CONF-9702115--1

Section 5

"U.S. Coal Outlook in Asia,"

by Charles J. Johnson, presented at the JAPAC International Symposium '97 in Tokyo, Japan, February 20, 1997.

FC03-94FE63313

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US Coal Outlook in Asia[1]

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Introduction

Coal exports from the United States (hereafter US) to Asia are declining over time as a result of (i) increased competition from coal suppliers within the Asia-Pacific region, (ii) changing steel making technologies, (iii) decreased emphasis on security of coal supplies, and (iv) deregulation of the energy industry -- particularly electric utilities. There are no major changes on the horizon that are likely to alter the role of the US as a modest coal supplier to the Asia-Pacific region.

The downward trend in US coal exports to Asia is expected to continue over the 1997-2010 period. But economic and policy changes underway in Asia are likely to result in periodic coal shortages, lasting a few months to a year, and short term increased export opportunities for US coal. US coal exports to Asia are projected to fluctuate within the following ranges over the 2000-2010 period: 10-17 million tons in total exports, 6-12 million tons in thermal coal exports, and 4-9 million tons in coking coal exports.

The most important role for US coal, from the perspective of Asian coal importing countries, is to ensure a major alternative source of coal supplies that can be turned to in the event of unforeseen disruptions in coal supplies from the Asia-Pacific region or South Africa. However, the willingness of consumers to pay a premium to ensure US export capacity is declining, with increased emphasis on obtaining the lowest cost coal supplies.

[1] Presented at the JAPAC International Symposium '97 in Tokyo, Japan, February 20, 1997.

The Outlook for US Coal Exports to Asia[2]

Figure 1 shows the decreasing share of US coal exports to Asia between 1980 and 1996, with projections to 2010. Asia's share of US coal exports decreased from 28 percent in 1980 to 19 percent in 1996, and is projected to decrease to 15 percent by 2010 in our medium scenario.

Figure 2 shows total US coal exports for 1980, 1990 and 1996 with projections to 2010. As shown in Figure 2, US coal exports increased from 83.2 million tons in 1980 to 95.9 million tons in 1990, before declining to about 82.5 million tons in 1996. Figure 2 does not show the drop in exports to 64 million tons in 1994 and the rebound to 79.5 million tons in 1995.

Three scenarios of coal exports in 2010 are shown in Figure 2 - high, medium and low. The three scenarios have a number of underlying economic assumptions -- the most important is the trend in constant dollar prices of coal. The assumed average constant 1996 dollar price changes of coal over the 1997-2010 period are as follows: +1.0 percent per year increase for the high scenario, constant 1996 prices for the medium scenario, and -1.0 percent per year for the low scenario. The medium (most likely) scenario is for coal exports of 85 million tons in 2010 -- essentially no growth is projected in coal exports.[3]

Figure 2 also shows US coal exports to Asia decreasing from 22.9 million tons in 1980 to about 15.9 million tons in 1996, with projected exports of 12.8 million tons in 2010 under the medium scenario. The high scenario of 23 million tons in 2010, assumes substantial coal imports by China and India result in higher than expected coal prices in the Asian market.[4] The low scenario for 2010 of 5 million tons of US coal exports to Asia, assumes continued excess export capacity within the Asia-Pacific region.

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[2] The three main statistical data sources used in compiling the figures in this paper were IEA, 1996, Coal Information 1995; National Mining Association, 1996, International Coal Review: Annual Edition 1996; and the Energy Information Administration, 1997, Annual Energy Outlook. Projections for 2010 are those of the author.

[3] Tightening environmental regulations across Asia may result in a price premium for very low sulfur coal.

[4] There are equally plausible scenarios for China and India that could result in either high or low coal imports by 2010. The bottleneck in both countries is the congested transport system not coal reserves.

Figure 3 shows US thermal coal exports to Asia increased from 9 percent in 1980 to about 50 percent in 1996, and are projected to reach 66 percent by 2010.[5]

Figure 4 shows a map of the western US coalfields and the major rail links to the west coast. Most western coal exports to Asia are likely to come from the Unita Basin of Utah and Colorado. The bituminous coalfields of the Unita Basin are 1300-1550 km from the Los Angeles port.[6]

The major competing coal suppliers in Australia have typical rail distances of 80-300 km, plus have lower ocean shipping distances to Asian markets. The newest low cost supplier, Indonesia, has lower transport costs than Australia to Asian markets.

Representative total transport costs from western US coal mines to Japan are about $27-30 per ton compared to $16-18 per ton for Australian coal mines. The transport disadvantage of $9-14 per ton for western US coal over Australian coal delivered to the Japanese market cannot be offset by the highly productive western US coal mines.[7] Continued modest exports of high quality western US coal to Asian markets appears likely, but major sustained increases in exports are problematic.

With respect to coking coal exports from eastern US coal mines, the outlook is for gradually decreasing exports to Asia. The historical price premium obtained for high quality US coking coals in Asian markets has been eroded by lower priced Australian coal exports. Changes in steel making technologies and practices have resulted in a shift to lower priced Australian coking coals in steel making. A number of major US coal exporting companies have responded to changing international market conditions by investing in coal mines within the Asia-Pacific region -- particularly Australia.

Figure 5 shows the share of US coal exports to Asia that originated from the main west coast port of Los Angeles in 1996. In 1996, 32 percent of US thermal coal exports to Asia came from the port of Los Angeles, and 100 percent of the hard coking coal came

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[5] The distinction between thermal coal for the power and cement industries, and coking coal for the steel industry is becoming less distinct, with increased blending of lower quality coals and PCI use in the steel industry.

[6] After many years of discussions, the Los Angeles Export Terminal is being expanded by a consortium of US coal producers, US railroads, the port of Los Angeles, Japanese utilities and other Japanese companies.

[7] The majority of the most productive longwall mines in the United States are located in Utah (Skyline, Crandall, Cottonwood, SUFCO, Deer Creek and Pinnacle mines).

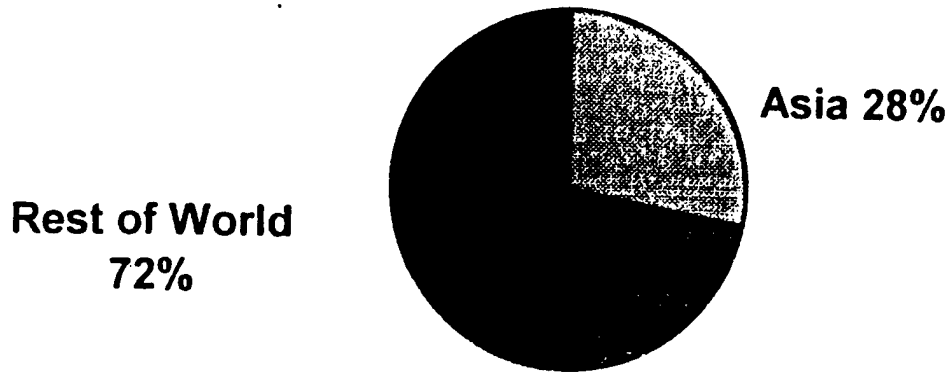
from eastern (mostly Hampton Roads) and Gulf ports.[8] The port of Los Angeles accounted for two-thirds of US thermal coal exports to Asia in 1996, and is expected to increase its share to 70-80 percent by 2010.

Conclusions

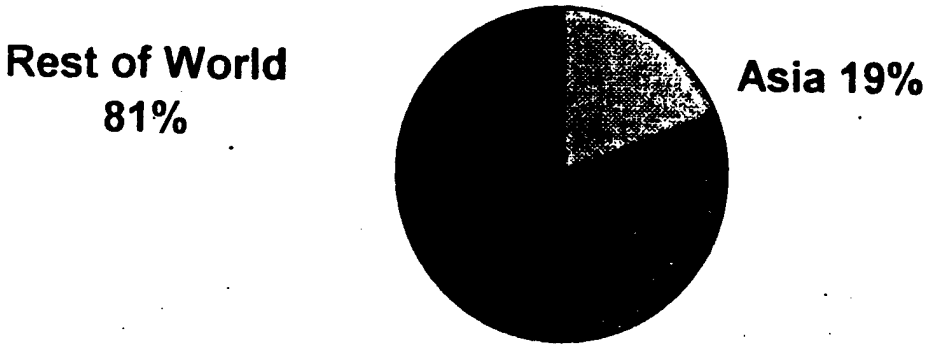
A number of technical and economic factors are leading to a decreasing role of US coal in Asian markets. Under the likely assumption of constant US dollar prices of coal to 2010, US coal exports to Asia are projected to continue their gradual decline in total tons. The primary causes are increased supplies of lower cost coal from within Asia, and deregulation of Asia's energy industry, resulting in increased price competition and lower coal prices. Increasingly consumers are less willing to pay a price premium for coal based on security of supply concerns.

The long term outlook for US coal exports to Asia is for 10-15 million tons in annual exports in 2010. Western US coal mines lead the world in mining productivity, but long transport distances will continue to limit western coal exports to Asian markets. There are a number of economic and political factors that may result in higher US coal exports, however these factors are likely to result in short term and not long term US coal export opportunities to Asia.

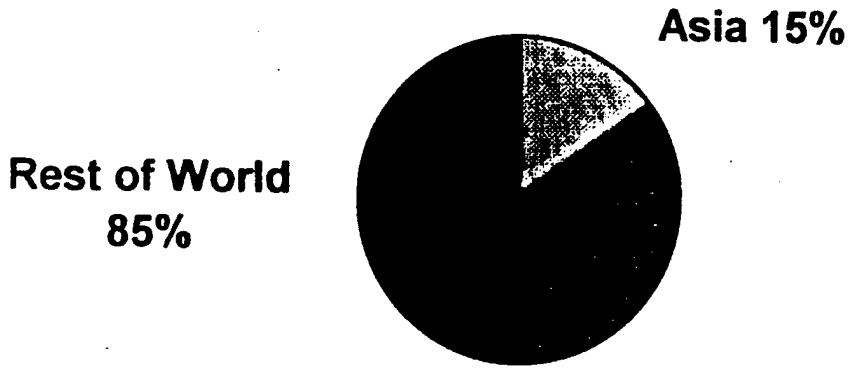
[8] Some western coals are suitable for PCI use in the steel industry.



1980 (83 million tonnes)



1996 (83 million tonnes)



2010 (85 million tonnes)

Figure 1. Asia's share of total U.S. coal exports

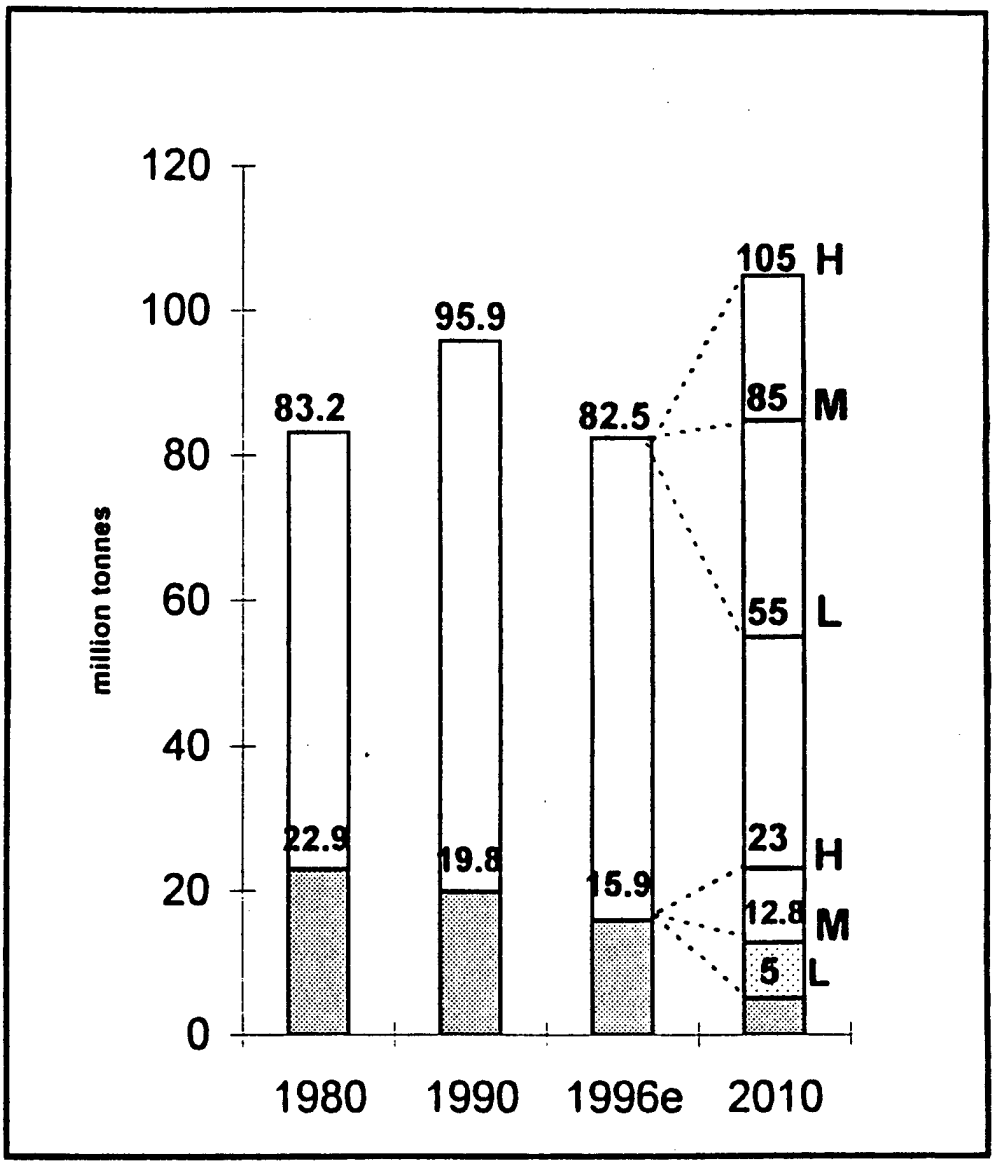


Figure 2. Asia and total U.S. coal exports from 1980 to 1996 with projections for 2010

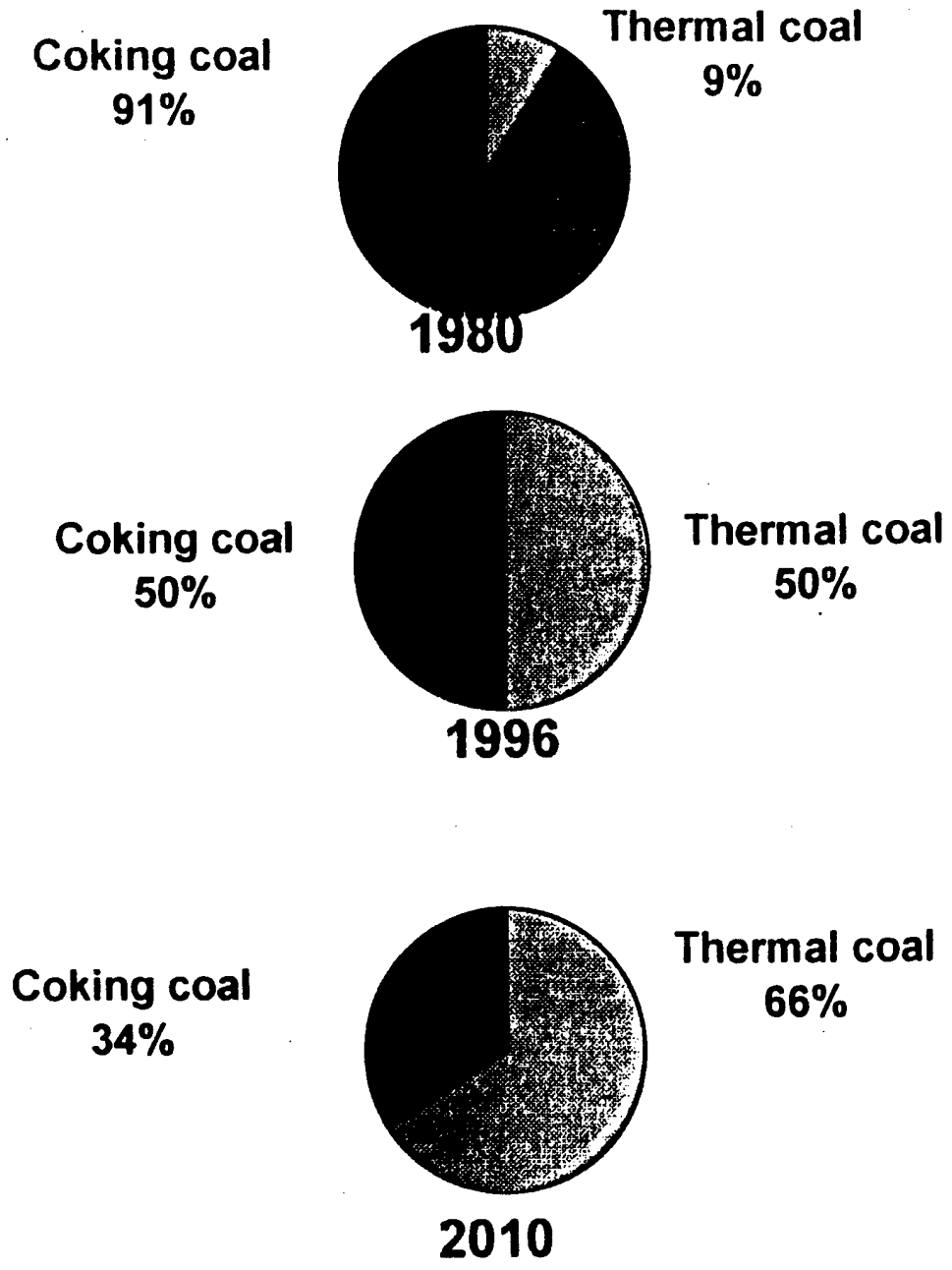


Figure 3. Changing shares of U.S. coking and thermal coal to Asia, 1980 and 1996 with projections to 2010

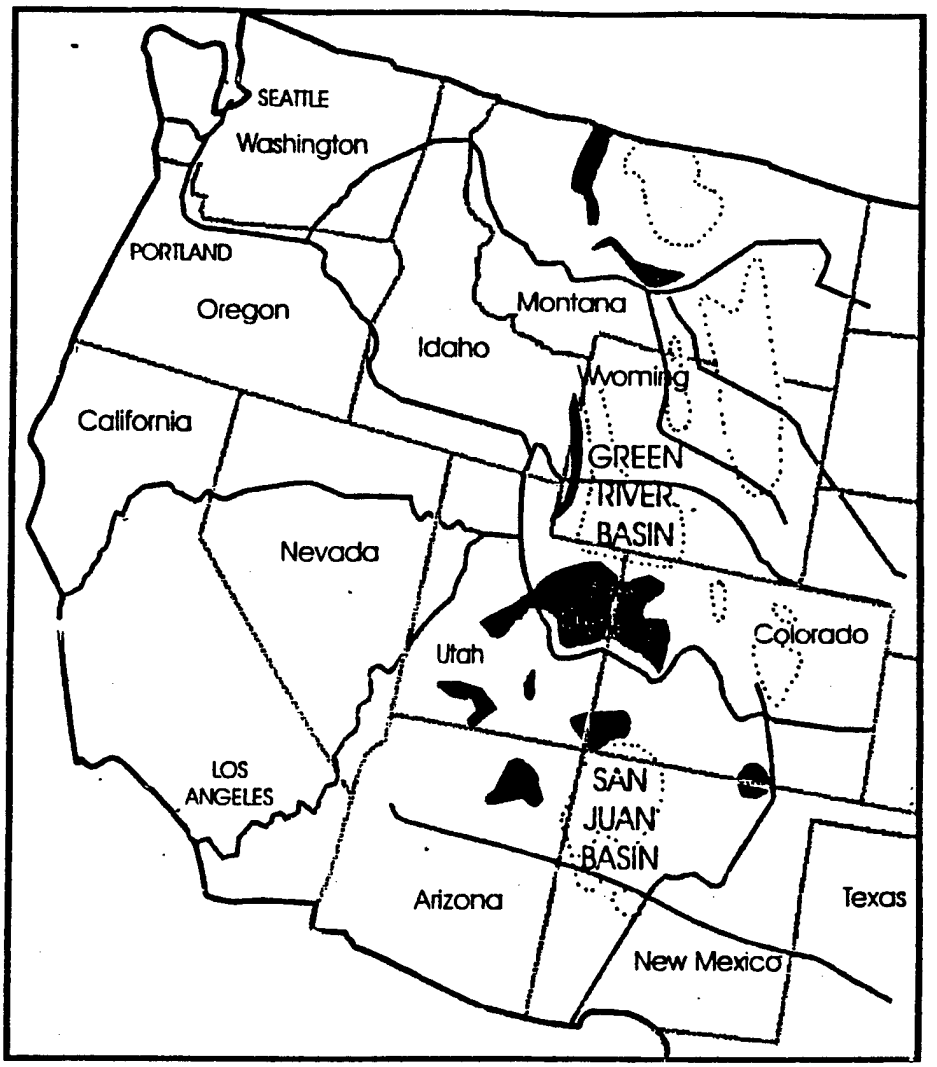
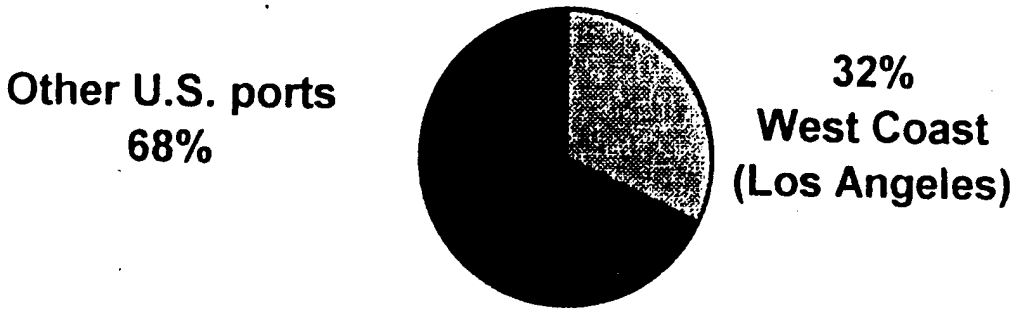
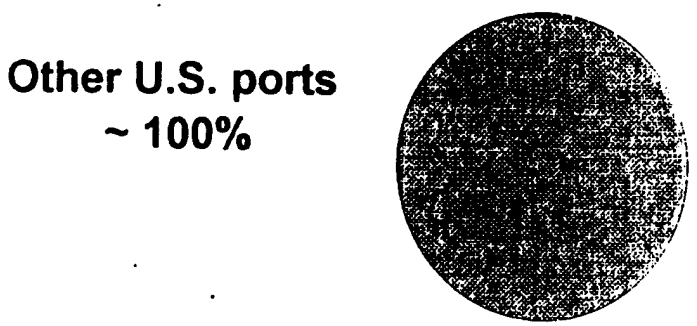


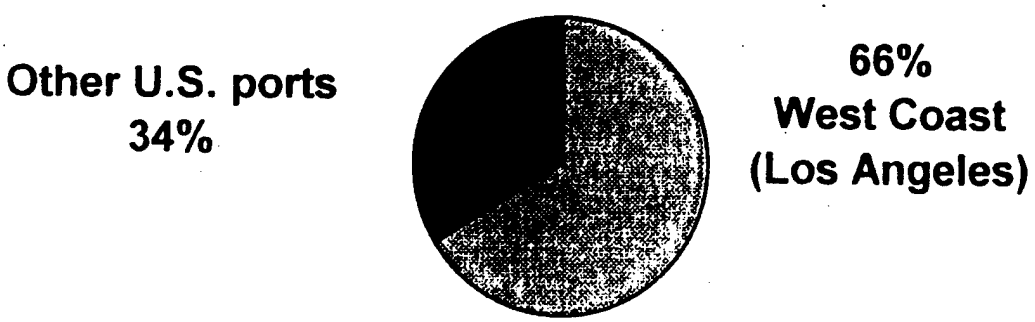
Figure 4. Major coal basins and primary railroads in the western United States



1996e (U.S. coal exports to Asia)



1996e (U.S. coking coal exports to Asia)



1996e (U.S. thermal coal exports to Asia)

Figure 5. Sources of U.S. exports to Asia in 1996

Report Number (14) CONF-9702115--1

Publ. Date (11) 199702

Sponsor Code (18) DOE/FE, XF

UC Category (19) UC-101, DOE/ER

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