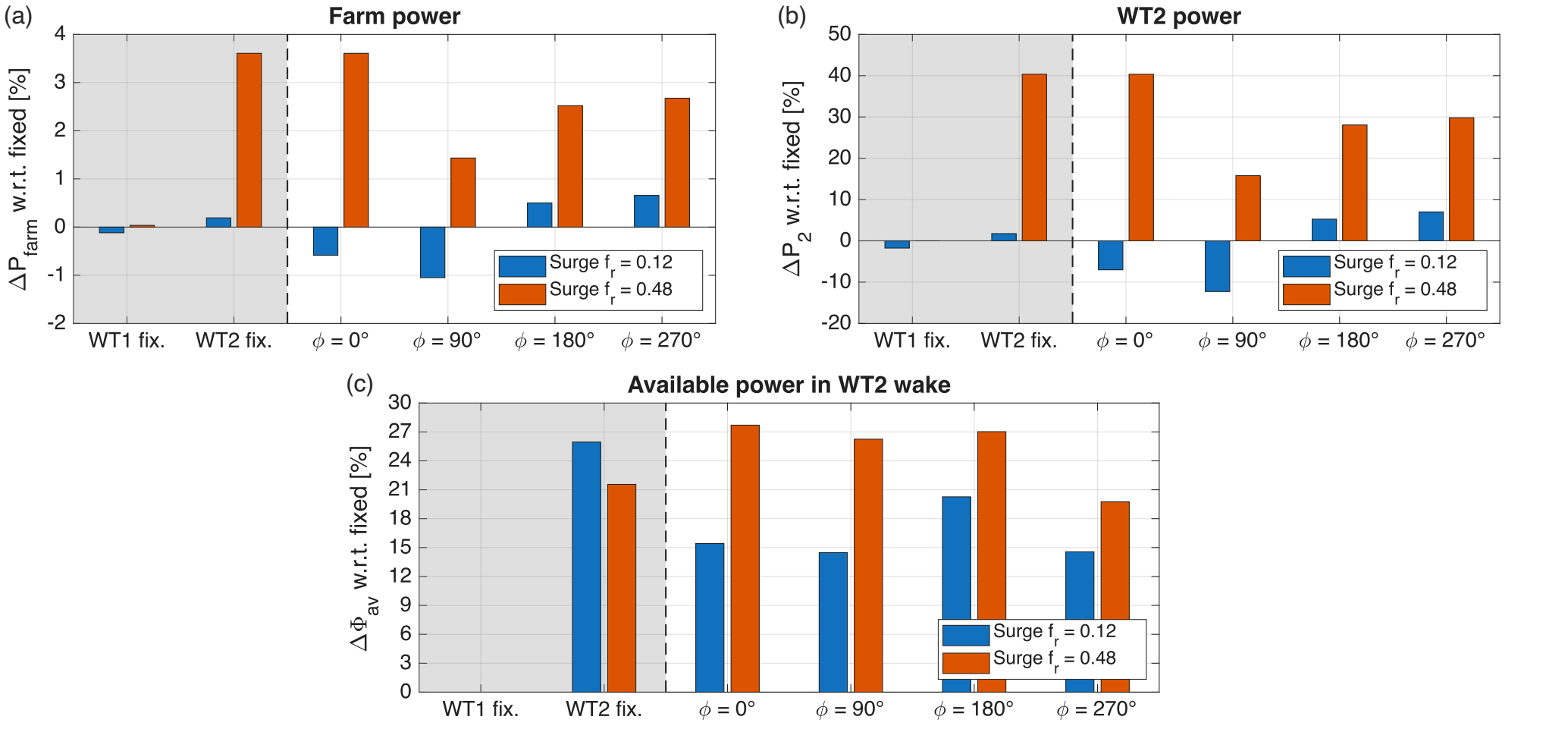

(a)
Farm power
ΔP_{farm} w.r.t. fixed [%]
4
3
2
1
0
-1
-2
WT1 fix.
WT2 fix.
ϕ = 0°
ϕ = 90°
ϕ = 180°
ϕ = 270°
Surge f_r = 0.12
Surge f_r = 0.48
(b)
WT2 power
ΔP_2 w.r.t. fixed [%]
50
40
30
20
10
0
-10
-20
WT1 fix.
WT2 fix.
ϕ = 0°
ϕ = 90°
ϕ = 180°
ϕ = 270°
Surge f_r = 0.12
Surge f_r = 0.48
(c)
Available power in WT2 wake
$\Delta \Phi_{av}$ w.r.t. fixed [%]
30
27
24
21
18
15
12
9
6
3
0
WT1 fix.
WT2 fix.
ϕ = 0°
ϕ = 90°
ϕ = 180°
ϕ = 270°
Surge f_r = 0.12
Surge f_r = 0.48