

Connect 2 Evolve- LastWatt

Smart routing of energy based on community voting

The challenge: To maximize the production output from the limited amount of electricity produced from the container



What do we know?



Capacity of the
Solartrainer

22kWp

Number of connections

400

Household users

320

Businesses

70

Priority Users

10

Average consumption
per household

200kWh/Year

Unknowns

- Businesses
 - Profile of business
 - Energy requirements
 - Seasonal requirements

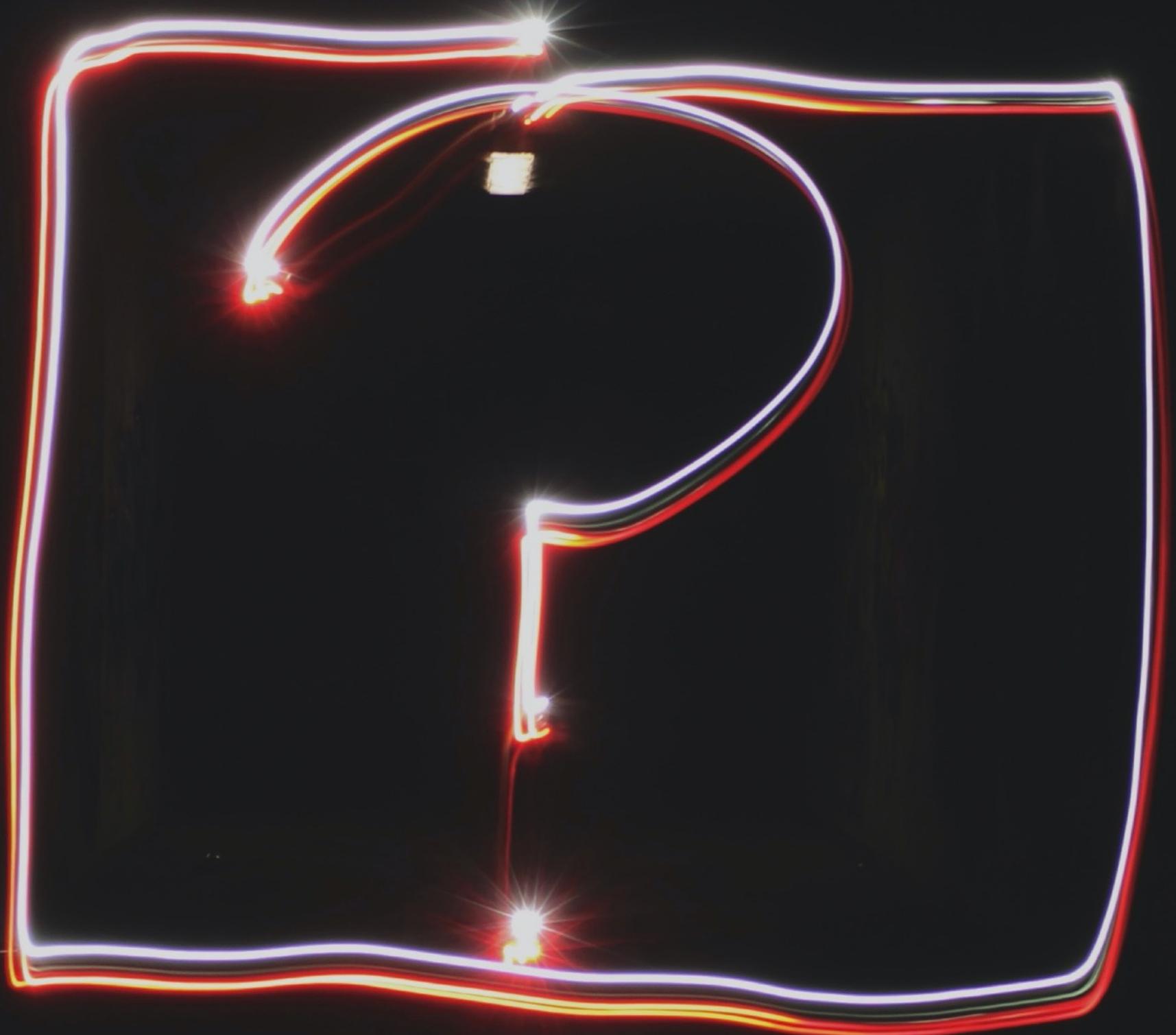
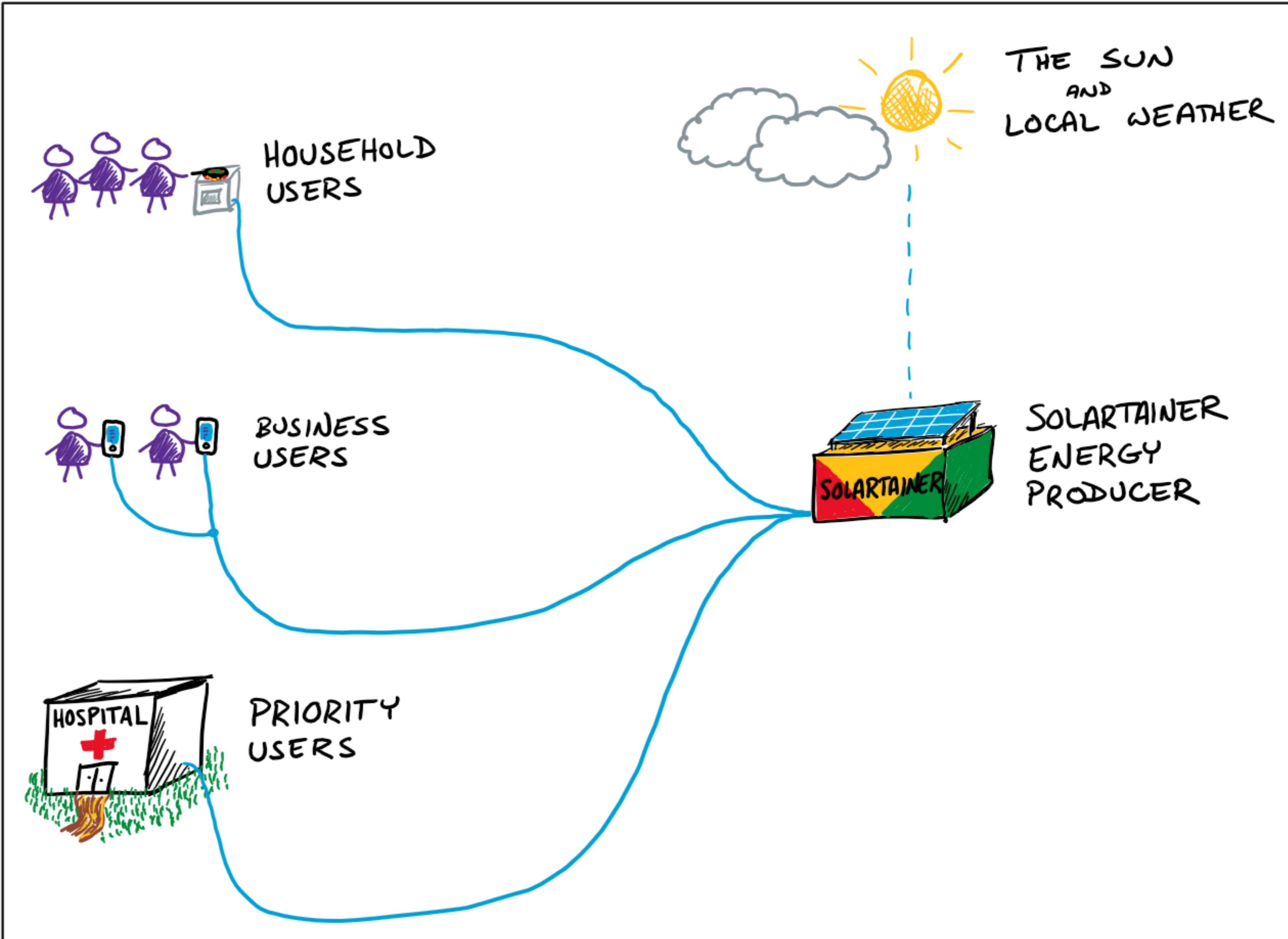


Photo by [Emily Morter](#) on [Unsplash](#)

ENERGY LAYER



Assumptions/Starting point

- Not all businesses need electricity during the whole year
- Their energy requirements may change on a seasonal basis
- Community has the knowledge to decide on the importance of a business at any given time
- Each household in the village has the staking power
- In our case: We have 320 stakers and 70 businesses



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The system design task

The task is to choose the subset of I efficient business from the set of N overall businesses (or I from N).

*the “efficiency” of business is, of course, a very subjective indicator; we model it in the range of $[-10; +10]$, where -10 is “super bad”(unnecessary/comfort) and $+10$ is “super good”(Necessary) for the community.

If every i -th business gets energy supply E_i and produce a result for community R_i , then the aim of our system is to maximize total R for given E for each round (step of modeling):

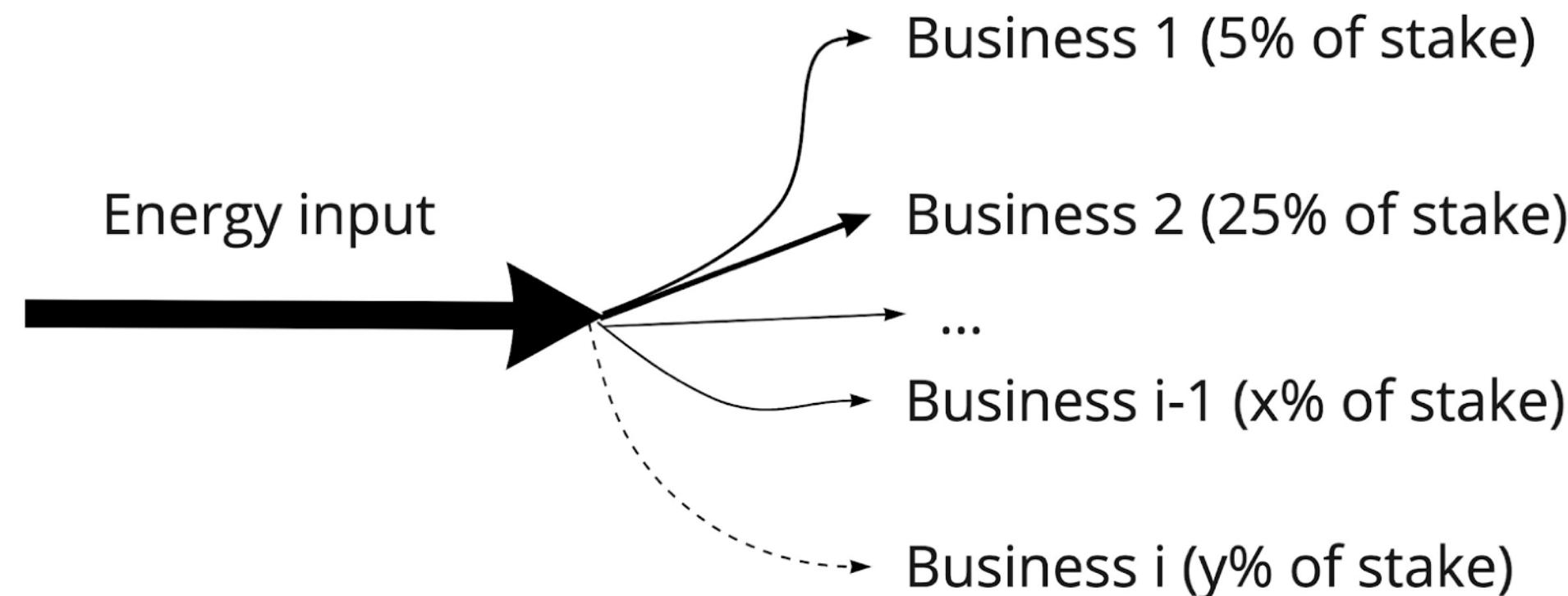
For $E_i \sum (R_i) \rightarrow \text{Max}$

Our solution

We modeled it on the basis of the Livepeer dPoS staking model.

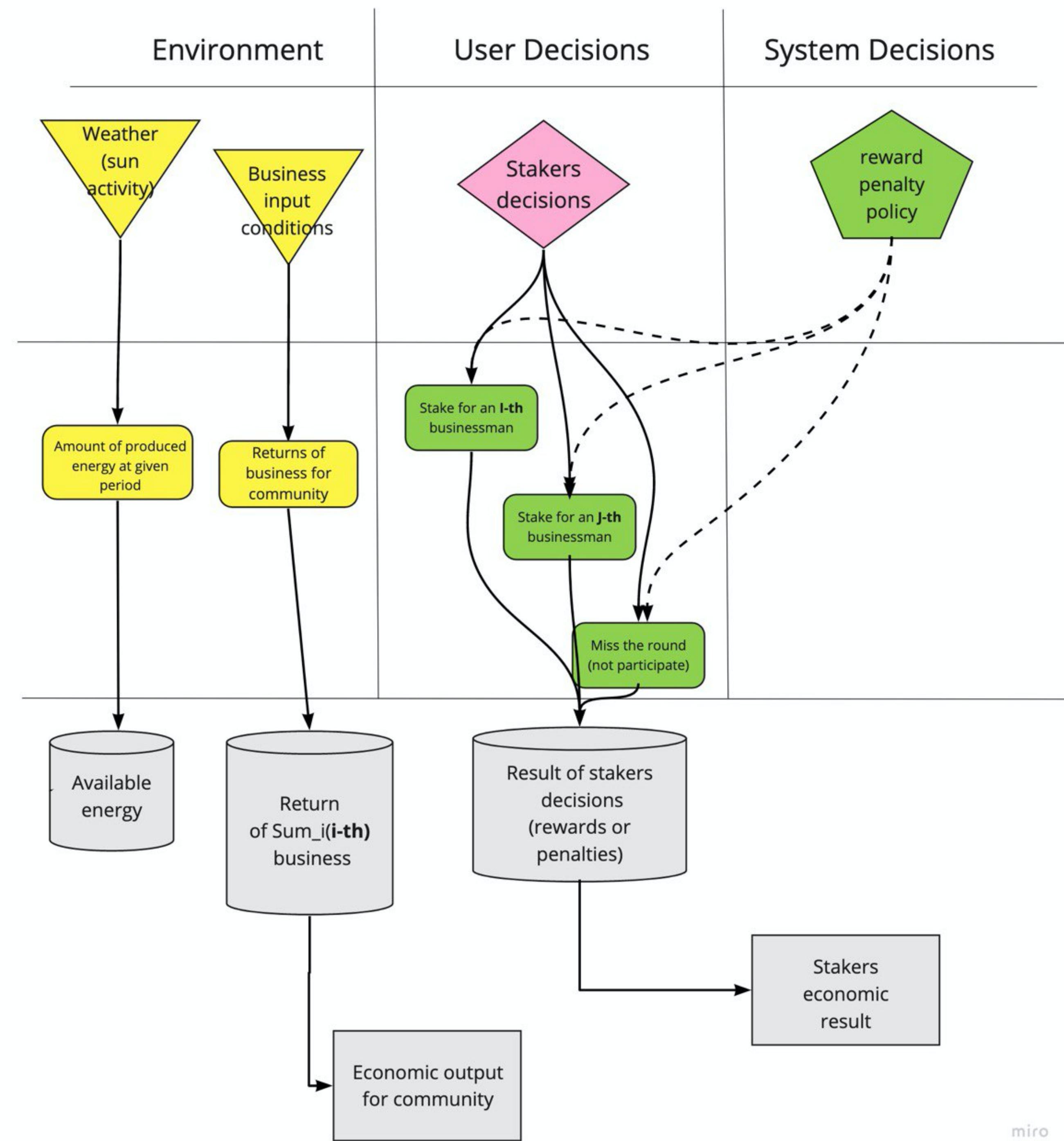
Each of the households (there are 320 of them) get 1 token and can use this token for staking on behalf of one business (of course, it is a great simplification, our future work is to add the possibility to stake on behalf of multiple businesses).

So, each step of simulation (or round) stakers make their choice by placing stakes for. So, for example, one business gets 5% of stakes, the other one 1% of stakes, etc. Each business gets share of electricity according to the stake:



**Energy distribution based on community decision
is incentivized by economic triggers**

[See the diagram on the next slide]



Future work

- Make the proper modeling in the cadCAD
- Define individual entities (businesses) with the characteristics- e.g., consumption patterns etc
- Integrate demand growth patterns- e.g., increase in community size, new business formation etc
- Add more complexity to a cryptoeconomic design (stake for multiple businesses etc)