

To calculate our APR, first we start with the following basic formula:

$$\%DPR = \frac{\$PARTY_{out} - \$PARTY_{in}}{\$PARTY_{in}} * 100\% \quad (1)$$

where:

$\%DPR$: Daily percentage return

$\$PARTY_{in}$: $\$PARTY$ we inject to Jacuzzi

$\$PARTY_{out}$: $\$PARTY$ we would receive if we unpooled next day without taking into account the PHP

then we define our $\$Party_{out}$ as:

$$\$PARTY_{out} = xPARTY_{received} * \left(\frac{\$PARTY_{jacuzzi} + \$PARTY_{injected\ daily}}{xPARTY_{total\ supply}} \right) \quad (2)$$

where:

$xPARTY_{received}$: $xPARTY$ we will receive after injecting $\$PARTY$ to Jacuzzi

$xPARTY_{total\ supply}$: $xPARTY$ total supply

$\$PARTY_{jacuzzi}$: Total amount of $\$PARTY$ injected by all users to Jacuzzi

$\$PARTY_{injected\ daily}$: $\$PARTY$ injected to the Jacuzzi daily by the team

and we define $xPARTY_{received}$ as:

$$xPARTY_{received} = \$PARTY_{in} * \left(\frac{xPARTY_{total\ supply}}{\$PARTY_{jacuzzi}} \right) \quad (3)$$

If we use value of (3) in (2) we get:

$$\$PARTY_{out} = \$PARTY_{in} * \left(\frac{xPARTY_{total\ supply}}{\$PARTY_{jacuzzi}} \right) * \left(\frac{\$PARTY_{jacuzzi} + \$PARTY_{injected\ daily}}{xPARTY_{total\ supply}} \right)$$

$$\$PARTY_{out} = \$PARTY_{in} * \left(\frac{\$PARTY_{jacuzzi} + \$PARTY_{injected\ daily}}{\$PARTY_{jacuzzi}} \right) \quad (4)$$

Now again if we use (4) in (1), factorize and operate we get:

$$\%DPR = \left(\frac{\$PARTY_{jacuzzi} + \$PARTY_{injected\ daily}}{\$PARTY_{jacuzzi}} - 1 \right) * 100\%$$

$$\%DPR = \frac{\$PARTY_{injected\ daily}}{\$PARTY_{jacuzzi}} * 100\% \quad (5)$$

and our $\$PARTY_{injected\ daily}$ is defined as:

$$\$PARTY_{injected\ daily} = \frac{32900}{2^{Halving\ cycles\ passed}} \quad (6)$$

where:

$Halving\ cycles\ passed$: The number of halving cycles passed since the start of the Jacuzzi

and the *Halving cycles passed* are defined as:

$$\text{Halving cycles passed} = \lfloor \text{Halving cycles passed before start of year} + (\text{days passed in the year}) / 182.5 \rfloor$$

(7)

Finally, to get our %APR we take days passed in the year as a variable and make a summation from 1 to 365 as follows:

$$\%APR = \sum_1^{365} \%DPR = \sum_1^{365} \left(\frac{32900}{\$PARTY_{jacuzzi} * 2^{\lfloor \text{Halving cycles passed before start of year} + i / 182.5 \rfloor}} \right) * 100 \%$$