RE: Snowmass2021, “we never intended for LoI to be essential”
FROM: Dr. A. Krasnykh, SLAC National Accelerator Lab, Menlo Park, CA
SUBJECT: to bring attention for a development of the high RF power multipactor free abortion layer

High energy linac is an essential part of many scientific studies. The high accelerating gradient structures and accordingly the high the RF power sources are traditional subjects for further their developments.
For TW Cu accelerating structures, the high-power vacuum dry loads are needed to absorb stably the residual RF power. There are a challenge to develop the multipactor free high power dry load. For example, no one RF load in our SLAC Cu linac work stably in the present RF linac setup. There is an evidence of the RF load problem in the Pohang linac too. There is a tendency to employ the linacs with the beam energy equal to the energy of synchrotron light sources instead of the usage of boosters (a lattice with multi bend achromat upgrades requires a low emittance and as result the whole energy linacs is needed where TW structures with SLED are a cost effective way for the injectors and again the high-power RF loads is wanted). This tendency is a second example where the high-power vacuum dry RF load is needed. A development of the high RF power absorbing layers is bounded with the development of RF system and sources and should be in LoI from my point of view.