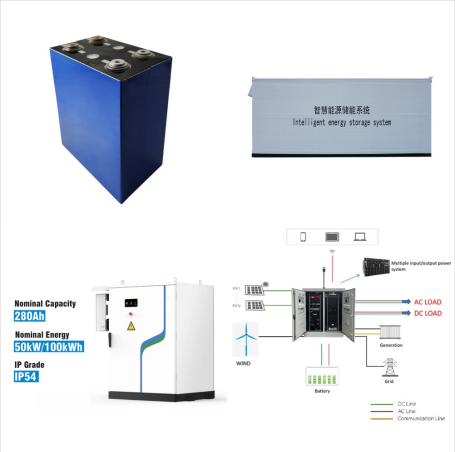

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The scale of Alberta's oil sands operations, the world's largest industrial project, is hard to grasp. Especially north of Fort McMurray, where the boreal forest has been razed and bitumen is

The present study aims: (1) to determine the organic matter richness, generative potentials and source inputs in potential source rocks, (2) model hydrocarbon generation from the source rocks, (3) deduce geochemical characteristics of bitumen seeps and tar sands, and (4) correlate the source rocks with the bitumen seeps and tar sands.

BITUMEN TAR SANDS ARE A RENEWABLE SOURCE OF ENERGY

Tar sands refer to deposits of bitumen, a naturally occurring solid hydrocarbon, that are found in various states of the United States. renewable energy. An energy source that does not depend on finite reserves of fossil or nuclear fuels, such as solar energy, wind energy, biomass, hydroelectric power, and hydrogen. All of these renewable

For all of these reasons, some groups have labeled the oil sands an environmental menace. On the other hand, they offer a stable source of energy and economic growth. The Athabasca oil sands are the largest segment of the economy in Alberta, making up just over 30 percent of the gross domestic product.

There is evidence that pipelines transporting diluted bitumen tar sands oil have a higher frequency of spills than pipelines carrying conventional crude. Between 2007 and 2010, pipelines transporting diluted bitumen tar sands oil in the northern midwest spilled three times more oil per mile than the national

BITUMEN TAR SANDS ARE A RENEWABLE SOURCE OF ENERGY

The nonrenewable energy sources are mineral coal, oil, natural gas, oil shale, bitumen, tar sands, and minerals used for nuclear energy, such as uranium and plutonium. An energy source can be considered renewable or regenerative when the natural conditions allow for their replenishment within a short time horizon.

The bitumen in tar sands can be recovered by surface mining. Open-pit mining methods can be employed where thick deposits occur near the surface. Earth-moving equipment is used to strip and stockpile the topsoil, remove and dispose of the overburden, and excavate the tar sand.The recovery efficiency of surface mining tar sands is estimated at roughly 90 percent.

Tar sands are yet another major resource of almost solid oil. The recoverable crude oil from tar sands is about 0.4 trillion barrels. As for oil shales, there is little development of tar sands except in Alberta. Oil Shales. Oil shale is often a decorative, finely banded rock which has an aroma of petroleum when freshly broken or heated.

BITUMEN TAR SANDS ARE A RENEWABLE SOURCE OF ENERGY

Venezuela has the largest conventional oil reserves and the second-largest natural gas reserves in the Western Hemisphere. [1] In addition Venezuela has non-conventional oil deposits (extra-heavy crude oil, bitumen and tar sands) approximately equal to the world's reserves of conventional oil. [2]Venezuela is also amongst world leaders in hydroelectric production, ???

Many non-oil producing countries are enriched with other sources of energy, such as coal, oil share, tar sand, renewable, and uranium, that are not fully utilized. Tar sand is another possible source of vast quantities of oil. Tar sands are sand deposits which are impregnated with dense, viscous petroleum (Demirbas, 2002a).

? Tar sands differ from very heavy crude oil in that bitumen adheres to sand particles with water. In order to convert this resource into a reserve, surface mining or subsurface steam injection into the reservoir must take place first. Later the extracted material is processed at an extraction plant capable of separating the oil from the sand, fines (very small particles), and ???

BITUMEN TAR SANDS ARE A RENEWABLE SOURCE OF ENERGY

Schindler and other scientists and conservationists have called attention to the large-scale environmental destruction that has accompanied tar sands mining, which involves excavating pits as deep as 250 feet to extract the oil-rich sands. Over the past four decades, tar sands operations have destroyed roughly 300 square miles of boreal forest and wetland habitat.

? Fossil fuel is a hydrocarbon-containing material of biological origin that can be burned for energy. Fossil fuels, which include coal, petroleum, and natural gas, supply the majority of all energy consumed in industrially developed countries. Learn about the types of fossil fuels, their formation, and uses.

THE TAR SANDS The Canadian tar sands, also known as the oil sands, are the largest industrial project on earth, yet few Canadians are aware of the rapid pace of growth and its impacts on our environment, economy, and society. Tar sands operations use at least three times as much freshwater per barrel of oil as conventional oil operations.

BITUMEN TAR SANDS ARE A RENEWABLE SOURCE OF ENERGY

Once oil is found and extracted it must be refined, which separates and prepares the mix of crude oil into the different types for gas, diesel, tar, and asphalt. Oil refining is one of top sources of air pollution in the United States for volatile organic hydrocarbons and toxic emissions, and the single largest source of carcinogenic benzene.

Bitumen is a form of petroleum that is black, extremely sticky, and sometimes rises to Earth's surface. In its natural state, bitumen is typically mixed with "oil sands" or " tar sands," which makes it extremely difficult to extract and an unconventional source of oil. Only about 20 percent of the world's reserves of bitumen are

High energy prices have also made the Canadian tar sands competitive. Tar sands, also known as oil sands, or simply bitumen, are readily upgraded to synthetic crude oil, and they exist in a vast deposit in Alberta, Canada, called the Athabasca tar sands. The only other significant tar sand deposits in the world are in Wyoming, a relatively

BITUMEN TAR SANDS ARE A RENEWABLE SOURCE OF ENERGY

crude oil source (average Canadian tar sands) was 130% (or 2.3x).1 On a well-to-wheels basis, this is equivalent to a 22% (or 1.2x) difference. Synthetic crude oils produced from unconventional

For tar sands the hydrocarbon is a highly viscous bitumen; for oil shale, it is a solid hydrocarbon called "kerogen." Unconventional oil resources are found in greater quantities than conventional petroleum, and will play an increasingly important role in liquid fuel supply as conventional petroleum becomes harder to produce.

In the Evolving Policies Scenario raw bitumen production from the oil sands peaks in 2032 at 3.9 MMb/d, then declines to 3.5 MMb/d by 2050. Steam-assisted gravity drainage (SAGD) production rises to 2034 then flattens, and mining production rises near-term and declines long term. Of the two, SAGD is used more often. Steam-oil ratio (SOR) is

BITUMEN TAR SANDS ARE A RENEWABLE SOURCE OF ENERGY

Unconventional fossil fuels -tar sands and methane hydrates Tar sands are sands or sometimes sandstones made from a combination of clay, sand, water and bitumen, a heavy black viscous oil. Bitumen can form in many ways but it is usually formed when lighter oil is degraded by bacteria. Bitumen is too thick and sticky to be pumped like oil and

Heavy oil and bitumen (HOB) reservoirs are distributed all over the world. It is estimated that HOB resources make up about 70 % of the earth's oil deposits, comprising 15 % heavy oil, 25 % extra heavy oil, and 30 % oil sands and bitumen [1, 2].Due to the high global demand for energy, the decline in conventional oil production, the existence of vast heavy oil ???

Once oil is found and extracted it must be refined, which separates and prepares the mix of crude oil into the different types for gas, diesel, tar, and asphalt. Oil refining is one of top sources of air pollution in the United States for volatile ???

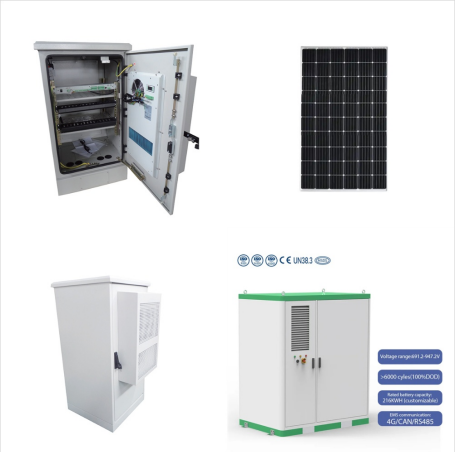
BITUMEN TAR SANDS ARE A RENEWABLE SOURCE OF ENERGY

Tar sands, sometimes called oil sands, are a mixture of bitumen, sand, clay, and water. Bitumen is a thick, tar-like substance composed of hydrocarbons that is used to produce gasoline and other petroleum products. These additional greenhouse gas emissions make tar sand oil a controversial source of energy as we attempt to keep global

Oil shale, tar sands, and heavy crude oil are all materials from which oil can be extracted???at a cost. Resources are abundant and could greatly impact the U.S. oil supply in the future. Get the facts about these "unconventional" sources of oil from the National Academies, advisers to the nation on science, engineering, and medicine.

There are other domestic sources of liquid fossil fuel that are being considered as conventional resources and are being depleted. These include soil sands/tar sands ??? deposits of moist sand and clay with 1-2 percent bitumen (thick and heavy petroleum rich in carbon and poor in hydrogen). These are removed by strip mining (see section above

BITUMEN TAR SANDS ARE A RENEWABLE SOURCE OF ENERGY



Alex Pourbaix, chief executive of Cenovus Energy, one of the oil sands'' largest operators, said the new pipeline capacity had "put the industry in pretty good shape for a number of years