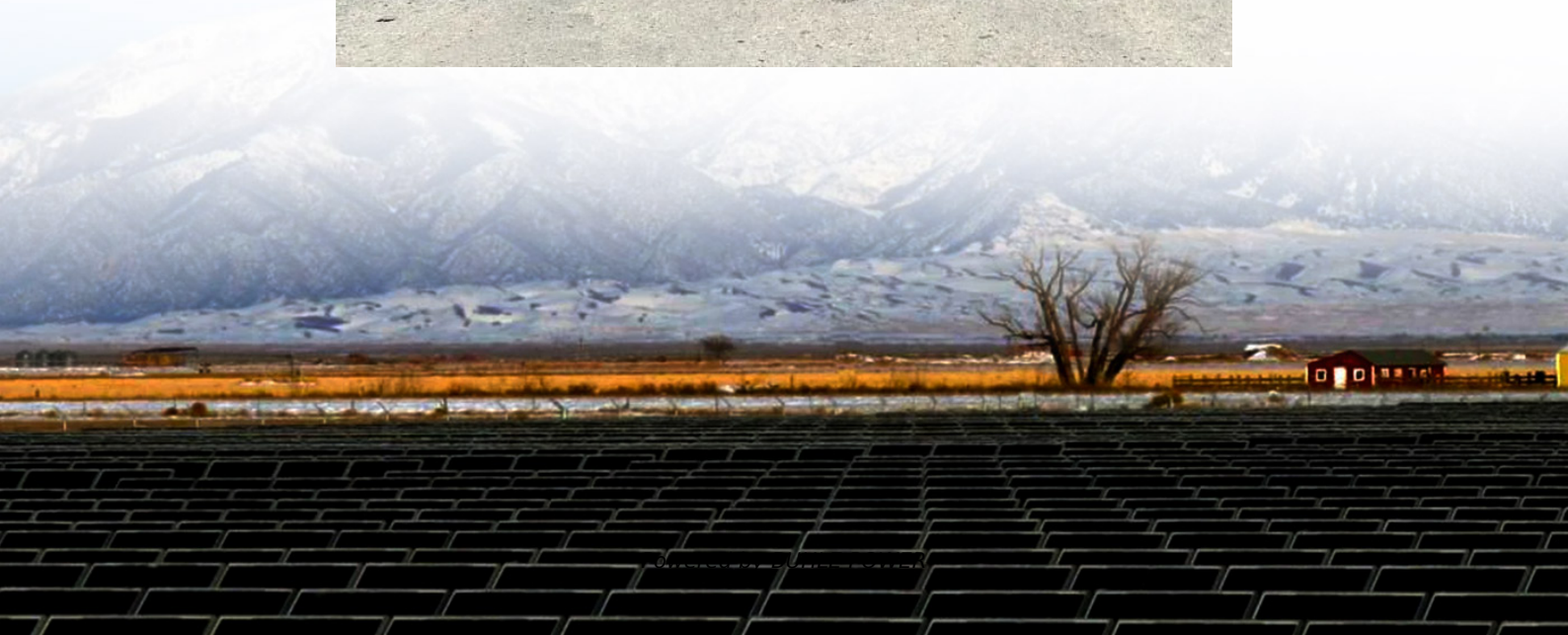


# **Fully automatic power private network base station design**





## Overview

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How to reduce power-intensive base stations?

To address the issue of power-intensive base stations, proposed a combined approach involving base station sleep and spectrum allocation. This approach aims to discover the most efficient operating state and spectrum allocation for SBS to minimize power consumption and network disturbance.

Does the proposed method have more active base stations?

The results show that the proposed method has more active base stations than the method in in all the scenarios, because this paper proposes a solution to ensures the minimum data rate for a larger number of users, resulting in a reduced number of base stations that need to be shut down.

Are base station sleep and power allocation related?

Each SBS  $n$  is considered an agent, and each agent can make decisions based on the surrounding environment to get the reward value for the next round of exploration. In this paper, the base station sleep and power allocation are two closely related mechanisms that jointly optimize the resource management of SBSs through DQN.

How does distributed execution affect base station control?

In the distributed execution phase, each actor network makes decisions independently based only on its own network and observations, and although each actor executes independently, the whole system is able to obtain a better base station control strategy because their strategies are based on the results of global optimization. Fig. 2.



## Fully automatic power private network base station design

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