Příklad 3 - pokračování

b) fázové proudy (ve fázích spotřebiče zapojeného do Δ)

$$\bar{I}_{UV} = \frac{\bar{U}_{UV}}{\bar{Z}_U} = \frac{400\angle 30°}{100\angle -90°} = \underline{\underline{4\angle 120°\ A}}$$

$$\bar{I}_{VW} = \frac{\bar{U}_{VW}}{\bar{Z}_V} = \frac{400\angle -90°}{100} = \underline{\underline{4\angle -90°\ A}}$$

$$\bar{I}_{WU} = \frac{\bar{U}_{WU}}{\bar{Z}_W} = \frac{400\angle 150°}{100\angle 90°} = \underline{\underline{4\angle 60°\ A}}$$

síťové proudy (ve fázových vodičích)

$$\bar{I}_U = \bar{I}_{UV} - \bar{I}_{WU} = 4\angle 120° - 4\angle 60° = 4\left(-\tfrac{1}{2} + \tfrac{\sqrt{3}}{2}j\right) - 4\left(\tfrac{1}{2} + \tfrac{\sqrt{3}}{2}j\right) = 4\left(-\tfrac{1}{2} + \tfrac{\sqrt{3}}{2}j - \tfrac{1}{2} - \tfrac{\sqrt{3}}{2}j\right) =$$

$$= 4\cdot(-1) = -4 = \underline{\underline{4\angle 180°\ A}}$$

$$\bar{I}_V = \bar{I}_{VW} - \bar{I}_{UV} = 4\angle -90° - 4\angle 120° = -4j - 4\left(-\tfrac{1}{2} + \tfrac{\sqrt{3}}{2}j\right) = -4j + 2 - 2\sqrt{3}j =$$

$$= 2 - j2(2+\sqrt{3}) = \underline{\underline{7{,}68\angle -75°\ A}}$$

$$\bar{I}_W = \bar{I}_{WU} - \bar{I}_{VW} = 4\angle 60° - 4\angle -90° = 4\left(\tfrac{1}{2} + \tfrac{\sqrt{3}}{2}j\right) - (-4j) = 4\cdot\tfrac{1}{2} + 2\sqrt{3}j + 4j =$$

$$= 2 + j2(\sqrt{3}+2) = \underline{\underline{7{,}68\angle 75°\ A}}$$

1. Kirchhoffův zákon pro uzel 0 (střed Y): $\bar{I}_U + \bar{I}_V + \bar{I}_W = 0$

$$-4 + 2 - j2(2+\sqrt{3}) + 2 + j2(2+\sqrt{3}) = -4+2+2 = \underline{\underline{0}}$$

Fázorový diagram: