



# Solarity: Solar Clarity for Swiss Households

[www.github.com/e-bug/solarity](https://www.github.com/e-bug/solarity)

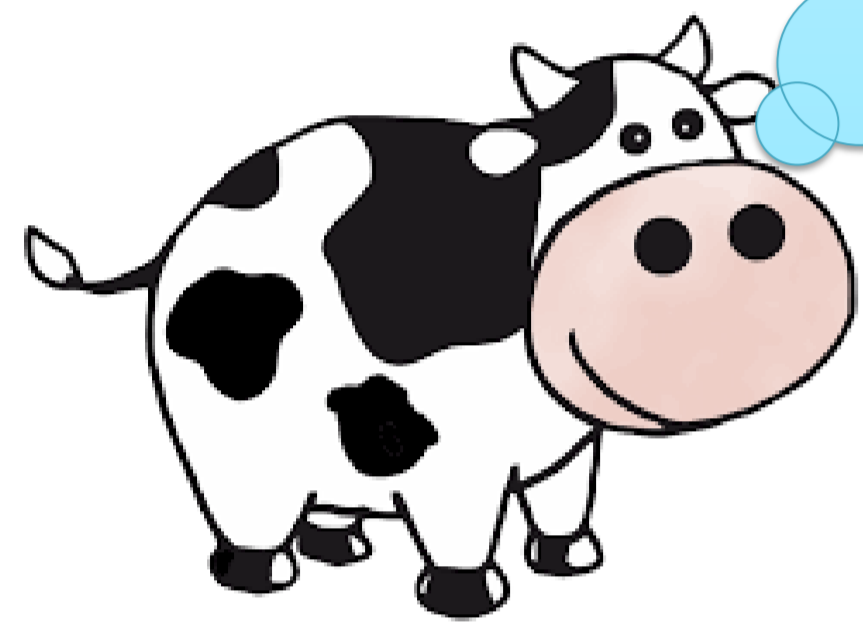


## What's on Heidi's Mind?

Switzerland 2035  
30-40% solar generation



Go Green!



- How many solar panels do I need?
- How much does it cost?
- How much do I save?
- When do I break even?

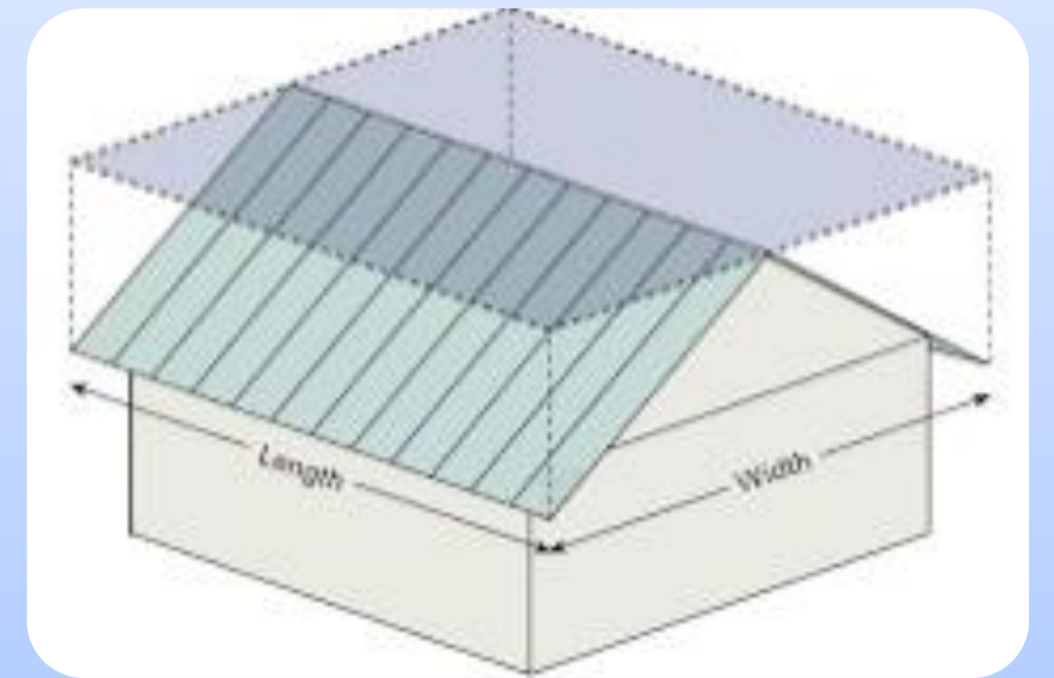
## Heidi's Input



Home Address



Monthly Electricity Bill



Approximate Roof Area



## Solarity: Under the Hood

### Data Acquisition

- Solar Irradiance (W/m<sup>2</sup>)
- Temperature (°C)
- Wind Speed (m/s)
- During 2000-2016
- From 200 weather stations
- ⚠ No API: Developed web-scraper



Data for EPFL  
Jan-July 2016

### Solar production at EPFL in Jan-July 2016 (W)

- Obtained through measurement campaign



### Electricity and Solar tariffs (CHF)

- From Utilities and Vendors



### Data Wrangling

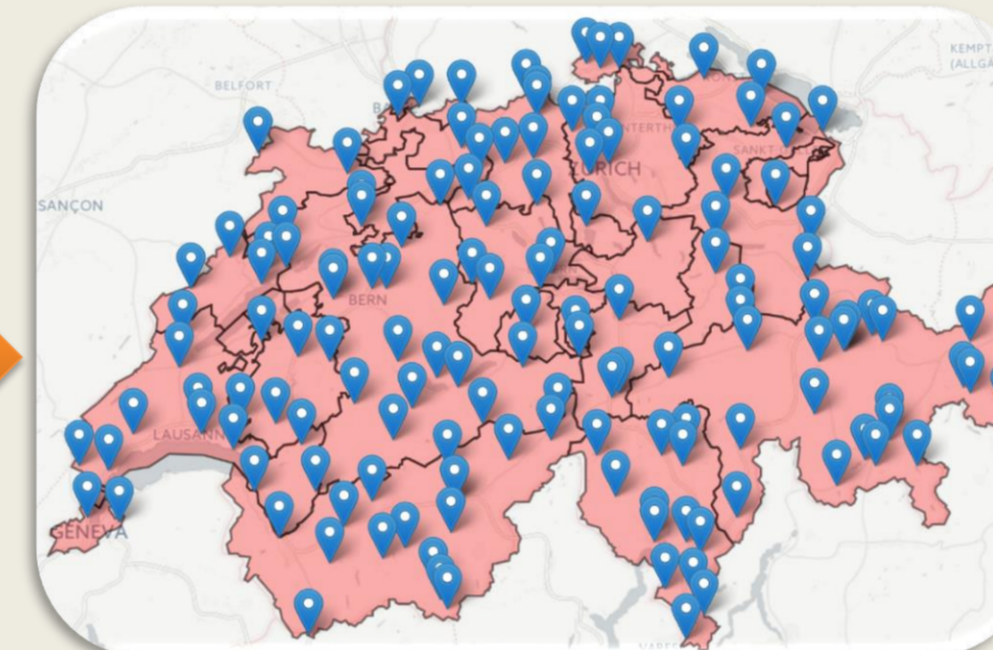
Stations-wise data

Regression Training

Features to Solar Potential

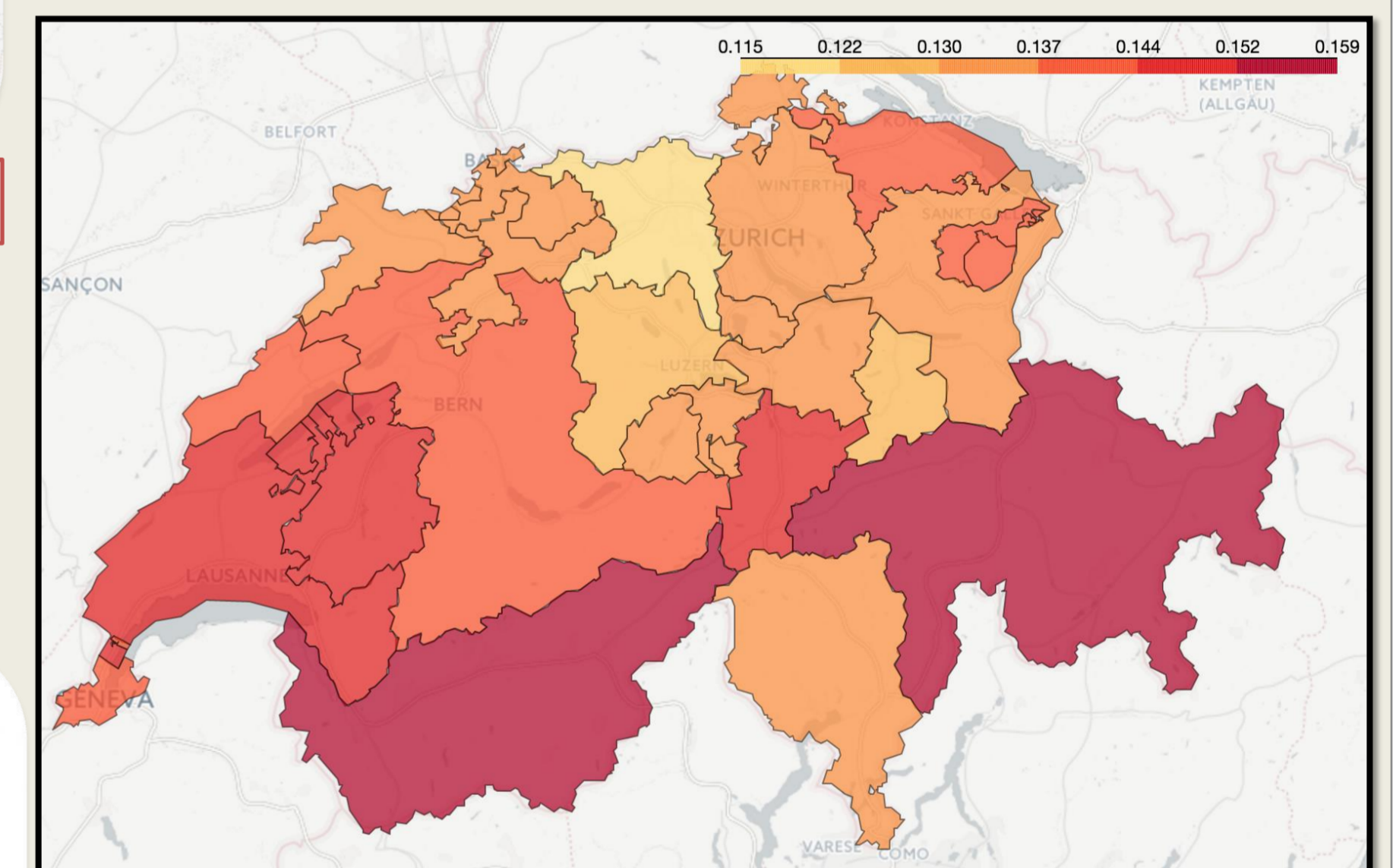


### Data Interpretation



Locations of Weather Stations

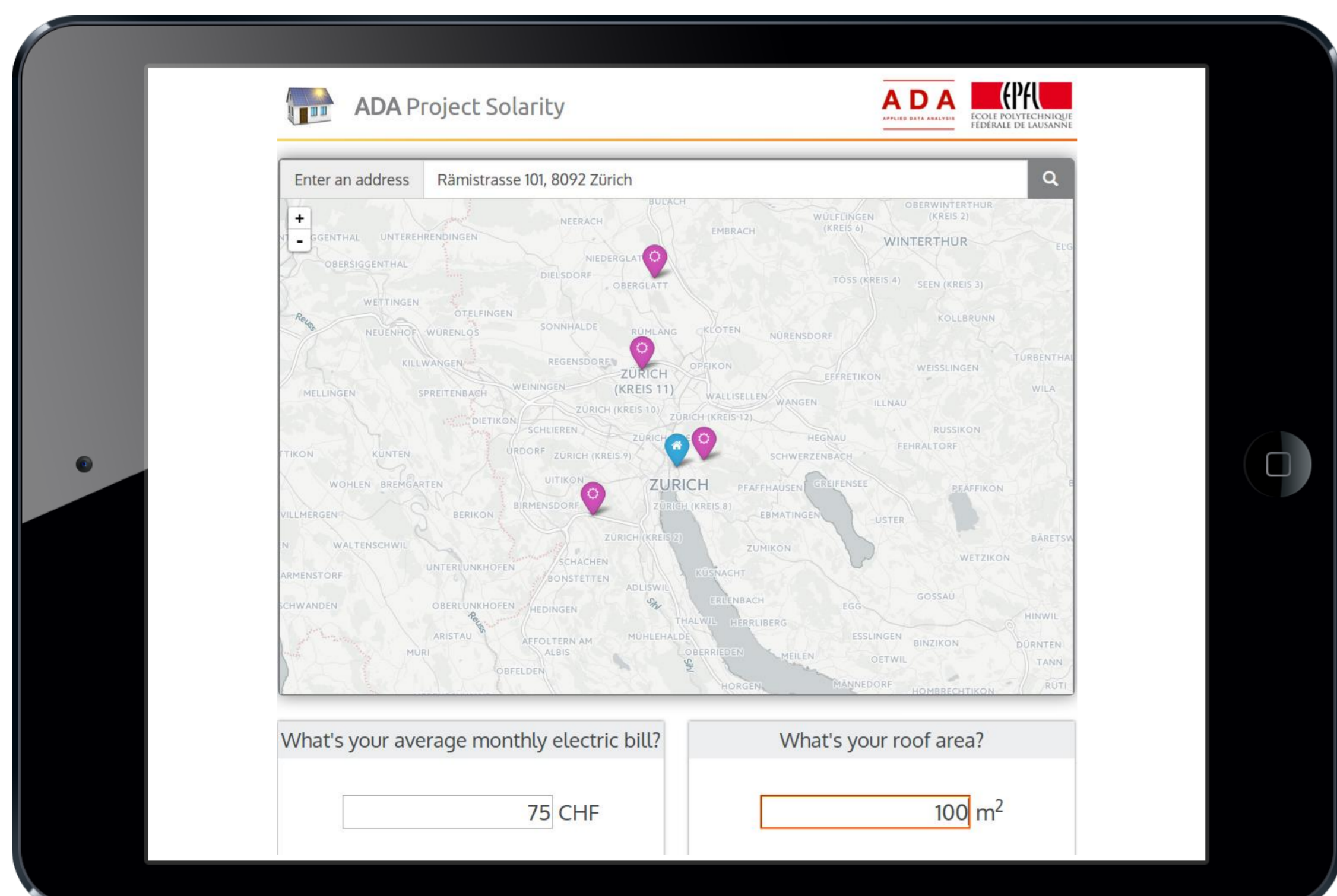
Stations' Locations  
Stations' Features



Mean predicted Solar Potential per canton

Predict Solar Potential (kW/m<sup>2</sup>)

## Visualization



Initial Investment	1525 CHF
Total Earnings (25 yrs)	4724 CHF
Total Savings (25 yrs)	3199 CHF

**8**  
Years until Payback