We will try to find the relative difference between two powers, P_C - the highest input power at which the earth will freeze over, and P_H - the lowest input power at which the earth will be completely covered in water.

To do this, we must first make a few assumptions:

-The earth consists only of ice or water.

-At temperature $T = 0^oC$ (or below), the earth is completely covered in ice.

-At temperature $T = 20^oC$ (or above), the earth is completely filled in water.

-Ice reflects 70% of all radiation it is exposed to.

-Water reflects 10% of all radiation it is exposed to.

-Due to a greenhouse effect, 50% of all radiation reflected is re-absorbed.

-Let P denote the total power coming into the earth.

-The earth's radius is $40,000km$

Now, let's define $P_a(T)$ - the Power Absorbed by the earth (as a function of temperature, since temperature affects the composition of earth). We know P is the total power coming, and that- depending on the composition of the earth- a certain part is reflected outward, let's call this $P_r(T)$. Furthermore, 50% of the amount reflected is re-absorbed.

So $P_a(T) = P - P_r(T) + .5 * P_r(T) = P - .5 * P_r(T)$

We know $P_r(T) = .7 * P$ for $T \leq 0$, as the earth will be entirely composed of ice at these temperatures. And for $T \geq 20$, $P_r(T) = .1 * P$, as the earth will be entirely composed of water at these temperatures.

Let's assume that $P_r(T)$ in between these regions is linear. This makes physical sense as the earth will be a mix of ice and water. Furthermore, $P_r(T)$ should be decreasing in this region.