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PDII Tech Issues and Solutions
WRR 7 Nuclear Disaster, Chernobyl and Fukushima

1)

Describe one technical design flaw in the nuclear plant (Chernobyl or Fukushima) and one non-technical issue that contributed to the disaster.

One technical design flaw at Fukushima was the fact that the generators were unprotected, alongside the backup's switches, the failure of which would lead to a meltdown. One non-technical issue, is that everyone knew 18 years in advance that a tsunami sizeable enough to cause this was predicted to happen in 15 years and that the current design was far from sufficient to prevent a meltdown, yet nothing was done to save the plant from disaster in the inevitable event of a tsunami..

2)

Opinion- Do you agree with the Forbes article which states-"It Sounds Crazy, But Fukushima, Chernobyl, and Three Mile Island Show Why Nuclear Is Inherently Safe" and concludes that "nuclear power has always been, inherently, the safest way to power civilization."?

Mostly, yes. I wouldn't exactly credit these disasters as what proves that nuclear is so safe, they really only prove that things *can* go wrong, and possibly that they could theoretically go much worse at some point in the future. What proves the safety of nuclear is that we really only have these three "large" disasters to list, compared to say the fossile fuel industry, with far more occurrences of many more deaths that have come to go nearly unnoticed. The statistics prove it, when you look at deaths per TWh, nuclear is right at the bottom. Between it's immensely high energy density, it's controlled environment, and relative ease to run and include automatic safety features, it leads to far far fewer deaths than the collection and conversion of fossile fuels, and even beats most renewable options due simply to their construction and maintenance accidents. Not to mention the simple enviornemtal benefits over the other cheap option, fossil fuels, which should lead to slightly longer and better lifespans for everyone on earth, including future generations.

3)

Provide one example of the impact of the disaster on society (e.g., environmental impact, health and safety, perception of nuclear power).

The most clear long term impact these disasters have had is on the perception of nuclear. Many people around the world seriously fear the risk of nuclear meltdowns, while if you were to remove these three examples, maybe even just one or two of them, from history, that perception

wouldn’t exist, as nuclear has an otherwise very clean track record. If this were the case, we’d be living a different future. Fossile fuels would be much closer to being phased out, leading to permanent impacts on our worlds climate. This isn’t to say their enviornmental or health and safety impacts are insignificant though. It’s obviously shown itself to be quite uncommon, the track record does show that these disasters do happen, and they have the capability of taking many lives, all while being totally preventable, which must be solved for if we expect this technology to have a serious future.