



SDG 7: Affordable and Clean Energy - The Path Towards Affordable and Clean Energy

Topic Overview	Learning Objectives
<p>It is widely known that the burning of fossil fuels is a significant cause of climate change. In order to stay below the 2 degrees Celsius of global warming promised in the Paris Agreement, we need a serious shift away from carbon intensive energy. This lesson covers the transition to clean and renewable energy to fight climate change, focusing on the future of energy and investment. Additionally, innovative technologies and the servitization business model are studied to ensure wider and affordable access to clean energy.</p>	<ul style="list-style-type: none"> • Describe the current shift towards affordable and clean energy. • Define the carbon budget and carbon bubble. • Apply the as-a-service business model to carbon intensive industries in the transition to clean and affordable energy. • Examine the business case for companies to transition to clean and renewable energy sources.
Resource Summary	
<p>Günther, M. (2017, January 23). <i>An introduction to fossil fuel divestment — what is the current status and does it work?</i> The Beam. https://medium.com/thebeammagazine/fossil-fuel-divestment-3fc31cee1693</p> <p><u>Summary:</u> This article provides a brief introduction into fossil fuel divestment, discussing which institutions are divesting and the impact on the financial sector.</p>	
<p><i>Terms List.</i> Carbon Tracker. Accessed 2021, January 27. https://carbontracker.org/resources/terms-list/</p> <p><u>Summary:</u> This resource covers the terminology associated with the discussion around divesting from fossil fuels. Including unburnable carbon, carbon budgets, carbon bubble, and stranded assets.</p>	
<p>McKibben, B. (2016, February 15). <i>Why We Need to Keep 80 Percent of Fossil Fuels in the Ground.</i> Yes! https://www.yesmagazine.org/issue/life-after-oil/2016/02/15/why-we-need-to-keep-80-percent-of-fossil-fuels-in-the-ground/</p> <p><u>Summary:</u> McKibben explains in this article that we need to keep 80% of the fossil fuels we know about in the ground, otherwise there will be dire consequences for the world.</p>	
<p>Favaloro, G., Healy, T., & Winston, A. (2017). <i>Energy Strategy for the C-Suite.</i> Harvard Business Review. January - February 2017 edition. https://hbr.org/2017/01/energy-strategy-for-the-c-suite</p> <p><u>Summary:</u> This article discusses a strategy for executives to view energy as more than just a cost to be managed. For firms wanting to shift perspectives, this article provides a playbook of five integral steps for corporations to follow. The steps include C-level mandate, energy integrated into the company’s vision and operations, tracking and measuring energy, renewables and new technologies, and engage stakeholders.</p>	



TEDx. (2019, September 12). How to pull the plug on climate change | Steve Oldham | TEDxPortland [Video]. YouTube. <https://youtu.be/ZQGhtguHns>

Summary: Steve Oldham is the CEO of Carbon Engineering, a B.C. company that has commercialized two disruptive technologies to significantly reduce carbon in the atmosphere. “Direct Air Capture” pulls carbon out of the atmosphere and sequesters it deep into the earth. Oldham explains global warming using the metaphor of a bathtub, and that we need to pull the plug on carbon to save our environment with these new technologies.

The technology is further explained in this Forbes article, [The Future Is Now: This Start-Up Offers Carbon-Free Shopping](#). The author discusses the new industry labelled “Carbon Sequestration-as-a-Service” (CSaaS) and how it could transform the future of commerce.

Corno, V., Karamitsos, D., Maggiora, C. D., & Motmans, T. (2020, November 20). *What is Servitization and How can it Help Save the Planet?* The World Economic Forum. <https://www.weforum.org/agenda/2020/11/what-is-servitization-and-how-can-it-help-save-the-planet/>

Summary: This article discusses the basics of servitization as a business model and how it can be mainstreamed for cooling. The servitization model can be applied to many other energy-intensive industries to reduce the global carbon consumption.

Cooling as a Service. BBC StoryWorks. Accessed 2021, January 29. <http://www.bbc.com/storyworks/building-a-better-future/base>

Summary: The short video describes how the Basel Agency for Sustainable Energy (BASE) reimagines cooling-as-a-service (CaaS) to provide air conditioning and refrigeration for developing communities. This business model provides an affordable and sustainable alternative to traditionally carbon intensive goods.

Discussion and Exam Questions

1. What is fossil fuel divestment? What does divestment represent as a shift in society?
2. What is the effect of fossil fuel divestment on the financial sector?
3. How can the servitization (or as-a-service) business model help reach the UN Sustainable Development Goal 7 of affordable and clean energy?
4. What is a leader’s responsibility in divestment, servitization and embracing renewable energy?

Additional Resources

[The Role of Oil and Gas Companies in the Energy Transition](#)
[Global Warming’s Terrifying New Math](#)
[The Growing Concern Over Stranded Assets](#)
[The Myth of “Stranded Assets” in Climate Protection](#)
[Carbon capture: what you need to know about catching CO2 to fight climate change](#)



Related Business Topics
<ul style="list-style-type: none">• Divestment from fossil fuels• Innovation• Disruptive technologies• Clean energy• Servitization and XaaS (Everything as a Service) business models
Related Sustainable Development Goals Targets
<p>SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all</p> <p>7.1 By 2030, ensure universal access to affordable, reliable and modern energy services</p> <p>7.2 By 2030, increase substantially the share of renewable energy in the global energy mix</p> <p>7.3 By 2030, double the global rate of improvement in energy efficiency</p> <p>7.A By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology</p> <p>7.B By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support.</p>
Suggested In-Class Activities
<p><u>Activity 1: As-a-Service Business Model</u></p> <p>CaaS can help people/businesses in developing countries gain access to affordable and clean cooling services, such as air conditioning and refrigeration. By providing this as a service, more people are able to access cooling with less carbon intensive technology. Have the class watch the Cooling as a Service (CaaS) video and read the article What is Servitization and How can it Help Save the Planet?</p> <p>Using this business model, what other every day necessities and goods that are traditionally owned can be switched to as-a-service business model to increase access for all and reduce the environmental impact? Have the students brainstorm services that would replace energy and carbon intensive operations or goods. Some examples that are currently in use include:</p> <ul style="list-style-type: none">- Light as a service (Phillips)- Printing as a service (Xerox)- Transportation as a service— pay by the hour (Rolls-Royce) <p><u>Activity/Assignment 2: Taking a Leadership Role in Clean Energy</u></p> <p>In conjunction with a conversation on persuasion, leadership and reliable research, have students create a short presentation to the Board of a firm recommending divestment from carbon assets or investment in renewable energy. Have the rest of the class evaluate the presentations for persuasiveness, authenticity, and credibility.</p>