ENERGY DATA HACKDAYS

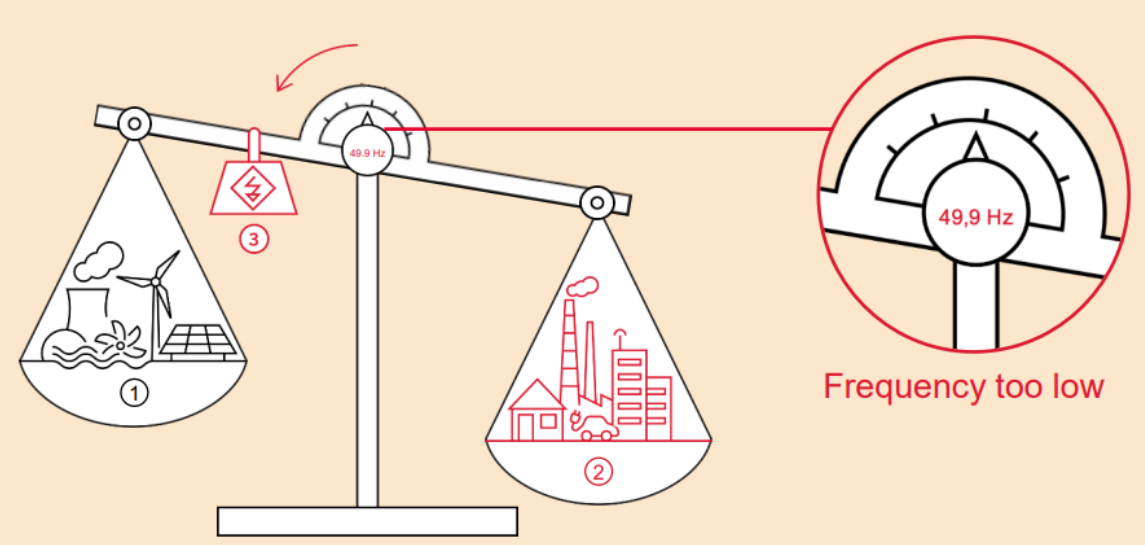
5 - How Can Energy Transition Impact Switzerland's Imbalance Evolution?

HE VD IG

ENERGY TRANSITION

5 - How Can Energy Transition Impact Switzerland's Imbalance Evolution?

Context:



① Generators / power plants
② Consumers: private households and industry
③ Control energy

Hypothesis:

- More intermittent renewables
  - Solar PV
- More electrification
  - More heat pumps
  - More electric vehicles
  - Higher electricity consumption

→ Results into more uncertainty

→ Results into more imbalance?

Ref: Swissgrid

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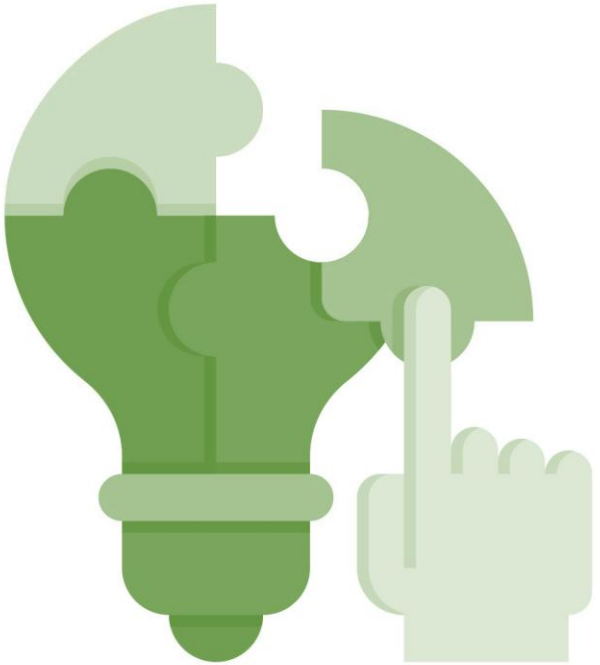
Solution:

- Create a machine learning model to test the hypothesis
- Predict the imbalance volume in the future for 3 scenarios (Best, Normal, Worst)



Political relevance:

- Energy transition can impact negatively the security of the grid?
- To what extent the impact is considerable?

Scientific questions:

- How far in advance the prediction result is good enough?
- For which time horizon is the prediction good enough?

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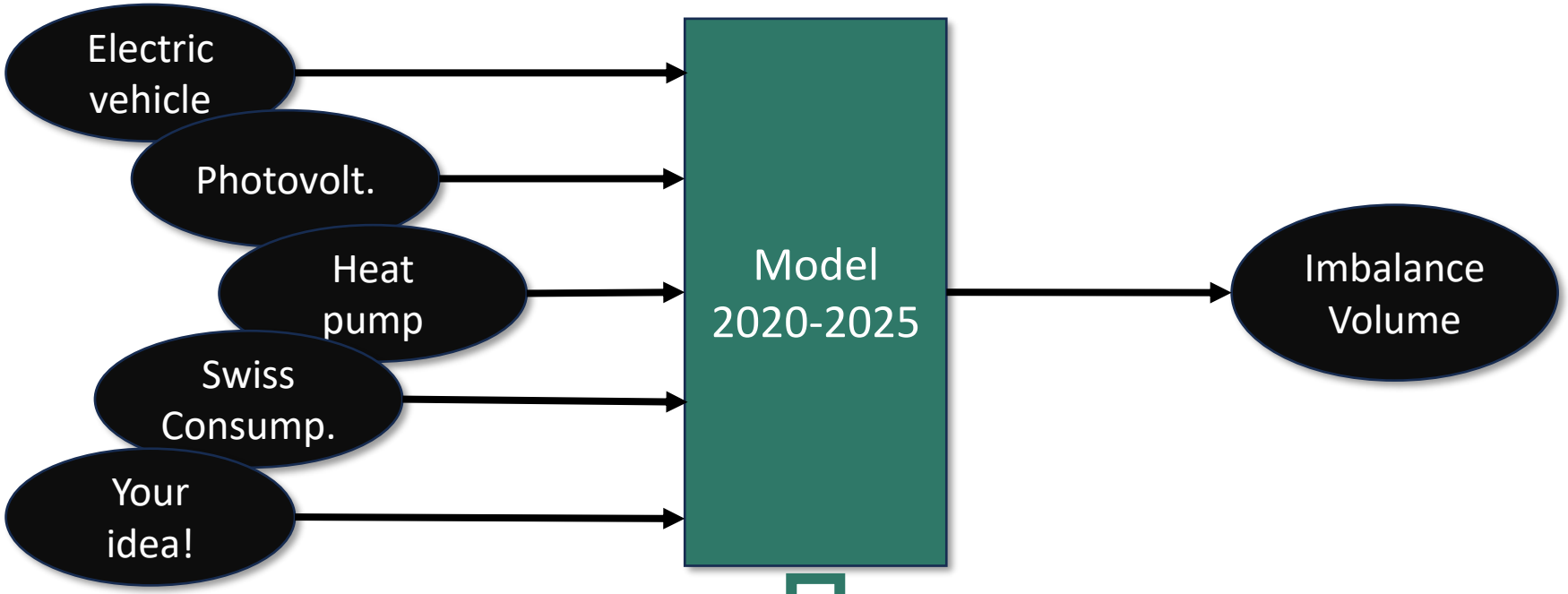
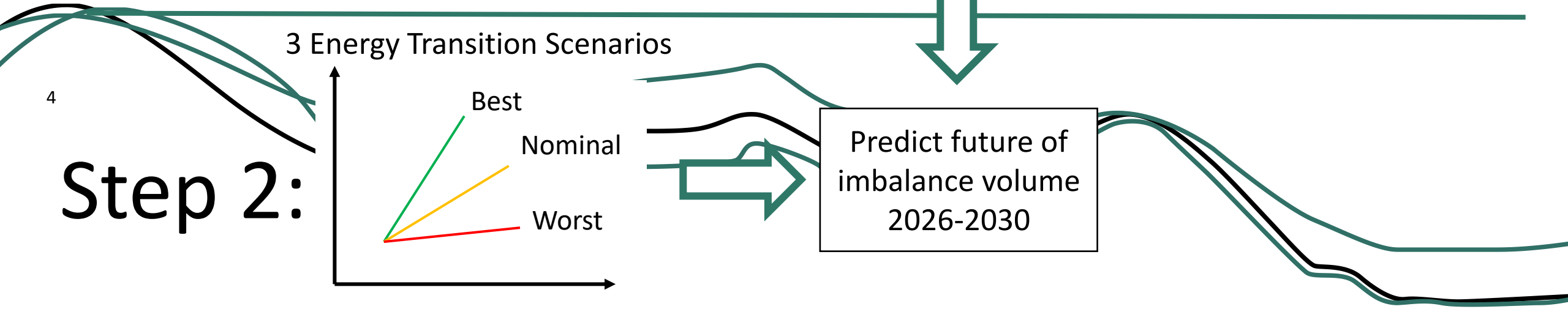
Step 1:



Step 2:



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Cleaned input data:

- Historical imbalance volume,
- Historical PV, EV, HP and Wind data

Why join us?

- Participating in solving the most pressing real-world problem!
- Deepen your understanding of electric grid balancing world
- Understanding underlying physics of energy imbalance

We are looking for data scientists, energy engineers & fun people who enjoy hackathon! ☺