**Georges SAPY**

# Nuclear Power reduced to 50 %: Less Security, More $CO_2$

A Short Presentation

The planned decommissioning of 14 reactors by 2035 so as to reduce to 50 % the share of nuclear power has been presented as a necessary diversification, in order to "*not put all the eggs in the same basket*" and to better secure the country's supply. In truth, the result will be the exact opposite. Indeed, perfectly "dispatchable" production units, i.e. units capable of producing according to demand, will be replaced by wind turbines and photovoltaic panels whose production is contingent on the amount of wind or sun and is in no way related to the demand... Photovoltaic production is nonexistent at night and wind is statistically nonexistent 36 days per year on average; thus, there will be some ten long winter nights, a time of high demand, when the wind + photovoltaic fleet production will be close to zero, regardless of the installed capacity. Result: the certain effect of decommissioning 14 reactors will be to deprive the country of some 10 GW capacity several times each winter! A considerable loss, 6 times larger than the supply security margin on the grid!

Moreover, when neither wind nor photovoltaic will produce enough electricity, and this will happen frequently throughout the year, the nuclear capacity shorn of 14 reactors will no longer be able to counterbalance this deficit. It will then be necessary to resort to fossil gas-based units, the only fuel at the right scale, "green" gases - biomethane, hydrogen, or synthetic methane - being still far removed from industrial production. Result: the certain effect of decommissioning 14 reactors will be to increase the country's $CO_2$ emissions. Totally inconsistent with the stated carbon neutrality goal by 2050!

In short, to replace non-$CO_2$ emitting units that produce according to demand with non-$CO_2$ emitting units that produce off and on depending on the weather, is to inflict a twofold penalty to our country: deteriorate security of supply and increase $CO_2$ emissions. And, additionally, increase the electricity cost.

Deteriorated security of supply, rising $CO_2$ emissions, increased costs, is that really what is sought after?

*Link to Georges SAPY's study note*: *Nuclear Power reduced to 50 %: Less Security, More $CO_2$*

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