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 Lesson Title: The Long Transition of Energy in America
 Grade Level: 9-12
 Essential Question: Do societies need fossil fuels?

Lesson Foundations

Content Standards	AH.31: Political debates focused on the extent of the role of government in the economy, environmental protection, social welfare and national security. MWH.28: Environmental concerns, impacted by population growth, and heightened by international competition for the world's energy supplies, have resulted in a new environmental consciousness and a movement for the sustainability of the world's resources.		
Learning Objective(s)	<ol style="list-style-type: none"> SWBAT understand the dependence that societies have towards energy SWBAT illustrate the long-lasting impact of energy in America 	Assessment(s) Include LO being addressed	<ol style="list-style-type: none"> Check for Understanding Graphic Organizer Exit Ticket
Materials & Resources	<ol style="list-style-type: none"> Energy Policy and the Long Transition in America Oil Exports by Country Oil Imports by Country Proven World Oil Reserves as of 2009 Present and Proposed Oil and Gas Lease Areas in Northern Alaska Top Oil-Production Countries, 1960-2006 U.S. Oil Production and Imports, 1920-2005 World Coal Output in 2005 Oil Prices, 1861-2007 Office of the Historian Stations Worksheet Differentiated Stations Worksheet Energy Policy PowerPoint Primary Sources Template 		

Instructional Procedures/Steps

<p>Opening 5 Minutes</p>	<ol style="list-style-type: none"> 1. Bell Ringer: The teacher will begin the lesson by asking questions to the entire class. The questions will initiate the topic of the lesson for the students to begin thinking about the content. The questions will be presented on the learning tool PearDeck to support and guide student learning. The questions: <ol style="list-style-type: none"> a. What are fossil fuels? b. What are energy policies? c. Why do societies need energy to function/survive? 2. Stations Explanation: The teacher will begin explaining the lesson's activity to the students and providing graphic organizers to guide student learning. The teacher will have several bullet points on a PowerPoint slide displaying specific information that the students should be looking for at every station. Some topics that students will look for: <ol style="list-style-type: none"> a. Imports and exports of oil b. Remaining world oil reserves c. Output of coal by countries d. Fluctuation of oil prices over a century 3. Intro LOs & CQ: The teacher will introduce the learning objectives and compelling question using the PearDeck learning tool: <ol style="list-style-type: none"> a. SWBAT understand the dependence that societies have towards energy b. SWBAT illustrate the long-lasting impact of energy in America c. Compelling Question: Do societies need fossil fuels?
<p>Instruction 32 Minutes</p>	<ol style="list-style-type: none"> 1. Stations: <ol style="list-style-type: none"> a. Description/directions: The teacher will have different stations around the room for students to enhance their learning about current energy policies and consumption of fossil fuels. Each station focuses on a specific topic pertaining to energy consumption and each group will stay at a station for 8 minutes before rotating to the next station. b. The station's material will be accessible by students traveling to each station with their graphic organizers and reviewing copies of the primary sources. The teacher will ask the students to review the primary source material at each station to answer corresponding questions located in the graphic



organizer. Once the questions are answered, the students will complete that station's tasks. Differentiated sources will be available at the stations to help assist students.

- c. Content Focus:**
- i.** Oil exports by country
 - ii.** Oil imports by country
 - iii.** Oil prices
 - iv.** Proven oil reserves

Station 1:

- a.** Focus: two maps of the world that contain various nations shaded with a specific color. Each color represents a specific number that indicates the amount of oil imported or exported by a country. This station has two questions that address the information in the primary sources.
- b.** Handout – the questions for this station are located on the **graphic organizer**.
- c. Supporting Questions:**
 - i.** How many barrels of oil does North America (US, Canada, and Mexico) export?
 - ii.** Which countries in Asia import the least amount of oil?

Station 2:

- a.** Focus: a map of the world containing various nations shaded with a specific color and each color represents the number of oil reserves in that country. The other source is a graph that details the price of oil from 1861 – 2007, represented in both nominal and real dollars. This station has two questions that address the information in the primary sources.
- b.** Handout – the questions for this station are located on the **graphic organizer**.
- c. Supporting Questions:**
 - i.** What are the two highest figures of price per barrel of oil from 1861-2007?
 - ii.** What two countries have the largest amounts of oil reserves?



2. Check for Understanding (Assess): The teacher will stop the activity after the students have completed two stations. The teacher will ask a question to check their understanding of the material. The teacher will resume the activity after students verbally give their answers. The questions:

- a. What are possible concerns about fossil fuels after reviewing the map of remaining oil reserves?
- b. Describe the impact of importing and exporting oil throughout the world?
- c. Should the United States, and all other countries, work to convert their energy policies to greener/cleaner energy programs?

3. Stations Continued: The teacher will continue with the activity following the understanding assessment above. The teacher will restate that the groups will be at each station for 8 minutes before rotating to the next one.

Station 3:

- a. Focus: a line graph displays four primary nations that produce the highest amount of crude oil in the world. The left side of the graph indicates the number of barrels per day by the millions. The bottom section of the graph are dates ranging from 1960 – 2006. The other primary source is a map of Northern Alaska detailing lease territory that contains massive amounts of oil reserves to be extracted, refined, and then sold across the globe.
- b. Handout – the questions for this station are located on the **graphic organizer**.
- c. **Supporting Questions:**
 - i. Based on the line graph, who recently produced the highest amounts of crude oil in the world?
 - ii. Do you think this country still produces the most?
 - iii. What is the benefit of leasing land to companies to extract natural resources like oil?

Station 4:

- a. Focus: a line graph that details the United States' production of crude oil compared to the quantity of crude oil imported by the US. The left side of the graph indicates millions of barrels per day produced and/or imported by the United States. The bottom section of the line displays the US oil production and imports from 1920 – 2005. The other primary source is a map of the world which details the nations that



	<p>have the highest output of coal. There are three colored circles that indicate the percentage of how much coal it produced. Green is 100%, yellow is 10%, and red which is 1%. These sources display more evidence relating to the consumption of fossil fuels.</p> <p>b. Handout – the questions for this station are located on the graphic organizer.</p> <p>c. Supporting Questions:</p> <ul style="list-style-type: none"> i. What year did the United States surpass the production oil by importing it instead? ii. How many barrels of oil were imported to the United States in 2003? iii. Which country is the only nation in the entire world that produces 100% of the world’s coal supply? iv. What percentage does the United States contribute to the world’s output of coal? <p>4. Whole Class Synthesis Discussion: The teacher will bring the entire class together after the students complete the stations and have completed their graphic organizers. The teacher will ask for students who are willing to verbally present their responses. This assessment will be brief as a form of temperature taking. Once the discussion is finished after 3-4 minutes, the students will answer one final question on the back of their graphic organizers. The questions:</p> <ul style="list-style-type: none"> a. What are some major issues that are displayed in the output of coal map that societies could potentially face in the future? b. Why do you think the United States is the only county that imports over 5 million barrels of oil per day? c. According to the graph that displays the top countries that produce oil, what does it indicate about the United States over the past 25 years? d. After viewing the map displaying countries with the largest oil reserves, what are possible consequences for the future with only two countries having large oil reserves in the world?
<p>Closure ___5___ Minutes</p>	<p>1. Extension Activity: The teacher will ask students to use the remaining space on their Stations handout to complete an extension activity. At their last station, the teacher will ask the students to think of a minimum of 3 key consequences the world could face due the fossil fuel reserves running scare. The teacher will instruct the students to use the station they are currently at to complete this activity. The teacher will provide the student with a note card to complete this extension activity.</p>

	<p>2. Out-The-Door Summary: The teacher will ask each student to complete the final question on the back of the graphic organizer. They will complete this Exit Ticket to end the lesson. The students will hand in their graphic organizers into the teacher to end the day's lesson.</p> <p>a. Based on evidence from the lesson, why do you think societies need fossil fuels and how does it have long-lasting consequences?</p>
<p>Accommodations/ Enrichment</p>	<p>Accommodations: The teacher will provide students with a differentiated worksheet containing sentence starters. Additionally, the teacher will have a list of key terms and definitions at every station for all of the students to support their learning during the station's activity.</p> <p>Enrichment: The teacher will provide a critical thinking question for gifted students once they have completed the station's activity. The students will reflect on prior knowledge, refer to their answers, and utilizing the primary sources to answer the enrichment question. This will challenge the students to think complexly about future problems the world will face regarding fossil fuels.</p>

