The flow index and strongly connected orientations

We prove that, for any natural number $p$, the flow index $\phi(G) < 2 + \frac{1}{p}$ if and only if $G$ has a strongly connected modulo $(2p + 1)$-orientation. For the case $p = 1$ we prove that the flow index of every 8-edge-connected graph is strictly less than 3.