Consider the classical knapsack problem program with the following parameters.

$$n = 2$$
$$c = 9$$
$$\mathbf{w} = \begin{bmatrix} 3 & 10 \end{bmatrix}^T$$
$$\mathbf{p} = \begin{bmatrix} 2 & 20 \end{bmatrix}^T$$

. The solution to this model, which we verify with gurobi is

$$\mathbf{x}^* = [0, 0.9].$$

Obviously $C = \{2\}$ is a cover (since $w_2 > c$), and the corresponding cover inequality if $x_2 \leq 0$. Which x_2^* violates.