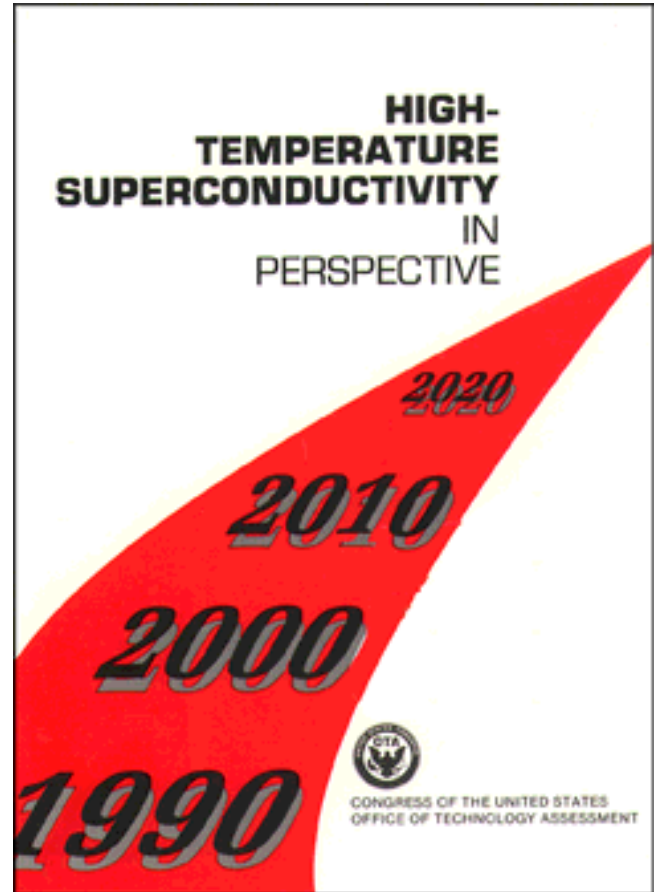


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Perspective*

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NOTE: OTA appreciates and is grateful for the valuable assistance and thoughtful critiques provided by the advisory panel members. The panel does not, however, necessarily approve, disapprove, or endorse this report. OTA assumes full responsibility for the report and the accuracy of its contents.

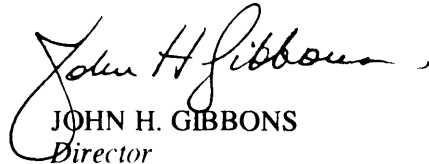
# Foreword

This is the second of two OTA assessments on the subject of high-temperature superconductivity (HTS). The first, *Commercializing High-Temperature Superconductivity*, was published in June, 1988. These assessments respond to requests from the State Committees on Governmental Affairs; Energy and Natural Resources; and Commerce Science, and Transportation; as well as the House Committee on Science, Space, and Technology to analyze the opportunities presented by this exciting new technology and to outline Federal policy objectives that are consistent with these opportunities.

This study is complementary to the earlier OTA report. Whereas *Commercializing High-Temperature Superconductivity* considered HTS as a specific case study in the context of broader issues in U.S. industrial competitiveness and technology policy, the present work focuses more on the technology itself and the spectrum of potential applications. A centerpiece of this work is an extensive OTA survey comparing industry investment in superconductivity R&D in the United States and Japan (see Chapter 6). In this regard, OTA gratefully acknowledges the assistance of Japan's International Superconductivity Technology Center for administering the survey in Japan, and of the National Science Foundation for help with the survey design, distribution, and analysis in the United States.

As the title suggests, this study attempts to put HTS in perspective, both in terms of competing technologies (e.g., the more mature low-temperature superconductors), and in terms of the many technical and economic problems that must be overcome before HTS can be widely used. Although it remains a promising field, the full potential of HTS will not be clear for another 10 to 20 years. Thus, HTS is a test case, not of the U.S. ability to commercialize a new technology rapidly, but of its ability to look beyond the immediate future and sustain a consistent R&D effort over the long term. As such, HTS poses a difficult challenge to government policy makers and industry managers alike.

OTA appreciates the assistance provided by the contractors and Advisory Panel, as well as the many reviewers whose comments helped to ensure the accuracy of this report.



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