

**iLab: Our Choice - Renewable Resources****Chapter Three – Electricity from the Sun - Chapter Four – Harvesting the Wind****Chapter Five – Soaking Up Geothermal Energy - Chapter Six – Growing Fuel**

When you open the app “Our Choice,” you will be greeted by Al Gore (who wrote the book this app is based on). If you are instead greeted by a spinning Earth, press the counter-clockwise arrow in the lower left corner. Touch anywhere on the screen (you can even poke Al in the eye!) and press “skip welcome.” This will take you to a tutorial which is very helpful. Upon completing the tutorial, touch the screen again to “skip titles”. This brings you to spinning Earth, where we will begin.

Advance to Chapter Three – Electricity from the Sun. As you read the chapter, answer the following questions.

*Subheading: Making Power from Sunlight*

1. What are the two main ways that electricity can be produced from sunlight?

*Movie: How Concentrated Solar Thermal Power Works*

2. How do CST plants work?

*Subheading: Photovoltaic Power*

*Movie: How Photovoltaic Power Works*

3. How do PV cells work?

*Photo: Saville, Spain*

4. What type of solar system is shown in the picture from Saville, Spain?

*Movie: Photovoltaics in the Real World*

5. What are the benefits of tying in to a local grid?

*Subheading: Space-Based Solar Power*

*Subheading: Photovoltaic Innovations*

6. What is the trade-off between first generation silicon cells and the newer thin-film cells?

*Subheading: The Intermittency Problem*

7. What is “the intermittency problem”?

*Subheading: Designing for the Sun-Passive Solar Homes*

*Graphic: Passive Solar Homes*

8. Describe the difference in performance of a passive solar home in the winter versus the summer.

*Subheading: The Future of Solar Power*

*Movie: The Road Not Taken*

9. Describe the irony of Jimmy Carter’s speech.

Advance to Chapter Four – Harvesting the Sun. As you read the chapter, answer the following questions.

*Subheading: The Fastest-Growing Form of Renewable Energy*

*Graphic: Global Wind Energy Production*

10. Name the three countries with the greatest installed capacity for wind power.

11. Name the three countries with the greatest wind power per capita.

*Subheading: Modern Windmills and Wind Farms*

12. What is the size of a typical modern, commercial windmill?

*Subheading: Offshore Windmills*

*Movie: Wind Farming-Looking for Land*

13. How are farmers good partners in a wind power initiative?

*Subheading: Limitations*

14. What are the limitations of wind power?

*Subheading: Thinking Small*

*Movie: Building Wind Turbines in Minnesota*

15. Explain the economic outcomes of the project.

Advance to Chapter Five – Soaking Up Geothermal Energy. As you read the chapter, answer the following questions.

*Subheading: An Underestimated Resource*

16. According to the U.N. World Energy Assessment Report, how much energy could geothermal resources provide?

*Subheading: The Earth's Hot Spots*

17. What are the two kinds of areas where geothermal resources may be found? Give an example of each.

*Subheading: New Technologies-Enhanced Geothermal Systems*

*Movie: How Enhanced Geothermal Systems Work*

18. How do enhanced geothermal systems work?

*Subheading: Challenges and Concerns*

19. List two major challenges to further development of geothermal resources.

*Movie: Geothermal Energy in Iceland*

20. Why is Iceland such a good place for geothermal energy?

21. How do farmers in Iceland harness geothermal energy?

*Subheading: New Advances*

22. What is meant by “coproduction”?

Advance to Chapter Six – Growing Fuel. As you read the chapter, answer the following questions.

*Subheading: Biomass Energy*

23. Give an example of biomass energy source from feedstocks, food crops, and energy crops.

*Subheading: Ethanol-Fuel from Plants*

*Movie: How Biomass Becomes Biofuel*

24. What is the similarity between the creation processes of first generation and second generation biofuels?

*Graphic: Fuel Yields for Biofuel Crops*

25. What biofuel crops yield the most fuel?

*Subheading: Sugarcane vs. Corn*

*Movie: Brazil's Biofuel Lead*

26. What has been the driving force behind ethanol in Brazil?

*Subheading: Arguments Against Corn*

27. What is “E85”?

28. What are two large factors that have been responsible for the shift in expert opinion toward a negative conclusion on ethanol?

*Subheading: Second-Generation Technology*

*Subheading: A New Industrial Revolution*

29. How did Ray Anderson, Interface Flooring founder, change his company to become more environmentally friendly?

*Subheading: Garbage Power*

30. How are landfills a source of energy?