75 million to establish the Centers.

On January 10, 2020, the DOE Office of Science issued Funding Opportunity Announcement (FOA) No. DE-FOA-0002253, “National Quantum Information Science Research Centers.” Under the FOA, DOE plans to fund the Centers at between \$10 million and \$25 million per year for a five-year award term, subject to the availability of appropriations.

By supporting the QIS National Strategic Overview, DOE supports the priorities of the Bayh-Dole Act. The Bayh-Dole Act prioritizes commercialization by U.S. industry and labor while ensuring the

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<sup>4</sup> *Id.* at 2.

<sup>5</sup> National Quantum Initiative Act (P.L. 115-368 Dec. 21, 2018)

<sup>6</sup> National Quantum Initiative Act (P.L. 115-368 Dec. 21, 2018) Sec. 3

<sup>7</sup> The National Quantum Initiative Advisory Committee established under Executive Order 13885 issued on August 30, 2019

<sup>8</sup> National Quantum Initiative Act (P.L. 115-368 Dec. 21, 2018) Sec. 402(c)

Government obtains sufficient rights in federally subject inventions<sup>9</sup> to meet the needs of the Government. DOE has determined that in certain situations requiring a tailored, enhanced U.S. manufacturing requirement more effectively achieves the objectives of the Bayh-Dole Act and DOE while ensuring that small businesses and non-profit entities retain the right to elect title to their subject inventions. Therefore, DOE may include the U.S. Competitiveness provision, attached as Appendix A, if directed in any DOE FOA related to QIS and its technology applications described herein. The U.S. Competitiveness provision requires that any products embodying a subject invention or produced through the use of a subject invention be manufactured substantially in the United States unless the contractor can show to the satisfaction of the DOE that it is not commercially feasible. If this provision is breached, DOE may then obtain title to subject inventions. Except for the U.S. Competitiveness requirement and the enforcement mechanism, the patent rights granted to certain funding recipients under Bayh-Dole remain the same. In accordance with 37 C.F.R. 401.3(e), DOE makes the following determination of exceptional circumstances, including a supporting statement of facts and analysis.

- I. *The Policy Objectives of the Bayh-Dole Act require that the Government obtains sufficient rights in federally supported inventions to meet the needs of the Government, promoting utilization of inventions arising from federally supported research or development, and promoting domestic manufacture of products derived from federally supported research.*

As noted in a 1998 report from the Government Accountability Office, the patent policies prior to 1980 resulted in “fewer than 5% of the 28,000 patents being held by federal agencies had been licensed, compared with 25% to 30% of the small number of federal patents for which the government had allowed companies to retain title to the invention.”<sup>10</sup> Bayh-Dole was intended to provide a more uniform patent policy for federally-funded inventions so that more contractors would retain title to the inventions and have a greater incentive to commercialize, e.g., license, a greater percentage of federally-funded inventions.

Other fundamental objectives of Bayh-Dole are to ensure that the Government obtains sufficient rights in federally supported inventions to meet the needs of the Government and to promote utilization of inventions arising from federally-funded research of inventions.<sup>11</sup> To give the Government sufficient rights, Bayh-Dole provides a path for certain non-profit organizations and domestic small businesses who are recipients of a funding agreement (“Bayh-Dole entities”) to elect title to any subject inventions while giving the funding Federal agency, among other Government rights, a non-exclusive license to the subject invention.<sup>12</sup> Rights to inventions that contractors, subcontractors, as well as recipients and subrecipients of grants and cooperative agreements (“funding recipients”) conceived or first actually reduced to practice in performance of work under a funding agreement (“subject inventions”) are governed by Bayh-Dole and the federal regulations that implement Bayh-Dole.<sup>13</sup> A “funding agreement” is “any contract, grant, or cooperative

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<sup>9</sup> Conceived or first reduced to practice in the performance a federal award.

<sup>10</sup> “Technology Transfer: Administration of the Bayh-Dole Act by Research Universities”, Government Accountability Office report to Congress GAO-RCED-98-126 (May 1998).

<sup>11</sup> 35 U.S.C. § 200(a).

<sup>12</sup> 35 U.S.C. § 200(c)(4).

<sup>13</sup> 35 U.S.C. §§ 200-212; 37 C.F.R. Part 401.

agreement entered into by any federal agency [ . . . ] and any contractor for the performance of experimental, developmental, or research work funded in whole or in part by the Federal Government.”<sup>14</sup> In order to comply with Bayh-Dole, Federal agencies are required to use a standard patent rights clause for funding agreements with Bayh-Dole entities that set out the requirements for securing title.<sup>15</sup>

- II. *The patent rights provided by Bayh-Dole may be modified to better promote the objectives of Bayh-Dole when an agency determines that “exceptional circumstances” exist.*

A federal agency may restrict, eliminate, or otherwise modify rights provided to Bayh-Dole entities and implemented through the standard patent rights clause in “exceptional circumstances” when the Federal agency determines that a restriction, elimination, or modification of the rights and requirements provided by Bayh-Dole would better promote Bayh-Dole’s objectives.<sup>16</sup> The degree or scope of the modification should only be to the extent necessary to address the exceptional circumstances.<sup>17</sup>

- III. *DOE has determined exceptional circumstances exist for QIS and its technology applications to ensure Bayh-Dole’s objectives of promoting U.S. manufacturing are met.*

- a. The U.S. has made and continues to make significant investments in QIS and its technology applications through DOE.

Since 2018, DOE has invested more than approximately \$200 million in QIS and its technology applications to help ensure continued U.S. leadership in this rapidly evolving field. DOE efforts include a broad range of QIS and its technology applications to use QIS solutions to advance DOE’s science and energy mission using DOE’s unique resources. Specifically, in September 2018, DOE announced \$218 million in funding (including \$73 million from FY 2018) for research awards. As DOE stated, “QIS represents the next frontier in the Information Age. At a time of fierce international competition, these investments will ensure sustained American leadership in a field likely to shape the long-term future of information processing and yield multiple new technologies that benefit our economy and society.”<sup>18</sup> More recently, Congress for FY 2020 appropriated \$195 million to DOE’s Office of Science for QIS to carry out basic research and stand up Centers to be funded at up to \$25 million per year. The ten-year strategic program established by statute – the National Quantum Initiative Program – calls for continued investment in QIS including “invest[ments] in fundamental Federal quantum information science and technology research, development, demonstration, and other activities to achieve the goals established [under the Program]” and “invest[ments] in activities to develop a quantum information science and technology workforce pipeline.”<sup>19</sup>

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<sup>14</sup> 35 U.S.C. § 201(b).

<sup>15</sup> 37 C.F.R. § 401.3(a).

<sup>16</sup> 35 U.S.C. § 202(a)(ii); 37 C.F.R. § 401.3(a).

<sup>17</sup> 37 C.F.R. § 401.3(b).

<sup>18</sup> DOE Press Release, “Department of Energy Announces \$218 Million for Quantum Information Science,” September 24, 2018.

<sup>19</sup> 15 U.S.C. 8811(b)(2)-(3).

- b. DOE makes significant investments in QIS and its technology applications and continued U.S. competitiveness in QIS and its technology applications is necessary protect critical national interests.

DOE's leadership in research, development, and demonstration of QIS and its technology applications is increasingly critical as the importance of QIS and its technology applications is poised to grow exponentially. QIS is described as the next technological revolution and the field's rapid growth trajectory is expected to continue for the next decade.<sup>20</sup> The House Committee report accompanying the National Quantum Initiative Act, dated September 13, 2018, outlines the importance of maintaining U.S. leadership at this critical juncture in QIS stating that the "multi-disciplinary field of research [i]s at an inflection point," and that "[a]dvancing current quantum science into real world applications will create scientific and technological breakthroughs that will stimulate economic growth and enhance American global competitiveness." The House report further states that "[QIS] technologies can handle computationally complex problems, provide communication security and enhance navigation, imaging and other sensing technologies in ways that are impossible using conventional hardware," concluding that "[i]t is vital that the United States increase and accelerate its quantum efforts to maintain the nation's scientific and technological leadership."<sup>21</sup>

The House report also emphasizes the competitive threats to U.S. leadership in QIS amid a surge of investments by other countries, stating that "[t]he Committee is concerned that as other nations around the world are rapidly advancing quantum programs, the United States faces the threat of falling behind. China and the European Union are investing billions of dollars in new research facilities and equipment for quantum computing. China, in particular, has stated publicly its national goal of surpassing the U.S. during the next decade."<sup>22</sup> The Committee expressed that the U.S. must now seize the opportunity to solidify U.S. leadership in QIS: "The Committee believes that now is the time to compose a national quantum strategy and preserve America's dominance in the scientific world. The Committee believes that the United States must leverage the expertise and resources of U.S. industry, academia and government to move QIS to the next level of research and development. The Committee believes that the United States has an opportunity to be a world leader in quantum computing, quantum sensing, and quantum communications."<sup>23</sup>

In addition, according to a Congressional Research Service report published in November 2019, China spends \$244 million annually on QIS research. Notably, China began building a national QIS science center in 2017, and is already credited with achieving certain QIS milestones such as launch of the first QIS satellite, launch of a long-distance QIS communication landline, and the first long-distance QIS videoconference.<sup>24</sup>

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<sup>20</sup> National Strategic Overview at 2, 5.

<sup>21</sup> House Report No. 115-950 at 8.

<sup>22</sup> House Report No. 115-950 at 10.

<sup>23</sup> House Report No. 115-950 at 10.

<sup>24</sup> "Quantum Information Science: Applications, Global Research and Development, and Policy Considerations," Congressional Research Service, Nov. 1, 2019.

- c. National security interests support the need to accelerate the level of U.S. manufacturing from DOE's investments in QIS and its technology applications.

As DOE deepens its collaboration with the research community to accelerate QIS, it needs to maintain a full awareness of the potential security threats posed by exploited U.S. intellectual property and products, and to implement mitigation strategies to stop the unintended leakage of proprietary QIS research and technology to foreign competitors. This is important not only to avert national security risks but also to create an environment in which U.S. QIS companies feel more secure in realizing the benefits of their labors.

The SCQIS in its National Strategic Overview<sup>25</sup> discussed six key policy opportunities in QIS including: (1) choosing a science-first approach to QIS; (2) creating a quantum-smart workforce for tomorrow; (3) deepening engagement with quantum industry; (4) providing critical infrastructure; (5) maintaining national security and economic growth; and (6) advancing international cooperation<sup>26</sup>. The SCQIS also addressed four QIS challenges<sup>27</sup> that must be tackled “with a whole-of-Government response,” including:

1. “improving and facilitating coordination both within the Government and between public and private institutions will create a robust domestic ecosystem and provide worldwide leadership in this international environment” and is particularly needed to “maintain and accelerate U.S. leadership in QIS” because “foreign countries are making investments and seeking to build their own QIS base in competition with the United States”;
2. “maintaining and expanding a broad and viable workforce—a quantum-smart workforce—able to enact critical elements of the research and development enterprise,” which “will attract and retain key jobs throughout the Nation, and enable new industrial and academic efforts that rely upon QIS as a base technology”;
3. “future progress in QIS requires strong cross-community connections between disciplines”, noting that “[a]s growth continues, collaborations and cooperation”—between disciplines and nations, between industry and academia—must be promoted, even as competitive pressures may make this more difficult”; and
4. “maintain a culture of discovery,” noting “[t]he likely best-use commercial cases of quantum devices are *unknown at this time* and must be found through research.”

The SCQIS concludes that, “[i]n order to maintain and expand American leadership in this critical technology given these challenges, we must improve our capacity for cutting edge research and development, expand the QIS-literate workforce, and seamlessly coordinate between government, academic, and private sector players.”

Future QIS technologies may solve some of our Nation’s most pressing national security concerns such as “improvements in effective drug discovery, modeling of chemical reactions to enhance corrosion-resistant materials, and optimizing logistics solutions.” These technologies, however, may also present security

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<sup>25</sup> <https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Strategic-Overview-for-Quantum-Information-Science.pdf>

<sup>26</sup> National Strategic Overview at 3 and 4.

<sup>27</sup> National Strategic Overview at 5.

and safety concerns. “For example, one key quantum algorithm will be able to break public-key cryptography, which secures transactions over the internet. While employing this algorithm is far beyond the current level of technology, the need to protect sensitive data and provide a reliable infrastructure over the long-term requires moving to ‘post-quantum’ or ‘quantum-resistant’ forms of cryptography.”<sup>28</sup> QIS may impact next generation Global Positioning Systems (GPS) and secure communication networks.

Therefore, U.S. national security interests are further supported by better ensuring a U.S.-based supply chain for the equipment and components for QIS-based systems through the use of enhanced U.S. Manufacturing provisions in QIS-related funding agreements. Without a secure supply chain, the secure communications, advanced computing and next generation cryptography promised by QIS could be significantly compromised. This concern is heightened by recent events including a 2018 allegation of tampering with circuit boards assembled overseas by including a specialized and difficult to discover chip that gave foreign entities unauthorized access to the data from the final assembled equipment.<sup>29</sup>

The SCQIS also stressed the importance of the “continual monitoring” of export and trade regulations and expressly directed the Government to protect QIS intellectual property:

“[I]t is imperative that while developing the QIS enterprise in the United States, the Government also **protects intellectual property and economic interests**, seeks to understand dual-use capabilities, and supports national-security-relevant applications that emerge from QIS research at every level from basic research to commercialization of QIS technologies”<sup>30</sup> (emphasis added).

This direction from SCQIS to protect QIS dovetails with the statutory “purpose” of the Centers to “improv[e] the competitiveness of the United States,” “[t]o the maximum extent practicable.”<sup>31</sup> The U.S. Competitiveness provision provided under this Declaration follows the statutory and policy direction on QIS provided by Congress and the Administration while also providing the flexibility required to maintain a culture of discovery and an environment that promotes the inter-disciplinary and international collaboration needed to realize the technological promise of QIS.

- d. Congress recognizes the need to promote U.S. Competitiveness through DOE’s investment in QIS and its technology applications.

In recognition of the national interest in supporting U.S. Competitiveness, Congress enacted the National Quantum Initiative Act to continue U.S. leadership in QIS by requiring DOE to establish at least two National Quantum Information Science Research Centers to conduct basic research to accelerate scientific breakthroughs in quantum information science and technology.<sup>32</sup> To

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<sup>28</sup> National Strategic Overview at 11.

<sup>29</sup> Robertson, Jordan and Riley, Michael, “The Big Hack: How China Used a Tiny Chip to Infiltrate U.S. Companies”, Bloomberg Businessweek, October 4, 2018.

<sup>30</sup> National Strategic Overview at 12.

<sup>31</sup> 15 U.S.C. 8852(c).

<sup>32</sup> Sec. 402(a)(1) of the National Quantum Initiative Act

“accelerate scientific breakthroughs in quantum information science and technology”<sup>33</sup> the National Quantum Initiative Act requires DOE to consider applicants from “National laboratories, institutions of higher education, research centers, multi-institutional collaborations, and any other entity that the Secretary of Energy determines to be appropriate<sup>34</sup>.”

It is therefore critical that the Department ensure the efforts of the Centers and other DOE funding of QIS will support the nation’s interests in QIS. More specifically, it is vital that key technologies developed by the Centers and other DOE funding recipients result in creation of a U.S.-based supply chain to manufacture and further develop QIS and its technology applications.

*IV. DOE may require the U.S. Competitiveness commitment to help maintain U.S. competitiveness and leadership in the rapidly evolving and potentially revolutionary QIS*

- a. DOE may incorporate the U.S. Competitiveness requirement in all funding agreements issued under a funding opportunity announcement (FOA) for QIS technologies as described herein

DOE may require the incorporation of the U.S. Competitiveness provision in Appendix A issued to small businesses and non-profit organizations<sup>35</sup> made in support of the National Quantum Initiative Act FOA (DE-FOA-0002253) or as designated in any other FOA related to QIS and its technology applications. A similar provision is incorporated into large-business awards through the Department’s patent waiver process. The U.S. Competitiveness provision in Appendix A requires that any products embodying any subject invention or produced through the use of any subject invention will be manufactured substantially in the United States unless the Contractor can show to the satisfaction of the DOE that it is not commercially feasible.

Prioritizing U.S. manufacture will help ensure that essential QIS and its technology applications will be first manufactured and deployed in the U.S. providing not only valuable economic benefit to the U.S. but ensuring that the U.S. has key production and workforce capabilities to protect our national security interests and critical national economic interests, as described in the National Strategic Overview and the National Quantum Initiative Act, while providing the flexibility necessary to ensure a research environment conducive to discovery and collaboration. DOE believes that the U.S. Competitiveness provision is necessary, as described in the National Strategic Overview, to “help balance the benefits of economic growth with new risks created by the technology.”<sup>36</sup>

- b. The U.S. Competitiveness requirement will be enforceable to protect the nation’s interests.

If a contractor fails to comply with the requirement to substantially manufacture a subject invention in the U.S., DOE shall then have the right to obtain title (e.g., title reverts back to DOE). This right to obtain title for a breach of the U.S. Competitiveness requirement will provide DOE a quick and effective means of commercializing valuable QIS inventions in the interests of the U.S.

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<sup>33</sup> *Id.*

<sup>34</sup> *Id.*

<sup>35</sup> As defined by 35 U.S.C. 201

<sup>36</sup> National Strategic Overview at 4.



c. Waivers and modifications are available.

As QIS is in its early stages, contractors may not be in a position to develop concrete commercialization or manufacturing plans as it is unclear what will be invented, much less where QIS-enabled technologies will be manufactured. Recognizing the need for flexibility, the contractor will be able to apply to DOE for a waiver of the U.S. Competitiveness requirement if and when it determines that substantial U.S. manufacture is not commercially feasible. Any waiver or modification of the U.S. Competitiveness requirement must, consider the factors described below, including substantial U.S. economic benefits. DOE, in its sole discretion, through the DOE Assistant General Counsel for Technology Transfer and Intellectual Property, and with the concurrence of the DOE funding program, may grant such waiver or modification requests. Recipients may address in writing to DOE, and DOE may consider, the following factors in such requests, for example:

- (1) the extent to which the request supports the objectives of the National Strategic Overview for QIS, the National Quantum Initiative Act, DOE missions, and any other QIS-related law, policy, or other authority;
- (2) the technology readiness level of the subject invention and how the request would support international cooperation and collaboration to advance QIS foundational research, if applicable, or support other contributions or investments in the QIS field;
- (3) the commercial feasibility of manufacturing the subject invention in the U.S., including the feasibility of developing all or part of the related supply chain(s) in the U.S.;
- (4) any reasonable efforts to substantially manufacture the subject invention in the U.S., including licensing U.S. firms for manufacturing;
- (5) legally enforceable commitments proposed by the recipient to provide alternative benefits to the U.S. economy and industrial competitiveness preferably related to the commercial use of the subject invention, e.g., direct or indirect investment in U.S.-based plant and equipment, creation of high-quality U.S.-based jobs, and further domestic development of the subject invention technology;
- (6) the geographic, technological, commercial, and temporal scope of the requested waiver compared to any proposed contractual or other benefits; and
- (7) any other such factors that may be relevant.

DOE may also consider whether such requests present any risk of unauthorized or other transfer of subject invention rights or information which may result in a loss of benefits to the U.S. economy or other harm to U.S. competitive or economic interests. DOE funding programs may issue their own guidance on waiver or modification requests, which may include the above factors, through FOA language, program-specific waiver forms, or other mechanisms. Therefore, this enhanced U.S. Competitiveness requirement protects the nation's interests, while having the flexibility to balance U.S. manufacturing interests with commercialization interests when the technology is ready for commercialization.

V. *Conclusion*


DOE has determined that exceptional circumstances exist for QIS and its technology applications. The U.S. Competitiveness requirement described herein will better promote the objectives of Bayh-Dole by providing stronger support to U.S. national security, commercialization of federally supported inventions, U.S. industry, and U.S. manufacturing. Moreover, DOE is not imposing additional restrictions, requirements, or modifications from the standard patent rights clause beyond

what is necessary to address the exceptional circumstances.

Any Bayh-Dole entity affected by this determination of exceptional circumstances has the right, and will be informed of the right, to appeal it.

Approved:   
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DR. CHRISTOPHER FALL  
DIRECTOR  
OFFICE OF SCIENCE

Date: 9/16/2020

Approved:   
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JOHN LUCAS  
DEPUTY GENERAL COUNSEL  
FOR TRANSACTIONS,  
TECHNOLOGY, & CONTRACTOR  
HUMAN RESOURCES

Date: 8/28/2020

## *Appendix A*

### U. S. Competitiveness

The Contractor agrees that any products embodying any subject invention or produced through the use of any subject invention will be manufactured substantially in the United States unless the Contractor can show to the satisfaction of DOE that it is not commercially feasible. In the event DOE agrees to foreign manufacture, there will be a requirement that the Government's support of the technology be recognized in some appropriate manner, e.g., recoupment of the Government's investment, etc. The Contractor agrees that it will not license, assign or otherwise transfer any waived invention to any entity unless that entity agrees to these same requirements. Should the Contractor or other such entity receiving rights in the invention(s): (1) undergo a change in ownership amounting to a controlling interest, or (2) sell, assign, or otherwise transfer title or exclusive rights in the invention(s), then the waiver, assignment, license, or other transfer of rights in the waived invention(s) is/are suspended until approved in writing by DOE. Notwithstanding the conditions when the Government may obtain title provided in paragraph (d) of this clause, the Contractor also shall assign and hereby assigns to DOE, upon written request from DOE, title to any subject invention, upon a breach of this paragraph.

(End of clause)