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The Jane Fonda Effect

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Nuclear Energy

If you were asked to name the biggest global-warming villains of the past 30 years, here's one name that probably wouldn't spring to mind: **Jane Fonda**. But should it?

In the movie "The China Syndrome," Fonda played a California TV reporter filming an upbeat series about the state's energy future. While visiting a nuclear power plant, she sees the engineers suddenly panic over what is later called a "swift containment of a potentially costly event." When the plant's corporate owner tries to cover up the accident, Fonda's character persuades one engineer to blow the whistle on the possibility of a meltdown that could "render an area the size of Pennsylvania permanently uninhabitable."

"The China Syndrome" opened on March 16, 1979. With the no-nukes protest movement in full swing, the movie was attacked by the nuclear industry as an irresponsible act of leftist fear-mongering. Twelve days later, an accident occurred at the Three Mile Island nuclear plant in south-central Pennsylvania.

Michael Douglas, a producer and co-star of the film -- he played Fonda's cameraman -- watched the T.M.I. accident play out on the real TV news, which interspersed live shots from Pennsylvania with eerily similar scenes from "The China Syndrome." While Fonda was firmly anti-nuke before making the film, Douglas wasn't so dogmatic. Now he was converted on the spot. "It was a religious awakening," he recalled in a recent phone interview. "I felt it was God's hand."

Fonda, meanwhile, became a full-fledged crusader. In a retrospective interview on the DVD edition of "The China Syndrome," she notes with satisfaction that the film helped persuade at least two other men -- the father of her then-husband, Tom Hayden, and her future husband, Ted Turner -- to turn anti-nuke. "I was ecstatic that it was extremely commercially successful," she said. "You know the expression 'We had legs'? We became a caterpillar after Three Mile Island."

The T.M.I. accident was, according to a 1979 President's Commission report, "initiated by mechanical malfunctions in the plant and made much worse by a combination of human errors." Although some radiation was released, there was no meltdown through to the other side of the Earth -- no "China syndrome" -- nor, in fact, did the T.M.I. accident produce any deaths, injuries or significant damage except to the plant itself.

What it did produce, stoked by "The China Syndrome," was a widespread panic. The nuclear industry, already foundering as a result of economic, regulatory and public pressures, halted plans for further expansion. And so, instead of becoming a nation with clean and cheap nuclear energy, as once seemed inevitable, the United States kept building power plants that burned coal and other fossil fuels. Today such plants account for 40 percent of the country's energy-related carbon-dioxide emissions. Anyone hunting for a global-warming villain can't help blaming those power plants -- and can't help wondering too about the unintended consequences of **Jane Fonda**.

But the big news is that nuclear power may be making a comeback in the United States. There are plans for more than two dozen new reactors on the drawing board and billions of dollars in potential federal loan guarantees. Has fear of a meltdown subsided, or has it merely been replaced by the fear of global warming?

The answer may lie in a 1916 doctoral dissertation by the legendary economist Frank Knight. He made a distinction between two key factors in decision making: risk and uncertainty. The cardinal difference, Knight declared, is that risk -- however great -- can be measured, whereas uncertainty cannot.

How do people weigh risk versus uncertainty? Consider a famous experiment that illustrates what is known as the Ellsberg Paradox. There are two urns. The first urn, you are told, contains 50 red balls and 50 black balls. The second one also contains 100 red and black balls, but the number of each color is unknown. If your task is to pick a red ball out of either urn, which urn do you choose?

Most people pick the first urn, which suggests that they prefer a measurable risk to an immeasurable uncertainty. (This condition is known to economists as ambiguity aversion.) Could it be that nuclear energy, risks and all, is now seen as preferable to the uncertainties of global warming?

France, which generates nearly 80 percent of its electricity by nuclear power, seems to think so. So do Belgium (56 percent), Sweden (47 percent) and more than a dozen other countries that generate at least one-fourth of their electricity by nuclear power. And who is the world's single largest producer of nuclear energy?

Improbably enough, that would be . . . the United States. Even though the development of new nuclear plants stalled by the early 1980s, the country's 104 reactors today produce nearly 20 percent of the electricity the nation consumes. This share has actually grown over the years along with our consumption, since nuclear technology has become more efficient. While the fixed costs of a new nuclear plant are higher than those of a coal or natural-gas plant, the energy is cheaper to create: Exelon, the largest nuclear company in the United States, claims to produce electricity at 1.3 cents per kilowatt-hour, compared with 2.2 cents for coal.

Nuclear enthusiasm may be on the rise, but it can always be dampened by mention of a single word: Chernobyl. The 1986 Ukrainian disaster killed at least a few dozen people directly and exposed millions more to radiation. A new study by the economists Douglas Almond, Lena Edlund and Marten Palme shows that as far away as Sweden, in areas where the wind carried Chernobyl fallout, babies who were in utero at the time later had significantly worse school outcomes than other Swedish children.

But coal, too, has its costs, even beyond the threat of global warming. In the United States, an average of 33 coal miners are killed each year. In China, more than 4,700 coal miners were killed last year alone -- a statistic that the Chinese government has trumpeted as a vast improvement.

The accident at Three Mile Island ruined one of the two reactors on the site. The other one, operated by Exelon, continues to quietly churn out electricity for 800,000 customers. Outside the plant's training center is a small vegetable garden enclosed in chain-link fencing: corn, tomatoes, beets. Its output is monitored to detect radiation. Although the garden was badly in need of watering during a recent visit, the vegetables were otherwise fine.

Inside, Christopher Crane, the chief operating officer of Exelon Generation, held forth on the barriers that the nuclear industry must clear before new plants can be built. Among them: the longstanding issue of how to dispose of spent fuel and whether the public has shaken its fear of new nuclear reactors. Crane sat in a conference room within the T.M.I. compound. The view outside was bleak: large, windowless buildings; fencing topped by razor wire; bulletproof sniper stands. Security at all nuclear plants has been heightened since 9/11. If you didn't know better, you would think you were looking at a maximum-security prison.

This similarity suggests an answer to Crane's point about public acceptance of new nuclear construction. There was a time when people didn't want new prisons built in their backyards -- until they decided that the risk was relatively low and that the rewards, in jobs and tax dollars, were substantial. Will nuclear plants ultimately get the same embrace? The market seems to think so -- Exelon stock has tripled in the past five years -- but it may all depend on what kind of thrillers Hollywood has in the pipeline.

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