Small Modular Reactors (SMRs)

Every Small Modular Reactor (SMR) is a Dirty Dangerous Distraction (DDD)

SMRs are really DDDs and should be called such. A DDD is a Dirty Dangerous Distraction. It is an acronym much more to the point than SMR.

Nuclear proponents are loath to even use the “N" in their chosen acronym (SMR) for Small Modular Nuclear Reactors (SMNRs) presumably because they want to hide the one aspect - the NUCLEAR aspect - that is the source of all the insuperable problems with these devices. The insidious linkages to nuclear waste and to nuclear weapons are precisely what set these machines apart. But the industry hopes that no one will notice if they leave out the N. ("Don’t say the N word.") It may sound silly or trivial, but it is not. It is deliberate.

SMRs (or SMNRs) are Dirty, Dangerous Distractions. They are DDDs. In fact they are DDDDs: Dirty, Dangerous Distractions that are also Damned Expensive.

They are DIRTY because they produce radioactive waste of all categories - low-level, intermediate-level, and high-level. Radioactive waste is by far the most deadly waste byproduct that any industry has ever created.

Every SMR is DANGEROUS because it is not just a machine for generating electricity, it is also a warehouse of radioactive poisons that can do tremendous damage for centuries to come if anything happens to disperse those poisons into the environment, such as an act of warfare (e.g. aerial bombardment) or sabotage, or a plane crash or a violent earthquake. Once released, these poisons will contaminate the food we eat, the water we drink, and the air we breathe, and the damage will last for generations.

Some SMRs - those that are called “fast” or “advanced” reactors, those that talk about “reusing” or “recycling” or “reprocessing” irradiated nuclear fuel - pose an even more serious existential danger. Such reactors are predicated upon the extraction of plutonium and other human-made elements that are heavier than uranium to extend the nuclear fuel supply. But plutonium is also the primary nuclear explosive in the world’s nuclear arsenals, and extracting it from irradiated fuel makes plutonium that much more accessible to militaristic regimes, as well as criminals and terrorists, thereby facilitating the proliferation of nuclear weapons. Nuclear weapons are the greatest human-made threat to the survival of human civilization (and most advanced forms of life on Earth).

SMNRs are also a DISTRACTION because they prevent us from dealing with climate change right now, rather than waiting 10 or 20 years to see if SMRs are even going to prove worthwhile. So much can and must be done now through prompt investments in energy efficiency and renewables, where benefits are enjoyed in just one or two building seasons, using technology that is already proven and inherently safe. Can anyone imagine a catastrophic situation arising from the failure of windmills or solar collectors? Energy efficiency and renewables can be implemented faster and cheaper than nuclear power, creating more jobs and providing more sustainability at the same time.

SMRs also distract us from realizing that we have no solution to the problem of radioactive waste – how to safely keep these radioactive poisons out of the environment of living things for millennia to come – and therefore we should stop creating them. As long as the industry distracts the decision-makers by dangling a charm bracelet of pie-in-the-sky miraculous "clean, safe, cheap nuclear reactors" (All those adjective being demonstrable false) our political representatives are prevented from focussing on the horrendous radioactive waste problems that we have already accumulated and are continuing to accumulate, that will constitute a radioactive legacy forever.

A timely analogy: although we have no cure for the coronavirus, we do have effective methods for limiting its spread and preventing the worsening of the pandemic. So too we have no way to eliminate or neutralize radioactive wastes or to render them harmless, but we do know how to stop producing them. We also know how to package them well and repackage them when necessary — as long as we don't abandon them, thereby putting these enormously dangerous materials beyond human control (as some people have abandoned their responsibility to control the spread of the coronavirus). So long as we don't keep multiplying the sources of radioactive waste (by building a whole new fleet of nuclear reactors called SMRs for example) we have a chance of addressing the radioactive waste legacy with some degree of responsibility and maturity.

Nuclear power is the ONLY technology that actually creates hundreds of new toxic elements, most of which were never found in nature prior to 1939. Those elements, once created, cannot be destroyed or rendered harmless. There is no non-nuclear method known to science - heat, pressure, combustion, chemical reactions, NOTHING - that can slow down or stop the rate of atomic disintegration, and those disintegrating atoms will give off the subatomic shrapnel that we call '"atomic radiation" at a predetermined rate defined by the so-called "half-life".

Every category of radioactive waste associated with the nuclear fuel chain (from uranium mining to reactor operation to decommissioning to waste management) has a significant number of radioactive poisons that will remain a hazard for hundreds of thousands of years. That is true of uranium tailings, of low and intermediate level wastes from reactor operations, of the thousands of truckloads of radioactive rubble from decommissioning a reactor, of the so-called "depleted uranium" stored in the back yards of uranium enrichment plants, and of the irradiated nuclear fuel itself.

Keeping radioactive waste out of the environment of living things for hundreds of thousands of years is an unsolved problem of the human race. We should not be adding to this dreadful radioactive legacy, or allowing our attention to be distracted away from dealing with the problem properly (i.e. as best we can!) without continually adding to it.

Gordon Edwards, October 21 2020