

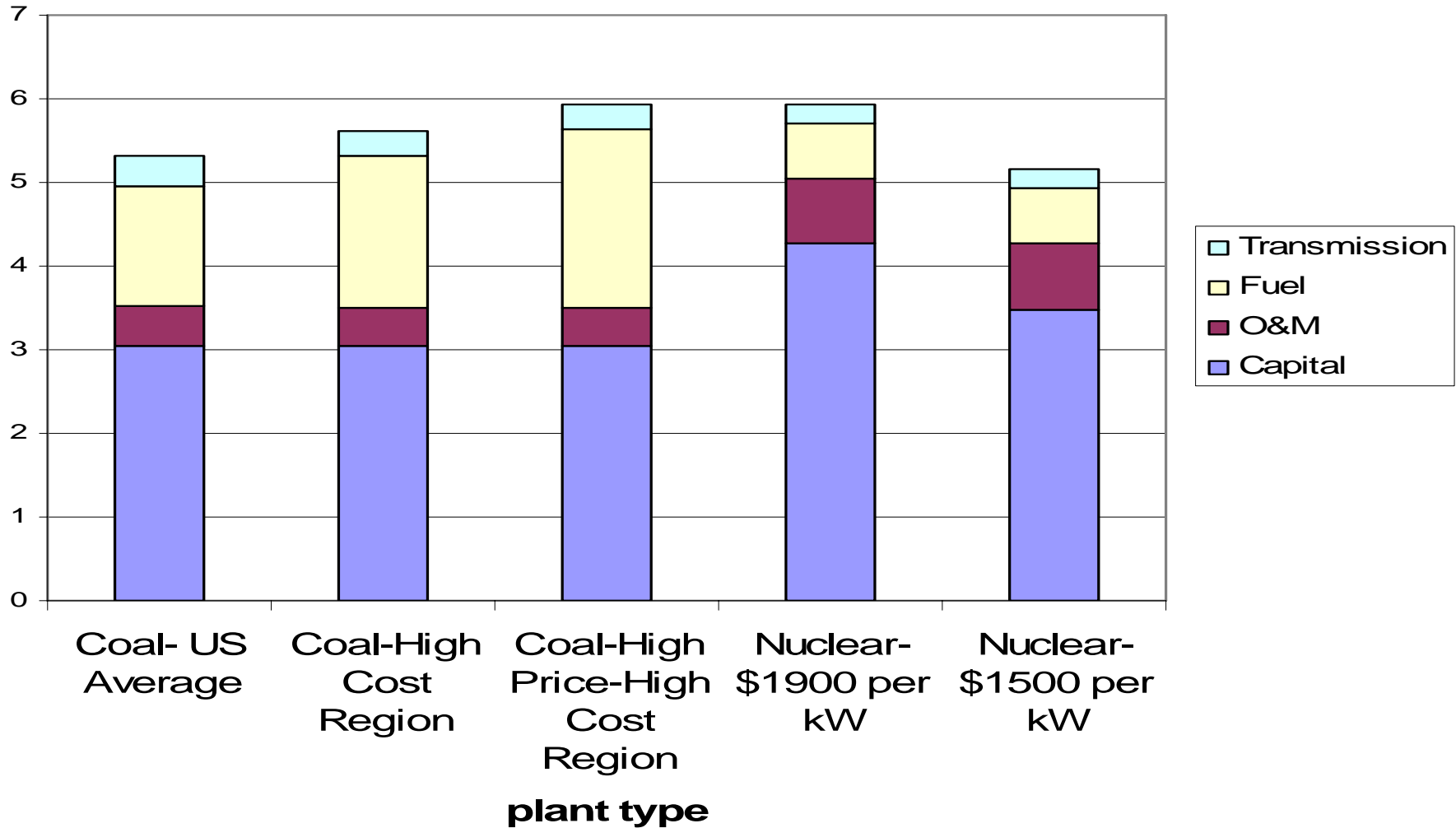
Is Nuclear Power Economic?

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Energy Information Administration

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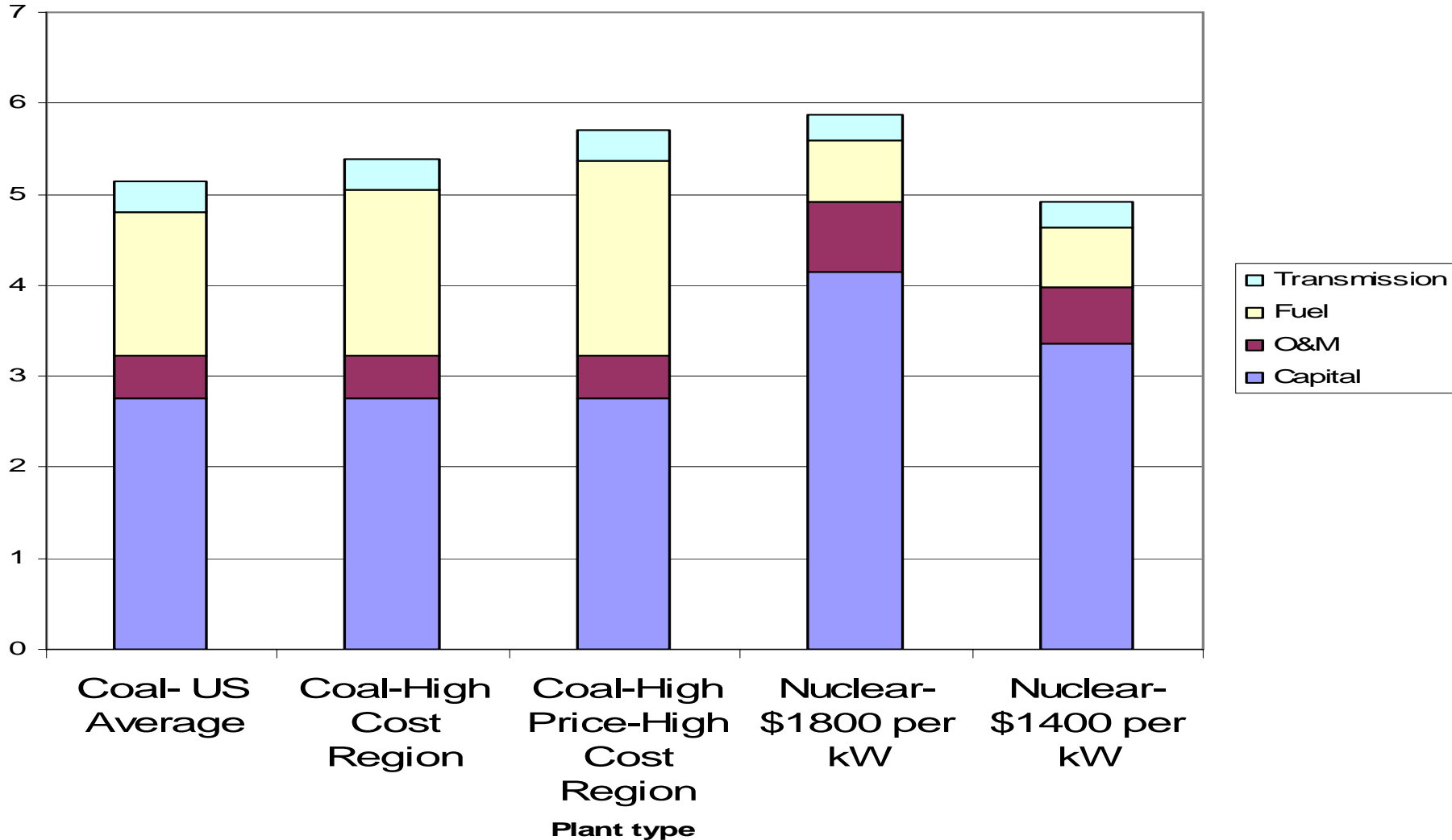
Levelized Cost of Nuclear and Coal-Fired (IGCC) Capacity, 2015 (2004 Cents per kWh)



Source: Annual Energy Outlook, 2006.

Note: The estimates do not include the Production Tax Credit or the effects of the loan guarantee program.

Levelized Cost of Nuclear and Coal-Fired (IGCC) Capacity, 2030 (2004 cents per kWh)



Source: Annual Energy Outlook, 2006.

Note: The estimates do not include the Production Tax Credit or the effects of the loan guarantee program.

Recent Construction Cost Experience (2005\$)

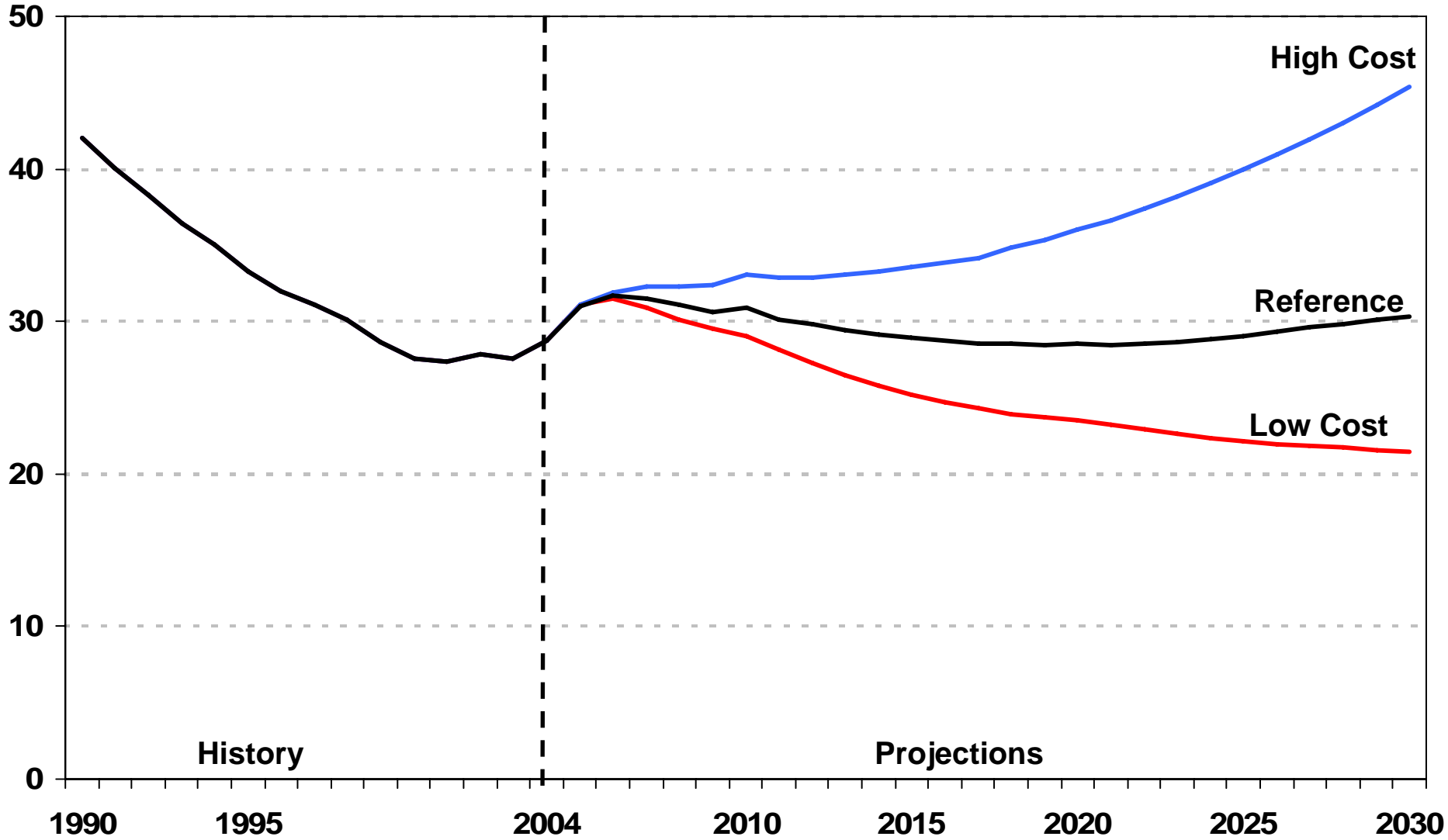
- **Genkai 3 (Japan, PWR) - \$2,818/kW (overnight)**
- **Genkai 4 (Japan, PWR) - \$2,288/kW (overnight)**
- **Onagawa (Japan, BWR) - \$2,409/kW (overnight)**
- **KK6 (Japan, ABWR) - \$2,020/Kw (overnight)**
- **KK7 (Japan, ABWR) - \$1,790/kW (overnight)**
- **Yonggwang 5&6 (Korea, PWR) - \$1,800/kW (overnight)**

- **Finland EPR (Areva contract only) - \$2,300/kW (nominal estimate 2005 and before cost of delay)**

- **Flammanville 3 (France EPR) - \$2,600/kW (nominal estimate 2006)**

Source: Paul Joskow, "Prospects for New Nuclear Generating Units in the US," AEI Conference, Washington, DC, October 6, 2006

Average Delivered Coal Prices in Three Cost Cases, 1990-2030 (2004 dollars per short ton)

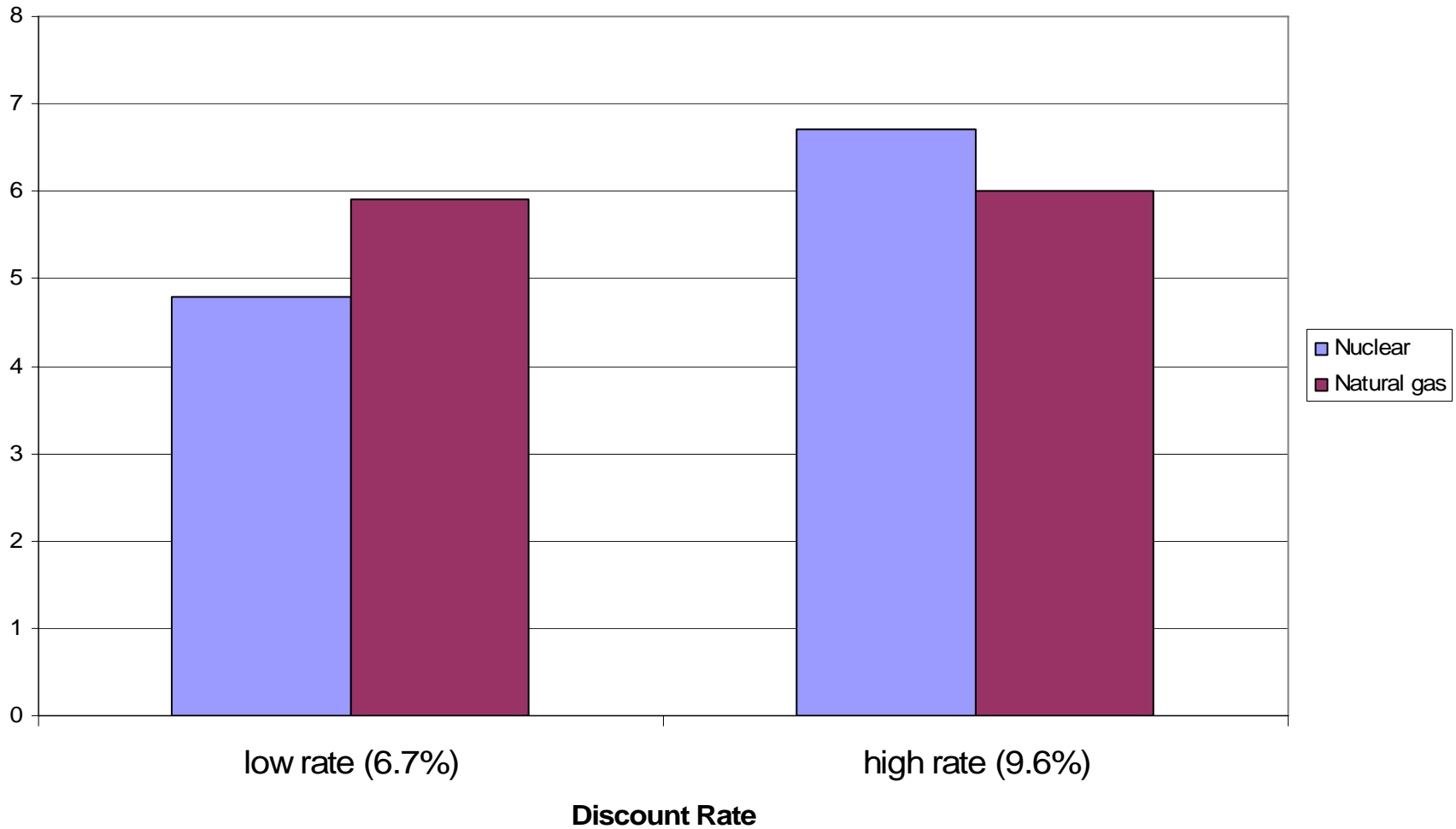


Source: Annual Energy Outlook, 2006

Financial Issues

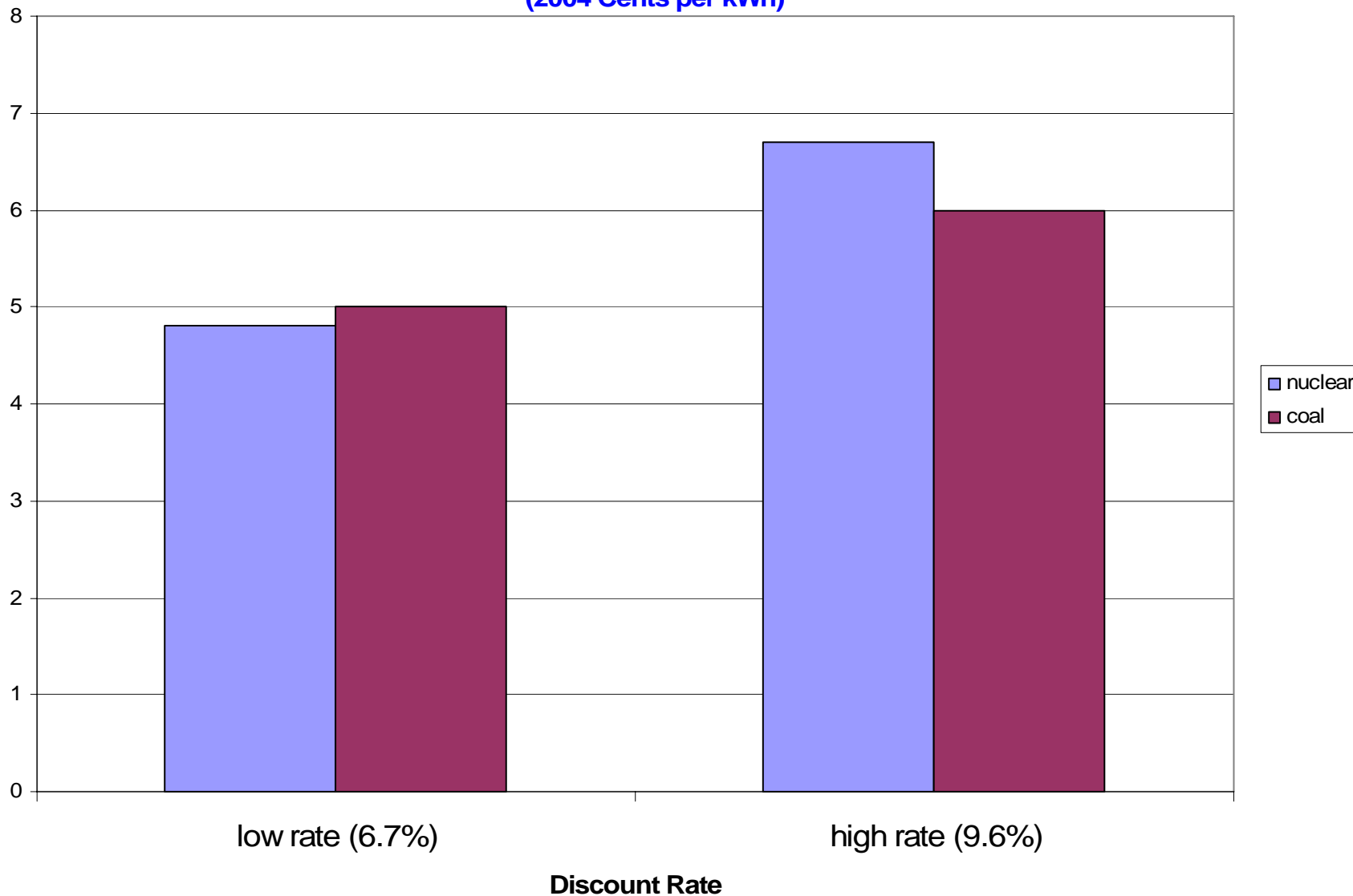
- **Imbedded in the levelized costs are payments to debt holders (interest costs and repayment of principal) and “implicit payments” to shareholders.**
 - **Increases in the risk will increase the payments to shareholders and debt holders, and thus increase the levelized costs.**
 - **Assumed that risks from building and operating new plants will be shared between consumers and shareholders.**
- **Annual payments to debt holders (cost of debt) based on interest rates of about 8.5 %.**
- **Annual “implicit payments” to shareholders (cost of equity) based on profit rates of about 14.7%.**
- **On average, annual payments to debt and shareholders (weighted after-tax cost of capital or discount rate) were about 10.5% (7.8% real).**

**IEA's Estimated Levelized Cost of Gas-Fired and Nuclear Capacity Using
Two Discount Rates
(2004 Cents per kWh)**



Source: International Energy Agency (IEA), World Energy Outlook, 2006

IEA's Estimated Levelized Cost of Coal-Fired and Nuclear Capacity Using Two Discount Rates (2004 Cents per kWh)



Source: International Energy Agency (IEA), World Energy Outlook, 2006

Is Nuclear Power Economic?

- **Because of all the uncertainty, an unqualified answer can not be given.**
- **The production tax credit will result in nuclear being economic resulting in some new construction.**
- **The location of the plant relative to coal fields is important. Without the PTC, if nuclear capital costs fall to around \$1700 per kw, nuclear would be competitive with coal in relatively high coal cost areas.**
- **In areas of the US with “average” coal prices, without the PTC, nuclear capital costs must fall to about \$1500 per kw.**
- **As the IEA study found, issues dealing with the allocation of the risks are important.**