



**ACS Submission to the
Office of Science and Technology Policy
Request for Information
on Public Access Policies**

Submitted to:

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The American Chemical Society (ACS) is the world's largest scientific society with more than 161,000 members. ACS advances knowledge and research through scholarly publishing, scientific conferences, information resources for education and business, and professional development efforts. The ACS also plays a leadership role in educating and communicating with public audiences—citizens, students, public leaders, and others—about the important role that chemistry plays in identifying new solutions, improving public health, protecting the environment, and contributing to the economy.

ACS Publications is a division of the American Chemical Society. The Publications Division strives to provide its members and the worldwide scientific community with a comprehensive collection, in any medium, of high-quality information products and services that advance the practice of the chemical and related sciences. Currently, 38 peer-reviewed journals and magazines are published or co-published by the Publications Division. Over 270,000 pages of research material are published annually both in print and on the Web, representing over 34,000 research papers. With the introduction of the ACS Journal Archives in 2002, we provide searchable access to over 450,000 original chemistry articles dating back to 1879.

ACS Publications offers both sponsored and author-enabled open access to research through our ACS Author Choice and ACS Articles on Request programs. In addition, bibliographic information, including abstracts of research articles, are freely available on our website. Since the beginning of the transition to electronic publishing in the mid- to late-1990s, we have developed, and are continuing to develop, innovative and accessible business models, policies, and practices to support the scholarly communication process and broaden information access.

As a socially responsible organization deeply rooted in the scholarly community, we share the interest of the Office of Science and Technology Policy (OSTP) in maximizing the dissemination and discoverability of knowledge. ACS believes that success in this area will hinge on these efforts being sustainable for publishers over the long-term. We welcome for the opportunity to respond to the invitation to contribute to the Request for Information (RFI) on Public Access Policies published by OSTP in the *Federal Register* on December 9, 2009.

Our response is in two parts: first a summary of our overall comments and recommendations, and second, answers to the specific questions posed in the RFI.

I. Summary

ACS supports the principles of transparency, participation and collaboration that President Obama outlined in his January 2009 Transparency and Open Government Memorandum and December 2009 Open Government Directive, respectively.¹ Since 1879 ACS has promoted the maximum sustainable dissemination of the official scientific record through our peer-reviewed scientific journals that are globally accessible to the public in print and electronic media and showcase the world's finest research in chemistry and related sciences. Articles that appear in our journals are widely regarded having received recognition of excellence, and the visibility that content in ACS journals receives not only helps scholars achieve new scientific breakthroughs but also leads to practical applications that directly benefit human health and welfare and the world's economy.

¹ Memorandum for the Heads of Executive Departments and Agencies on Transparency and Open Government (January 21, 2009), available at http://www.whitehouse.gov/the_press_office/TransparencvandOpenGovernment/; Memorandum for the Heads of Executive Departments and Agencies on Open Government Directive available at <http://www.whitehouse.gov/open/documents/open-government-directive>

Collectively our peer-reviewed journals help create an informal but widely recognized hierarchy used by funding bodies and the academic community itself to assess research quality, impact, and priority—key factors used to allocate funding resources, evaluate levels of personal achievement, and determine professional advancement.

We believe that it is in the public interest to foster this beneficial publishing activity and toward that end we invest heavily in staff and technology resources required to be successful in this endeavor.

We invite the federal government to support our efforts in this area by funding or licensing free-access to the version of record in collaboration with us, in a manner similar to the Howard Hughes Medical Institute and the Wellcome Trust which are allowing researchers they fund to use a portion of their grant funds to facilitate immediate open access to their published research through the ACS AuthorChoice program (see <http://pubs.acs.org/page/policy/authorchoice/index.html>). Both organizations recognize the value added to manuscripts by publishers and the peer-review process. Similar federal arrangements with their researchers would respect our rights in these articles as well as allow us to recover the significant investments we have made in their development and dissemination – thereby promoting a sustainable scientific enterprise. Such arrangements could consist of direct financial sponsorship to make articles arising from federally funded research immediately publicly available or a licensing agreement through which users of public federal websites could access the published article from its source at the ACS. We encourage the federal government to pursue this strategy on a voluntary basis with other responsible publisher partners taking into account the various models under which they provide access to different research communities.

If the federal government wishes to enhance public access to the activities it funds, it should require the immediate public posting of the investigator's project reports and data that are funded and required by federal grants as well as the creation and posting of interpretive material designed to make those reports accessible to broad non-specialist audiences. These acts would provide the fastest and most broadly accessible material possible to the public. Such materials could be linked (under license) to the published article at appropriate publisher websites. This would foster public access to the authoritative record of science; eliminate the need for building, maintaining, and modifying (when technology changes) redundant and costly repositories/infrastructures by the federal government; prevent any further diversion of government funds away from basic research; lessen the impact of government competition with the private sector; and protect the availability of this information from changes in Federal funding priorities. Policies that seek to go beyond these bounds should have the voluntary agreement of legitimate rightsholders.

II. Responses to RFI Questions

1. How do authors, primary and secondary publishers, libraries, universities, and the federal government contribute to the development and dissemination of peer reviewed papers arising from federal funds now, and how might this change under a public access policy?

Today's scholarly communication system has resulted in more information being available to more people in more ways than at any other time in human history. Each of the key stakeholders has an important role. Private sector organizations and federal government institutions supply funds to support scholarly research activity. Scholars perform the research. Private and public sector institutions, such as universities and corporations, pay the

salaries of researchers and provide the physical infrastructure (e.g. offices and equipment) in which research, and the creation of manuscripts describing that research and relating it to the work of others, can occur. Publishers, such as the ACS, fund the infrastructure that enables the discovery, registration, certification, finalization, dissemination, and (most recently) preservation of research articles through peer reviewed journals and the web platforms that host them.

Journals and web platforms that publishers underwrite and support are an integral part of the scholarly communication system because they foster the cross-fertilization of knowledge in global forums that both reflect, and help shape, the development of scientific fields to the benefit of human health and welfare and create an informal but widely recognized hierarchy used by funding bodies and the academic community itself to assess research quality, impact, and priority—key factors used to allocate funding resources, evaluate levels of personal achievement, and determine professional advancement. Libraries subscribe to journals to provide access to the content and value-added services that publishers like the ACS provide. We believe that it is in the public interest to foster the beneficial activities in which publishers like ACS engage and toward that end invest heavily in the staff and technological resources required to be successful in this endeavor.

Federal public access policies should not change but rather foster the ability of publishers like ACS to continue partnering with the research community from which we were formed to provide high-quality information products and services that advance the practice of scholarship to the benefit of human health and welfare.

2. What characteristics of a public access policy would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature, and the public?

ACS believes that the policy which best accommodates the needs and interests of all stakeholders in sustainable public access to publications arising from federally funded research is one that would require the immediate public posting of the investigator's project reports and data that are funded and required by federal grants as well as the creation and posting of interpretive material designed to make those reports accessible to broad non-specialist audiences.

Because ACS has promoted the maximum sustainable dissemination of the official scientific record since 1879 we invite the federal government to support our efforts in this area by funding or licensing the version of record in collaboration with us in a manner similar to the Howard Hughes Medical Institute and the Wellcome Trust. Both of these funding bodies allow researchers they support to use a portion of their grant funds to facilitate immediate open access to their published articles through the ACS AuthorChoice program (see <http://pubs.acs.org/page/policy/authorchoice/index.html>). Such a partnership would respect our rights in these articles as well as allow us to recover the significant investments we make in manuscript development and dissemination. Such arrangements could consist of direct financial sponsorship to make articles arising from federally funded research immediately publicly available or a licensing agreement through which users of public federal websites could access the published article from its source at the ACS. We encourage the federal government to pursue this strategy on a voluntary basis with other responsible publisher partners taking into account the various models under which they provide access to different research communities.

3. Who are the users of peer-reviewed publications arising from federal research? How do they access and use these papers now, and how might they if these papers were more accessible? Would others use these papers if they were more accessible, and for what purpose?

The overwhelming majority of users of ACS publications, whether the research described was federally funded or not, are specialists in the authors' discipline(s) who access our material from ACS' award-winning and globally accessible website to advance the practice of chemistry and related sciences and benefit human health and welfare. These specialists typically are, or have been employed in academia, industry, private labs, and the government. They include emeritus researchers, scholars, teachers and PhD students. The balance of users come from the general public. Members of the public have training and interests which vary with the individual and nature of the subject area. No matter what the discipline, it has been our experience that the highly-specialized and advanced research we publish has limited immediate accessibility to members of the general public unless it is accompanied by interpretive material which explains its significance and utility.

There are a wealth of sustainable ways in which researchers and members of the general public can currently access ACS publications – e.g. via reasonably-priced personal or institutional subscriptions, via our free-access AuthorChoice (<http://pubs.acs.org/page/policy/authorchoice/index.html>) and Articles on Request programs (<http://pubs.acs.org/page/policy/articlesonrequest/index.html>), via interlibrary loan, via Articles on Command single article purchases, etc. All of the preceding methods work together to enable public access in sustainable ways that respect the legitimate rights we have acquired, recognize the significant value we have added, and enable us to continue to provide valuable services to the authors of tomorrow.

Finally, we note that over 95% of STM journals are online. 75% of researchers describe access to research as good or very good. One study showed that 94% of university and college based respondents found access to information very easy or fairly easy, and access to journals is 14th on their list of concerns (lack of funding is number one; too much paperwork is number five)². We have found no systematic quantitative evidence to indicate that access is an issue for researchers or the public.

4. How best could federal agencies enhance public access to the peer-reviewed papers that arise from their research funds? What measures could agencies use to gauge whether there is increased return on federal investment gained by expanded access?

Peer reviewed manuscripts arise from the partnership of the research community with publishers like ACS. The federal government is not a partner in this process and provides neither funding, infrastructure, staff, nor services. Scholars contribute their manuscripts describing the research they have performed and relating it to the work of others as well as their services in the peer review process. Publishers like ACS fund the provision, maintenance, and upgrade of the advanced technology and highly skilled staff that are required to support and help manage the process; locate and maintain relationships with key reviewers; track manuscript status for editors, authors, and reviewers; monitor reviewer workloads and follow up; assess responses and communicate feedback and decisions to authors.

² Publishers Research Consortium (PRC) study, —Access by UK small and medium-sized enterprises to professional and academic information, (2009).

If the federal government wishes to enhance public access to the activities it funds, it should require the immediate public posting of the investigator's project reports and data that are funded and required by federal grants as well as the creation and posting of interpretive material designed to make those reports accessible to broad non-specialist audiences. In order for the federal government to assess whether any benefit has been gained from this activity it must first establish a baseline of the level of public access to such materials today for researchers and the public, and what is spent to achieve those levels. Once baseline metrics have been established possible access enhancements can be evaluated. ACS also recommends that other measures important to our community be evaluated such as impact on researcher productivity, quality control, and cost-effectiveness.

5. What features does a public access policy need to have to ensure compliance?

ACS believes that in order for a public access policy to ensure compliance it must have two components: respect for the rights of stakeholders involved and realistic administrative requirements. This why we recommend that the government require the immediate public posting of the investigator's project reports and data that are funded and required by federal grants as well as the creation and posting of interpretive material designed to make those reports accessible to broad non-specialist audiences. These acts would provide the fastest and most broadly accessible material possible to the public. Policies that seek to go beyond these bounds would need the voluntary agreement of legitimate rightsholders.

6. What version of the paper should be made public under a public access policy (e.g., the author's peer reviewed manuscript or the final published version)? What are the relative advantages and disadvantages to different versions of a scientific paper?

ACS believes that the policy which best accommodates the needs and interests of all stakeholders in sustainable public access to publications arising from federally funded research is one that would require the immediate public posting of the investigator's project reports and data that are funded and required by federal grants as well as the creation and posting of interpretive material designed to make those reports accessible to broad non-specialist audiences.

If the federal government wishes to provide public access to peer reviewed papers beyond that already provided by publishers like the ACS, they should negotiate with publishers to either provide the funds necessary to financially sponsor that access or license this right for specific public users in the U.S. and/or globally. Because ACS supports the maximum sustainable dissemination of the final published article as that version of a scholarly communication which benefits science and the public most, we encourage the federal government to accept our invitation to financially sponsor immediate free-access to those manuscripts.

7. At what point in time should peer-reviewed papers be made public via a public access policy relative to the date a publisher releases the final version? Are there empirical data to support an optimal length of time? Should the delay period be the same or vary for levels of access (e.g., final peer reviewed manuscript or final published article, access under fair use versus alternative license), for federal agencies and scientific disciplines?

As noted in other responses, ACS invites the federal government to financially sponsor the immediate free-access availability of final published articles that describe federally funded research. We believe that this solution would maximize the public good, respect the legitimate rights of ACS and other publishers, compensate ACS for the value we have added to the literature, and provide the necessary funding for us to continue to reinvest in the infrastructure that creates these highly-valued and highly-valuable works.

We caution the federal government against the use of overbroad and simplistic embargo periods. If embargo periods are to be used, they must take into account both the practices of the discipline and the frequency of the relevant journal publications – one-size will not fit all. To date there is no data on the mid or long-term effects of large-scale archiving of peer-reviewed manuscripts, under differing embargo periods, on the health, viability and sustainability of the scholarly communication system. Different disciplines use information at different rates and one-size-fits-all policies (i.e. a single uniform embargo period) will not work. In order to learn what the effect of such policies might be *before* they are implemented, the European Union is currently funding a study³ on the effects of the large-scale, systematic depositing of final peer reviewed manuscripts on reader access, author visibility, and journal viability, as well as on the broader research environment. ACS supports this evidence-based approach to policy-making and recommends a similar approach for the federal government.

8. How should peer-reviewed papers arising from federal investment be made publicly available? In what format should the data be submitted in order to make it easy to search, find, and retrieve and to make it easy for others to link to it? Are there existing digital standards for archiving and interoperability to maximize public benefit? How are these anticipated to change?

Peer reviewed papers that describe federally funded research should be made available by the federal government based on voluntary arrangements made between it and the publisher, recognizing the significant value-add that publisher contributions make to scholarly communication. Such arrangements could include federal financial sponsorship of immediate free-access to published articles or licensing arrangements that enable access from federal websites to published articles hosted at publisher websites. In one example of the latter case, project reports and interpretive material for the broad public at federal websites could be linked (under license) to the published article at ACS. This would eliminate the need for building, maintaining, and modifying (when technology changes) redundant and costly repositories/infrastructures by the federal government; prevent any further diversion of government funds away from basic research; lessen the impact of government competition with the private sector; and protect the availability of this information from changes in Federal funding priorities.

Digital standards for archiving and interoperability are emerging from the private sector, through organizations like CrossRef, and we recommend that the federal government look to this area for guidance. Any display formats adopted should be flexible enough to account for the richness of the formats employed in different subject disciplines as well as accommodate foreseeable technological changes that will require a revision of the standards. If implemented, this should be an area of ongoing attention.

³ The PEER (Publishing and the Ecology of European Research) project currently funded under the European Commission's eContentplus program. The project is a collaboration between publishers, repositories and researchers and will last from 2008 to 2011. See <http://www.peerproject.eu/reports> for more information.

9. Access demands not only availability, but also meaningful usability. How can the federal government make its collections of peer-reviewed papers more useful to the American public? By what metrics (e.g., number of articles or visitors) should the Federal government measure success of its public access collections? What are the best examples of usability in the private sector (both domestic and international)? And, what makes them exceptional? Should those who access papers be given the opportunity to comment or provide feedback?

Free-access from government websites to any version of peer reviewed papers describing federally funded research should only be undertaken based on voluntary arrangements between the government and the publisher of that research – recognizing the publisher's legitimate rights and the significant value-add that publisher contributions make to scholarly communication. Because ACS has promoted the maximum sustainable dissemination of the official scientific record since 1879 we invite the federal government to support our efforts in this area by funding or licensing immediate free access to the published version of record in collaboration with us. As we have noted elsewhere, both the Howard Hughes Medical Institute and the Wellcome Trust allow researchers they support to use a portion of their grant funds to facilitate immediate open access to their published articles through the ACS AuthorChoice program (see <http://pubs.acs.org/page/policy/authorchoice/index.html>).

If the federal government elects to consider the public posting of peer reviewed manuscripts accepted for publication, they should negotiate with publishers to either provide the funds necessary to financially sponsor that access or license this right for specific public users in the U.S. and/or globally. In such case, we believe that the best way to maximize the usefulness of accepted, peer reviewed papers is by posting them on the publisher's web platform where existing tools and services would immediately enhance the usability of those materials to the public. These partially-finished manuscripts could then easily be linked to the authoritative published article once it becomes available. Federal agencies could link their progress reports and interpretive material to the partially-complete manuscript and redirect those links to the final article when it becomes available.

Postscript: We note and commend the efforts of OSTP in collaboration with the United States House of Representatives Committee on Science and Technology to sponsor a roundtable – the Scholarly Publishing Roundtable – where representatives from key stakeholder groups met to develop a consensus that would meet the twin goals of public access to outputs arising from research funded by agencies of the U.S. government and a viable and sustainable publishing community. At first review, the findings and recommendations of the Roundtable appear to be inconsistent with the approaches we have recommended above. Regardless, ACS strongly supports a process where representative groups engage in wide-ranging discussions about the future of scholarly publishing and the role of government and other organizations in improving public accessibility to the results of research.