Jupyter notebooks as intermediary objects for energy modelling

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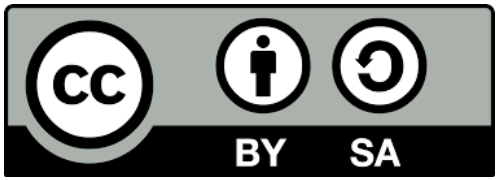
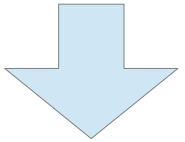


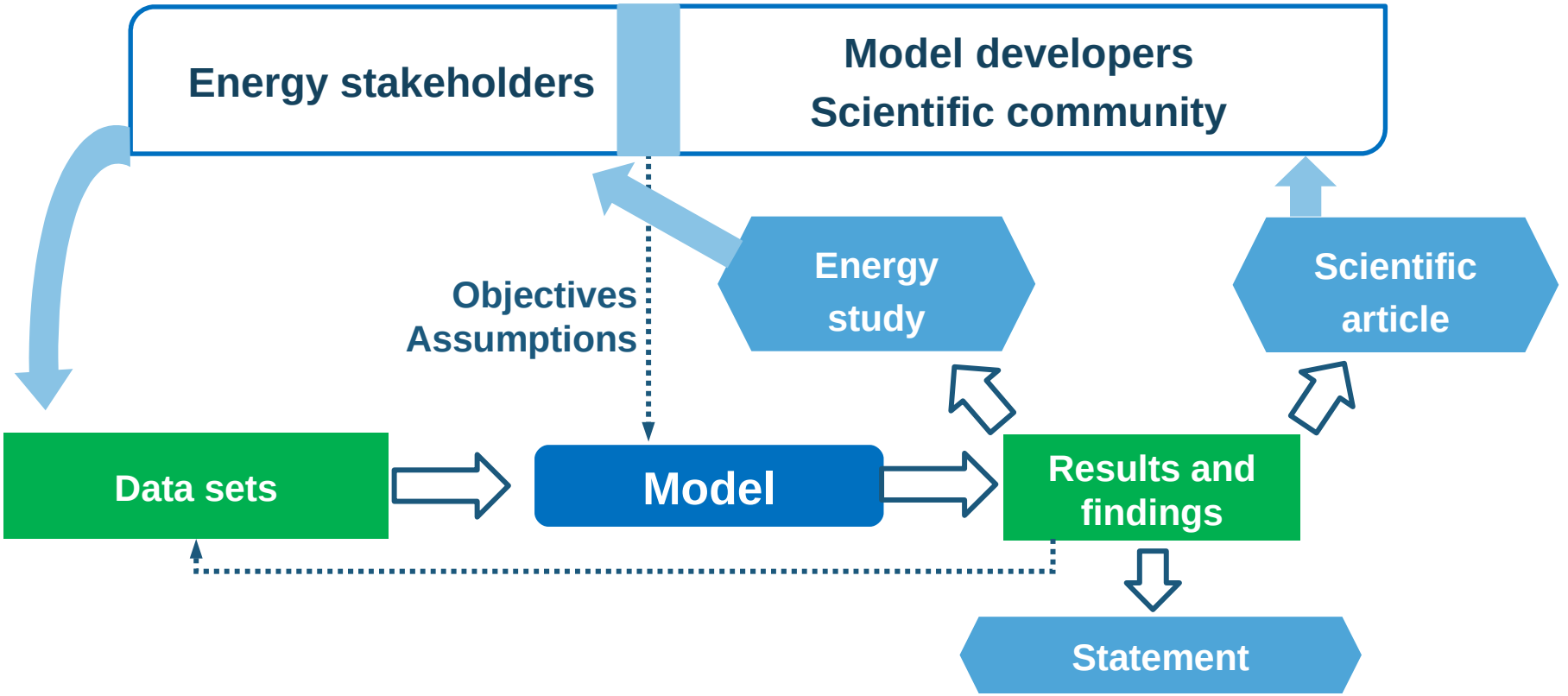
Opening the source code



Opening the modelling process

Opening the source code

Opening the modelling process



Notebooks as intermediary objects

- **Litterate programming:**

> “Rather than indicating the computer what to do, let's focus on explaining human beings what we want the computer to do”.

Donald Knuth, 1984

Knuth DE. Literate Programming. The Computer Journal. 1984;27:97-111.

Notebooks as intermediary objects

Jupyter notebook

Energy modelling tool
Classes and functions

Tracé des puissances PV et consommation

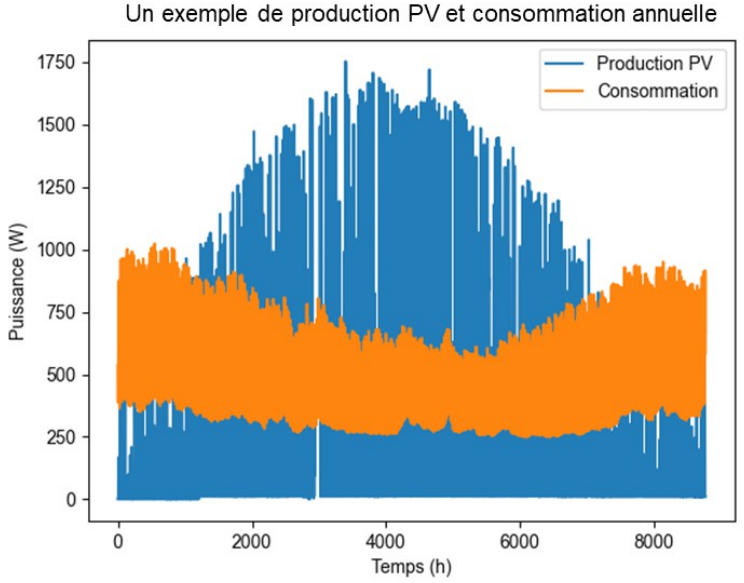
La partie suivante permet d'afficher la puissance PV et la consommation annuelle

Markdown cell

Entrée [15]:
```
# Chargement des données
yearly_data = read_data(file_name='./data/consumption_and_irradiance_data.csv')
yearly_irradiance = yearly_data[0]
yearly_consumption = yearly_data[1]
```

Entrée [16]:
```
# plot
fig2, ax2 = plt.subplots()
ax2.plot(yearly_pv_power_values, label='Production PV')
ax2.plot(yearly_cons_values, label='Consommation')
```

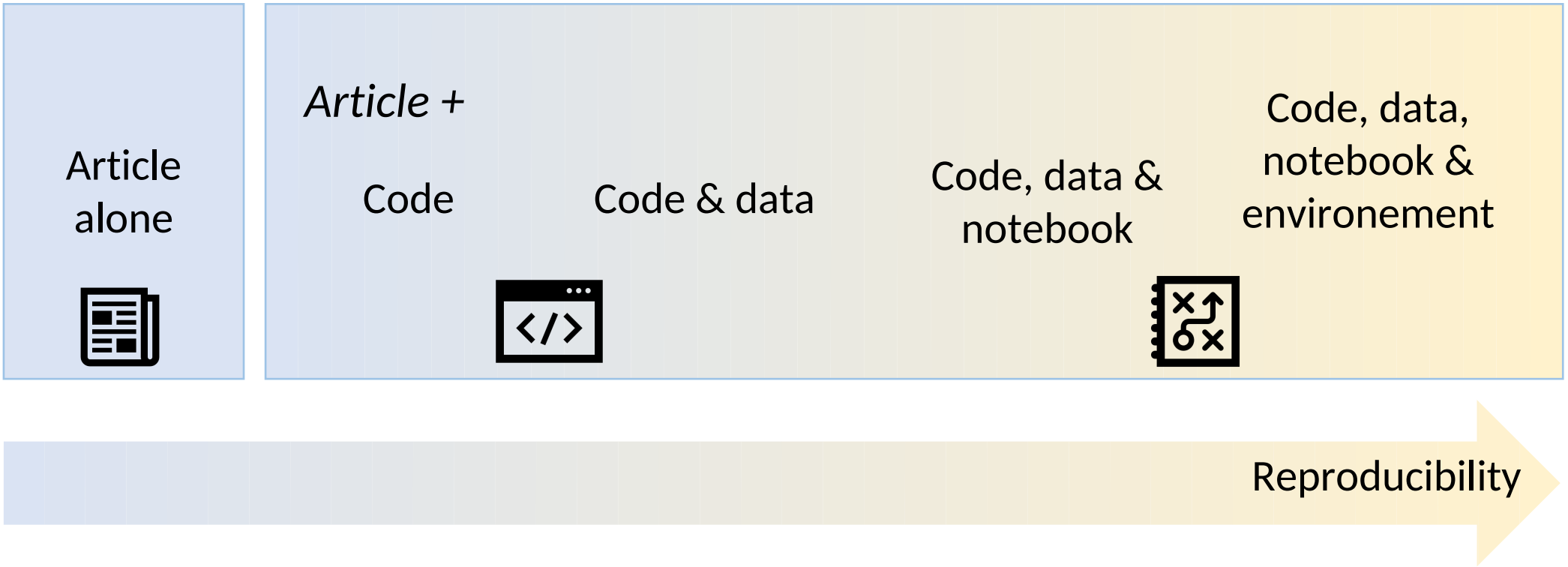
Code cell (input)



Code cell (output)

Development *Litterate programming*

Notebooks set the context



- **Understand**
- **Adapt**
- **Compare**

Conclusion

- **Uses**
  - Research supplementary materials
    - Waste heat recovery
    - Photovoltaic self-consumption
  - Teaching and mediation

- **Limits**
  - Versionning, and management of the computing environment
  - Participation : need for complementary materials & activities
  - Sustainability ?
- **Resources**
  - Open and Reproducible Use Cases for Energy (ORUCE) methodology in systems design and operation
  - Methods and tools for a collaborative and open energy modelling process
  - Notebook template : .md ; .ipynb