Can real power input be supplemented with reactive power output derived from the chemical bonds which hold the atoms (of a circuit) together up to the limit of their tolerance before disintegration takes place?

Covalent bonds can be stretched without breaking. If you have an insulator made of zwitterions then a capacitor using this insulator between its plates could store some energy in the covalent bonds internal to each ion.
related:
Zwitterion - Wikipedia

https://en.wikipedia.org/wiki/Zwitterion

Electrical resonance - Wikipedia

https://en.wikipedia.org/wiki/Electrical_resonance

> Resonant circuits exhibit ringing and **can generate higher voltages or currents than are fed into them**. They are widely used in wireless (radio) transmission for both transmission and reception.

…edit
Such a capacitor would likely heat up quickly so thermal stability and temperature control become important issues.
Dielectric spectroscopy - Wikipedia

https://en.wikipedia.org/wiki/Dielectric_spectroscopy#Dipole_relaxation

Perhaps the zwitterion microcrystals could be embedded in a polymer matrix. Chemical environment makes a big difference.