

# Introduction to Relational Database Design and SQL Programming

Project Spec

# Disclaimer

- This specification is only for purposes of defining a business data analysis project, and the arguments made therein are meant to be plausible alternative facts but do not represent the beliefs of either the author or the school.
- Please treat them as such and have fun with them.

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- Mission:

Study and implement methods by which global warming can be counteracted.

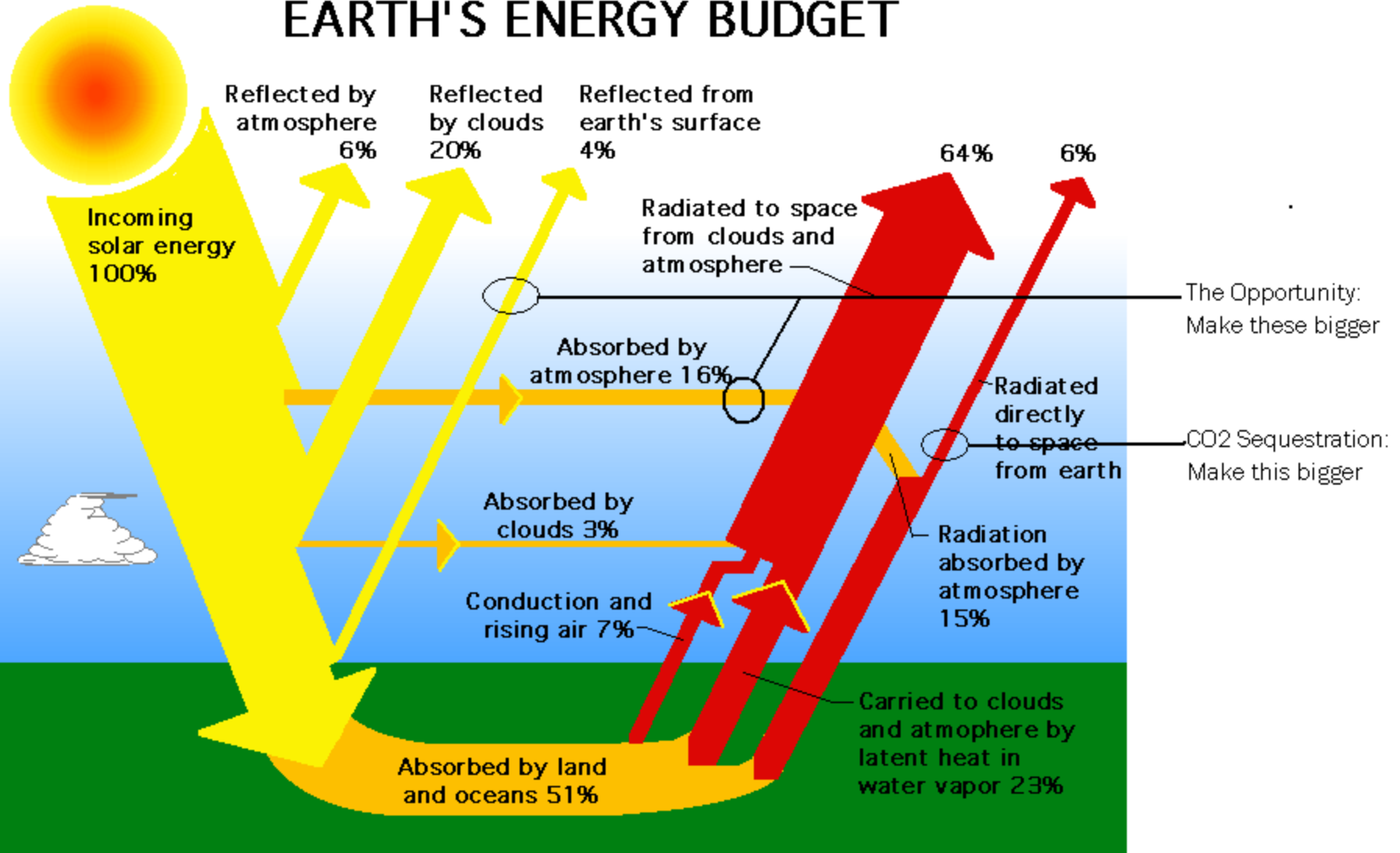
Help energy companies combat global warming theory proponents.

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- NASA chart for energy exchange
  - <https://science-edu.larc.nasa.gov/EDDOCS/images/Erb/components2.gif>
- CO<sub>2</sub> sequestration can dissipate only a few %
- Far larger opportunities include reverting clean air programs (94%), and greening of the environment (67%).
- Clean air allows more heat to reach the surface (cf. nuclear winter, and effect of coal dust)
- Deserts/dry landscapes reflect more sunlight compared to vegetation.
- Deep water absorbs most of suns energy today.

# Opportunity vs Current

## EARTH'S ENERGY BUDGET



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- Your Job:

Implement a relational database to support the operations of this company.

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- Responsibilities:
  - CEO – VV Cool – ultimate go / no go decision
  - Operations – FB Knight – evaluation of design and recommendation to CEO
  - Research – W Nutjob – Evaluation of cooling methods
  - Purchasing – A Facts – Data gathering/generation.

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- DB will need to hold information about employees.
- DB will need to hold information about potential data suppliers
- DB will hold information about temperature, air quality, cloud cover, reflectance/albedo, ground cover, and solar irradiation at various places, heights, and times.
- Places will be identified by latitude and longitude.



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- Air quality will be listed as concentrations of various types of matter, such as soot, CO<sub>2</sub> content, water vapor, pesticides, dust, etc.
- The matter may have additional descriptions such as composition, primary source etc.
  - e.g. cow flatulence produces methane

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- Places will have additional information associated with them, such as the type of place, the elevation, population if a populated place.
- Applicability of local air quality standards shall be noted by standard and version.

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- REQUIRED REPORTS:-
  - HR shall be able to generate a list of employees, with name, employee ID, tax ID, country of employment, hire date, birth date, home address, salary, and bonus.
  - Qualified HR employees shall be able to make changes to the HR information.
  - Purchasing shall be able to generate a list of suppliers by country, with indication of their reliability, monthly productivity, and contact information.
  - Purchasing employees shall be able to see the specific information contributed by each supplier.
  - Managers shall be able to make adhoc queries to access any part of the database, except the HR info, where they will be limited to their immediate and direct reports.

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- Marketing shall be able to initiate generation of monthly statistics.
- Executives shall be able to see monthly disbursements, employee totals, current financial status.
- A manager shall be able to see his departments employee information.
- Each department can have only one administrative assistant (AA) and one manager.

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- The current departments are:-
  - Company Officers
  - HR
  - Marketing/Purchasing
  - Research
  - IT (responsible for the database)
  - Sales
- Each will be headed by a company officer, and may have multiple levels of sub-departments.

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- Customer and customer pricing information will not be kept in this database.