

# NUCLEAR ENERGY

## THE BETTER ENERGY

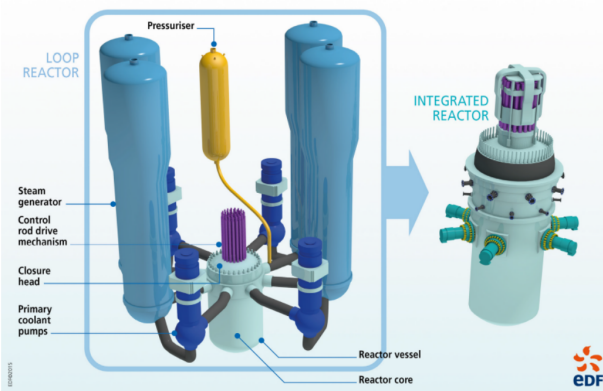
OCTOBER | NEWSLETTER | 2020

*Nuclear Energy - The Better Energy is an initiative to create awareness about the applications of peaceful Nuclear Energy. We proudly present our October newsletter.*

### NUCLEAR 101

Nuclear 101 is a section where we will bring to you some of the most basic concepts of Nuclear Physics explained in a non-specialist way

SMR: FROM LOOP REACTOR TO INTEGRATED REACTOR



A **Small Modular Reactor** is a type of fission reactor that is smaller than the conventional nuclear power plants in size as well as capacity (about 350 MWe). Their compactness enables them to be manufactured in factory conditions and transported to the site for installation, thus reducing the financial burden associated with the on-site construction. In addition to the ease of construction, these reactor designs are especially beneficial for providing electricity to remote locations or for powering a small industrial grid.

A typical SMR design involves compacting the current generation large scale nuclear reactor technology, with the option of including newer technologies to obtain an integrated reactor design (as demonstrated by the figure). The compactness associated with this integrated architecture favours the use of passive safety systems that do not require additional components. This gives the SMRs an edge over the large nuclear reactors by facilitating large-scale factory manufacturing, improving the quality of the assembly and reducing the amount of on-site work. Additionally, their smaller size allows for a reduced, faster and more efficient testing and maintenance facility.

Despite their advantages, the overall contribution of SMRs to the global market for newly-built nuclear projects of the period 2020-2035 depends on factors such as successful licensing of the designs, establishment of their factory production and the associated supply chain. Nevertheless, there is a tremendous potential for this technology to represent an alternative way forward for nuclear power development.

[Source: https://thebetterenergy.net/smr](https://thebetterenergy.net/smr)

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# Highlighted Articles

## ***Plutonium - A powerhouse of nuclear energy***



Written by our member, Sara Gilson, this article serves as the third installment of our Nuclear Fuel series and introduces the power of Plutonium.

Of all the actinide elements, plutonium is among the most controversial and chemically complex. It is the fuel of nuclear energy and nuclear weapons. Trace amounts of plutonium are present in nature, such as in uranium mines, but virtually all plutonium in the world today is produced synthetically as a byproduct of the fission process in nuclear reactors. Read to learn more about this powerhouse.

**[READ FULL ARTICLE HERE: \[HTTPS://THEBETTERENERGY.NET/PLUTONIUM\]\(https://thebetterenergy.net/plutonium\)](https://thebetterenergy.net/plutonium)**

## ***Nuclear Radiation Technology for Ensuring Food Safety, Security and Quality***

Written by Aditya Chincholkar, this article brings to light the various applications of nuclear radiation technology in the food sector. The food production in the world is enough to feed everyone on the planet yet 821 million people are hungry every day. So where are we going wrong? We lose between 33 – 50 % of all food produced globally i.e. approximately 1.3 billion tons of food lost or wasted every year, and the value of this wasted food is roughly about \$1 trillion. Read to find out where Nuclear technology can step in and help us resolve this food crises.



**[READ FULL ARTICLE HERE: \[HTTPS://THEBETTERENERGY.NET/FOOD-SAFETY\]\(https://thebetterenergy.net/food-safety\)](https://thebetterenergy.net/food-safety)**

## **DID YOU KNOW?**

A typical banana contains about 0.5 gram of Potassium amounting to an activity of about 15 Becquerel and a corresponding radiation dose of about 0.01 mrem. If you have lived near a Nuclear power plant for a year, you have only received as much radiation as from eating at most 100 bananas; low enough for your body to take care of it naturally.



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