



# Power Plant Decommissioning: Florida's Perspective

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Florida House of Representatives

# Crystal River III



# History

- CR3 began operation in 1977
- Cost = \$470 million
- During construction, a flaw was discovered in the upper dome of the reactor's concrete containment building.
- Steel reinforcement was added to the dome, but not to the walls.
- CR3 was deactivated in 1996 due to problems with back-up generators.
- Placed on the Nuclear Regulatory Commission's watch list of the 14 worst-run reactors in the U.S. (out of 109)

# Shutdown

- In 2009, CR3 was taken offline so that two of its steam generators could be upgraded.
- In an attempt to save \$15 million, the utility decided to perform the upgrades themselves.
- In the process, a containment wall was damaged.
- Efforts to fix the problem made it worse.
- Estimated cost of repair = \$3.4 billion.
- In 2013, Duke Energy announced that the plant would be permanently closed.
- CR3 was ultimately retired 27 years earlier than its natural lifespan.

# Cost to Ratepayers

- \$1.3 billion for repairs, operations, maintenance and construction
- \$450 million for uprates under Florida's Nuclear Cost Recovery statute
- As much as \$300 million per year for replacement fuel
- \$1.5 billion for a natural gas plant to replace generation lost from the closure of CR3



# Effect on the Community

- The metro area surrounding crystal river topped the nation in GDP loss in 2014.
- 400 plant workers lost their jobs.
- Duke Energy's tax bill dropped from \$35 million to \$13 million.
- 1/4 of the county's general fund
- Dire consequences for schools, safety and public services
- "Nuclear stigma"

# Price Paid by the Utility?

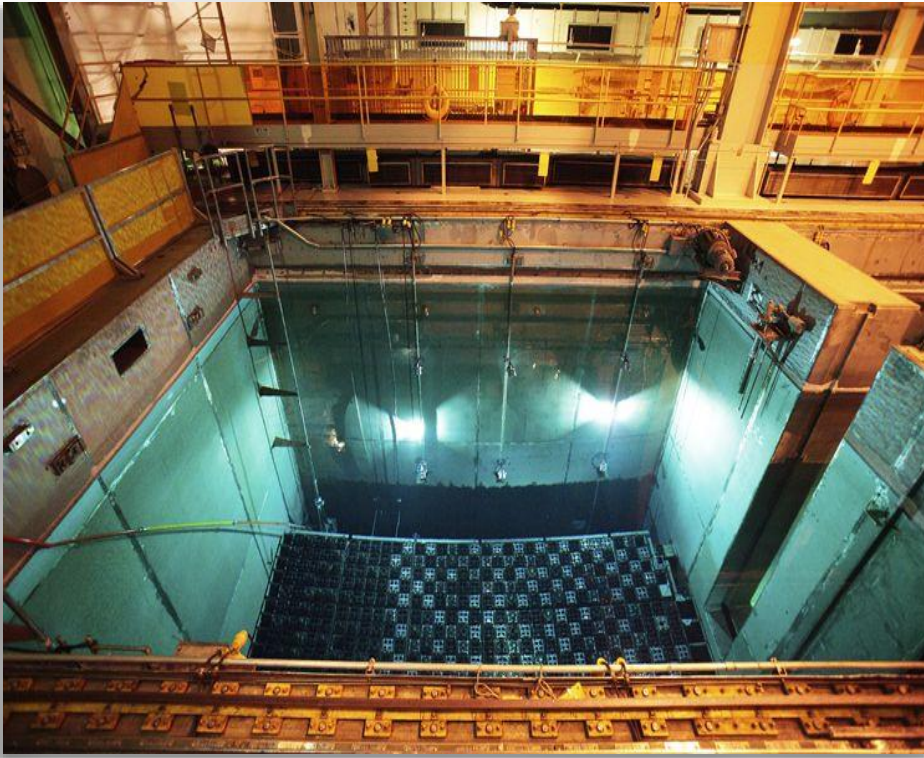
- Duke collected \$100 million from the original failed upgrades to the plant's steam generators.
- In addition, they were able to keep 7% from a subsequent \$100 million project to stabilize the broken containment wall.
- Granted by Florida's Public Service Commission



# Decommissioning



# Cost



- \$1.18 billion in 2013 dollars
- ~100 million for a dry cask fuel storage site
- Decommissioning fund = \$780 million

# SAFSTOR

- CR3 entered safe storage (SAFSTOR) in July of 2015.
- One of three decommissioning strategies (DECON, ETOMB)
- The process could take up to 60 years.
- Duke has estimated that the Decommissioning Trust Fund will grow over that time to cover the cost.

# Policy Recommendations

# Decommissioning Funds

- Require licensees to have adequate decommissioning funds upon closure.
- Prohibit funds from being used for purposes other than the cleanup of radiological contamination.
- Proactively monitor expenditures.
- Ensure that unexpended funds are released to ratepayers.

# Decommissioning Methods

- Replace the Post-Shutdown Decommissioning Activities Report (PSDAR) with the Decommissioning Plan.
- Require licensees to justify selection of SAFSTOR as a decommissioning strategy.
- Establish inspections and enforcement during the decommissioning process.
- Formalize a fourth method that combines aspects of DECON and SAFSTOR.

# Local and State Involvement

- Restore hearing rights of the public.
- Establish site-specific advisory boards that allow affected communities to participate in the process.
- Permit Agreement States to become involved in decommissioning.

# Manatees at Crystal River



**Questions?**