# Commodifying Absence: Carbon Offsets and UCI

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  - Global warming is happening, and humans have caused it
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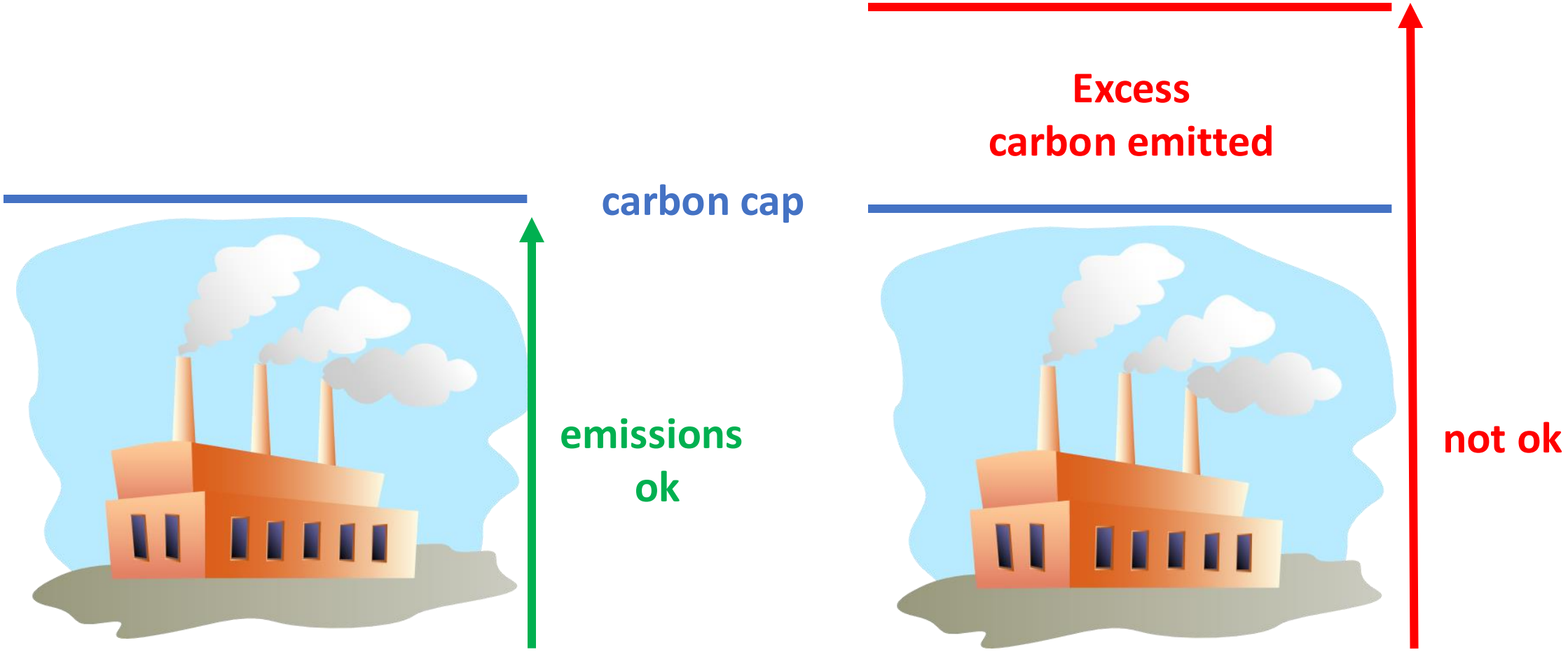
- Gases included: methane, carbon dioxide, nitrous oxide, perfluorocarbons, hydrofluorocarbons, sulfur hexafluoride
- Major challenges remain:
  - Lack of comprehensive database or single standard
  - No updated carbon offset literature
  - Negative connotation

# Mandatory Compliance



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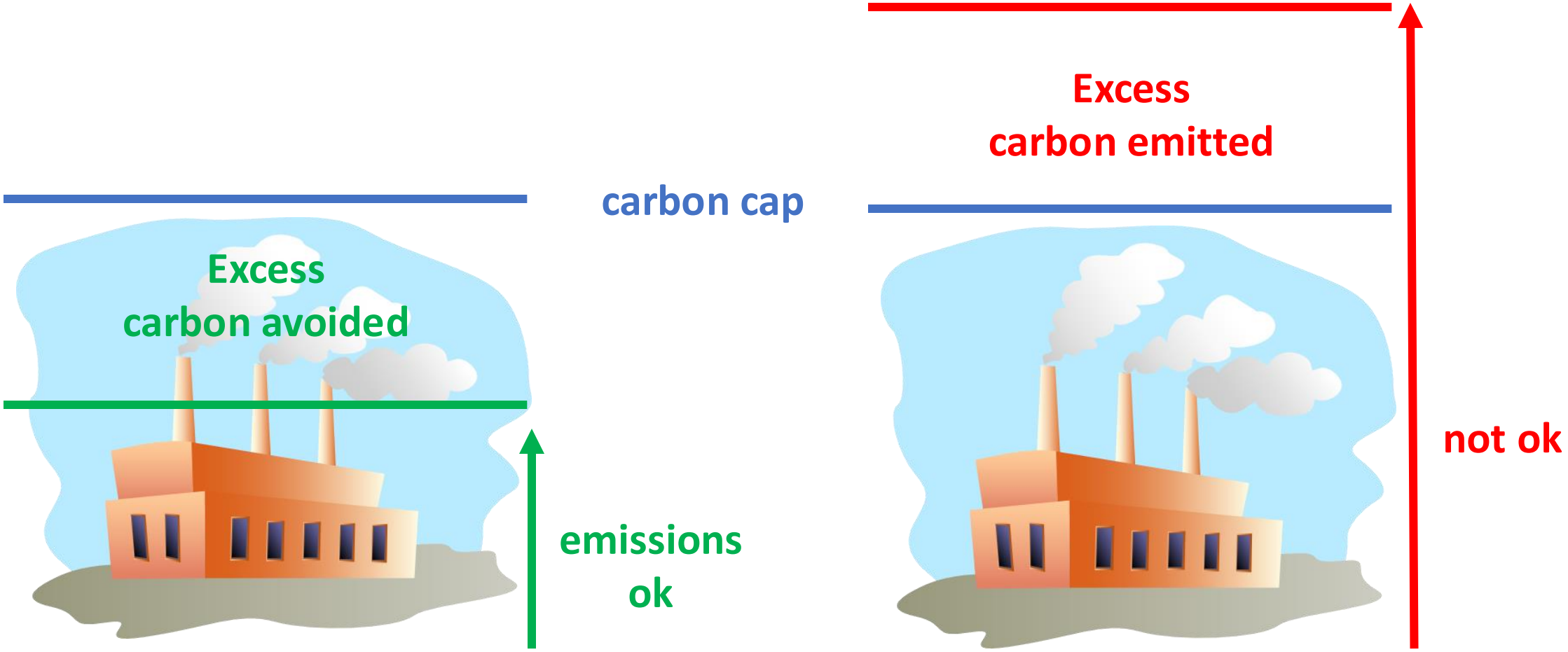

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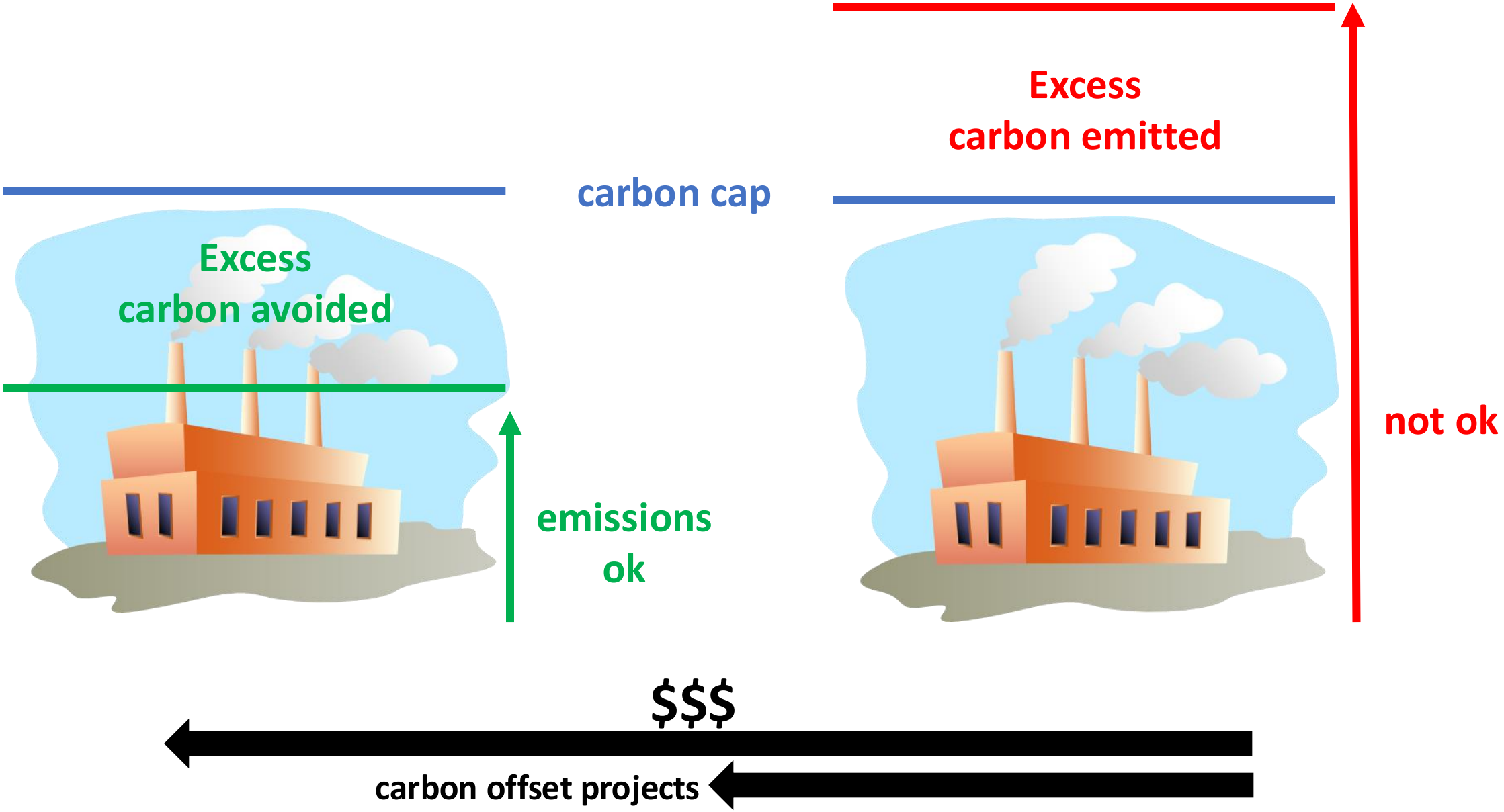

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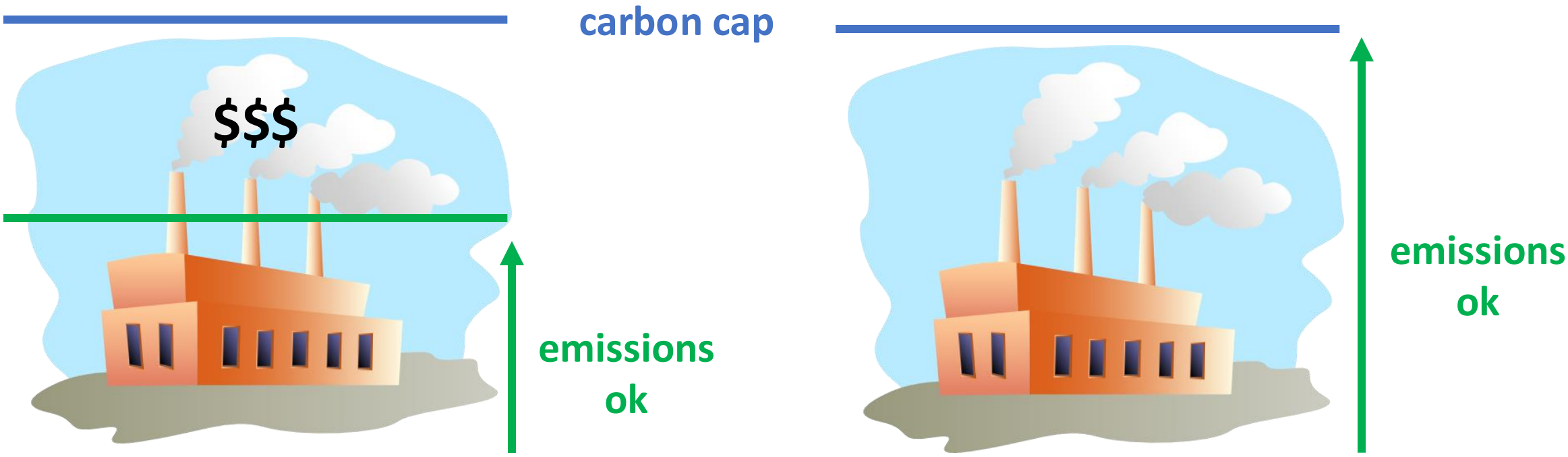

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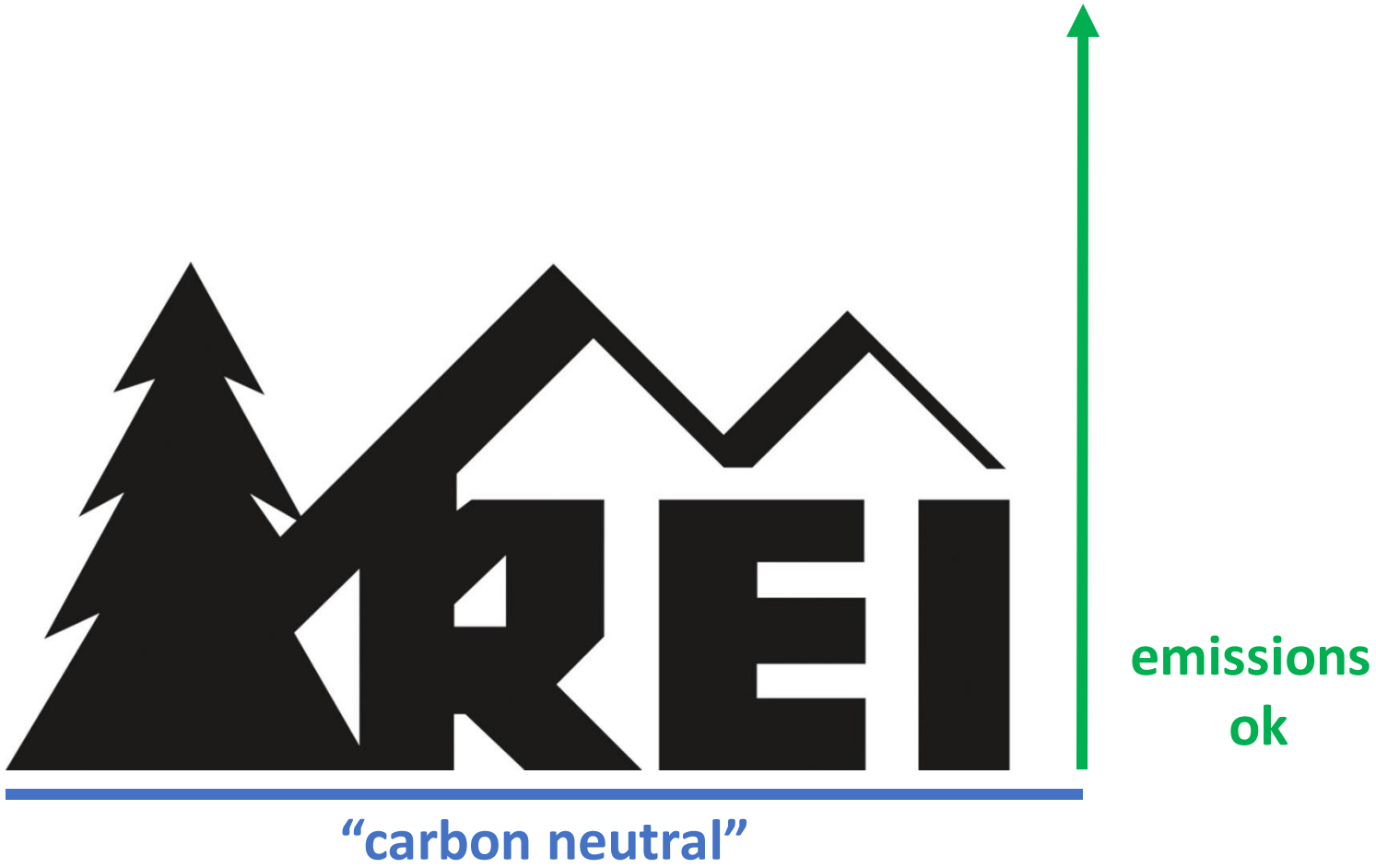

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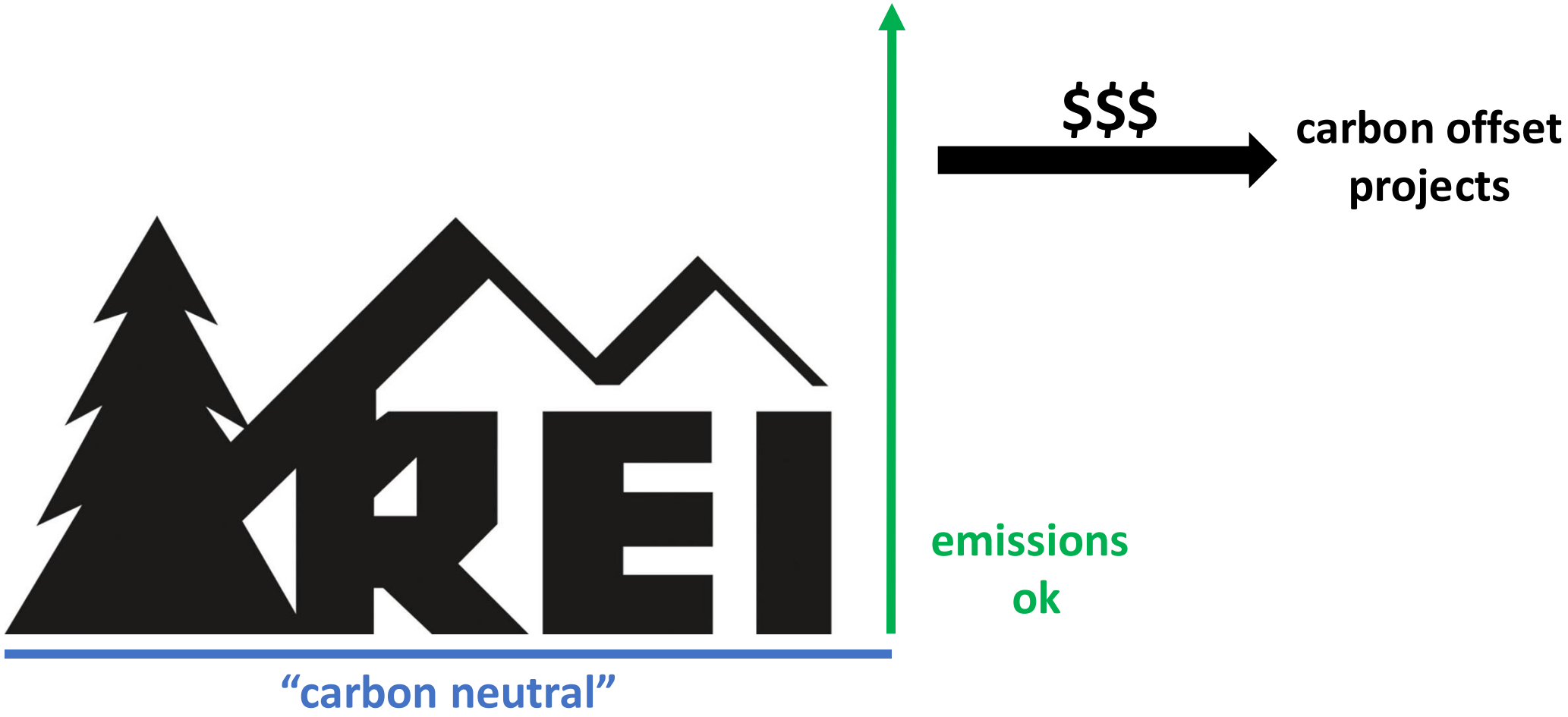
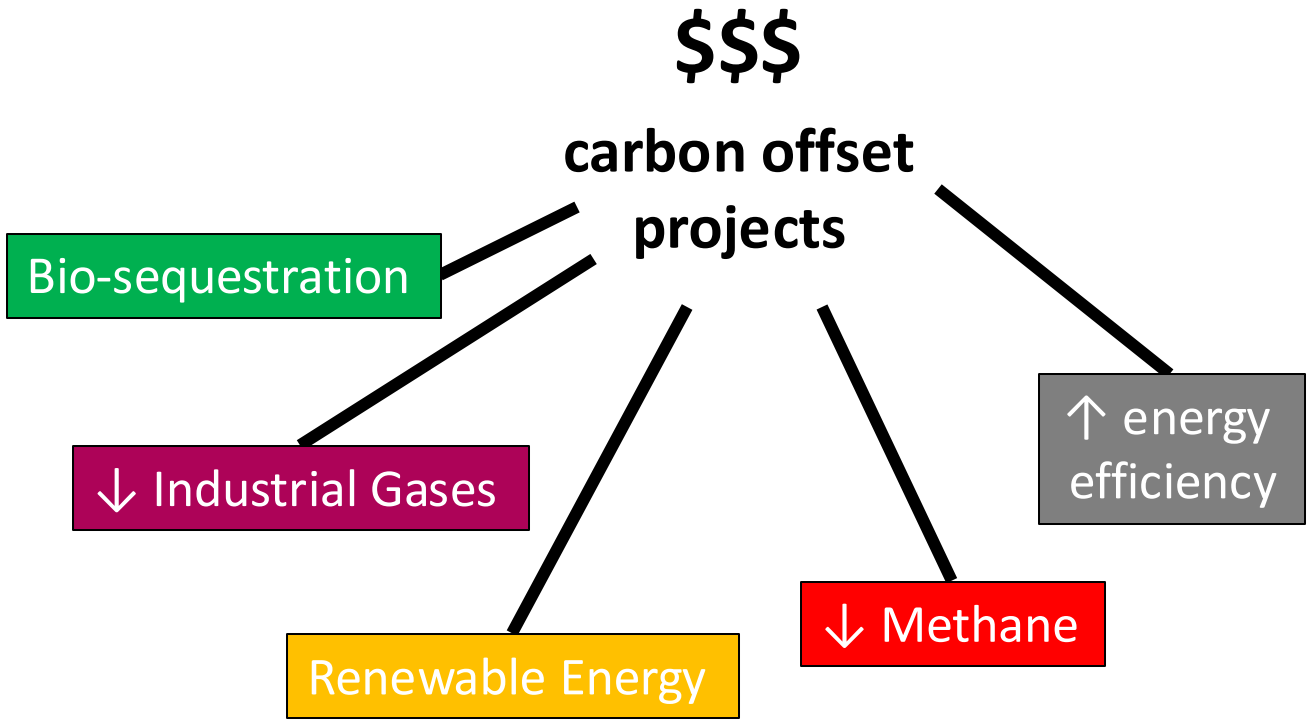


# Voluntary Reductions


**“carbon neutral”**



# Types of Projects

| Bio-sequestration | ↓ industrial gases | Renewable energy | ↓ methane | ↑ energy efficiency |
|---|---|---|---|---|

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- Baseline: How will success of the project be measured?
- **Social/environmental impacts: Does the project help the host community?**

# Offset Pros and Cons: Bio-Sequestration

Definition: Increase sequestration or preserve sequestration in an area under threat (plants, trees, soil)

| Pros | Cons |
|---|---|
| Public support[1] | Permanence[1] |
| EJ component[1] | Additionality[1] |
| Protect biodiversity[2] | Cyclical measurement issues[1] |
| | Location dependent[1] |
| | Leakage[2] |

Bio-sequestration


1. Ramseur, Jonathan L. (2009).
2. Kollmuss, A. (2008).

# Offset Pros and Cons: Decreasing Industrial Gases

Definition: decrease/destroy non-$CO_2$ gases with high global warming potentials (GWP)

| Pros | Cons |
|---|---|
| Cheap[2] | Supplementary[1] |
| Large number of offsets[2] | Few EJ components[2] |
| | Perverse incentives[2] |

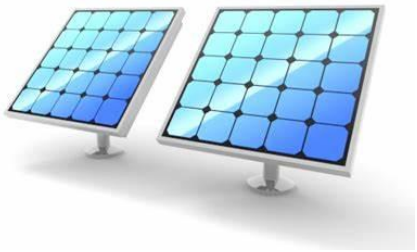
↓ industrial gases


1. Ramseur, Jonathan L. (2009).
2. Kollmuss, A. (2008).

# Offset Pros and Cons: Renewable Energy

Definition: Avoid emissions that would have been generated by fossil fuels; sell avoided emissions as offsets

| Pros | Cons |
|---|---|
| No more fossil fuels[2] | Additionality (esp. RECs)[1,2] |
| Low operating costs[2] | Future additionality concerns[1] |
| | High up-front costs[2] |
| | Controversial (hydro power)[2] |



Renewable energy


1. Ramseur, Jonathan L. (2009).
2. Kollmuss, A. (2008).

# Offset Pros and Cons: Methane Destruction

Definition: decrease methane from uncontrolled sources (agricultural; waste management)

| Pros | Cons |
| --- | --- |
| Capture and use as natural gas[2] | Supplementary[1] |
| Easy to determine additionality[2] | Disincentives to regulate[2] |

↓ methane


1. Ramseur, Jonathan L. (2009).
2. Kollmuss, A. (2008).

# Offset Pros and Cons: Energy Efficiency

Definition: Increasing efficiency requires less energy to get same output

| Pros | Cons |
| --- | --- |
| "No regrets" [1] | Additionality[1,2] |
| | Double counting[1] |

↑ energy efficiency

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**Location**
**Type**
**Timeline**

# UC Irvine's Contribution

- UCI Climate Action Plan (2016)
  - Net-zero emissions by 2025
  - Reduce **31% Scope 1 and 2 emissions** using offsets
  - Reduce **89% Scope 3 emissions** using offsets
- UCI should pursue **mission-consistent** offsets
  - These should benefit UCI students and the surrounding OC area
  - Once these projects are exhausted, UCI can expand their search
- The more offset projects, the more research opportunities

# Discussion Questions

1. What are carbon offsets? Why would we buy them?

2. Why is important for carbon offsets to benefit a host community? What are some examples of possible benefits? Do you think the UC projects will benefit their host countries? Why or why not?

3. Reflect on the idea of carbon offsets. Do you support the idea? Why or why not.