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## Strange bedfellows: Solar power meets oil drilling







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Glasspoint Solar

A company that uses solar energy to recover crude has scored big financing from some major oil players—and highlights a growing niche of global oil exploration.

GlassPoint Solar last week landed a \$53 million investment from **Royal Dutch Shell** and the sovereign investment fund of Oman for its enhanced oil recovery (EOR) technology. In a twist of irony, GlassPoint's technology runs on solar power, which produces steam to help pump more fossil fuel from conventional crude plays.

GlassPoint has been using this technique in Oman since 2012, and it helped the firm score more than **double its initial funding**. Given the age of its oil fields, Oman relies on EOR—a complex process that extracts more oil than traditional drilling—to boost production.

Although EOR is common to the oil industry, using the power of the sun "is expanding very rapidly, and is a very new technology" said Rod MacGregor,

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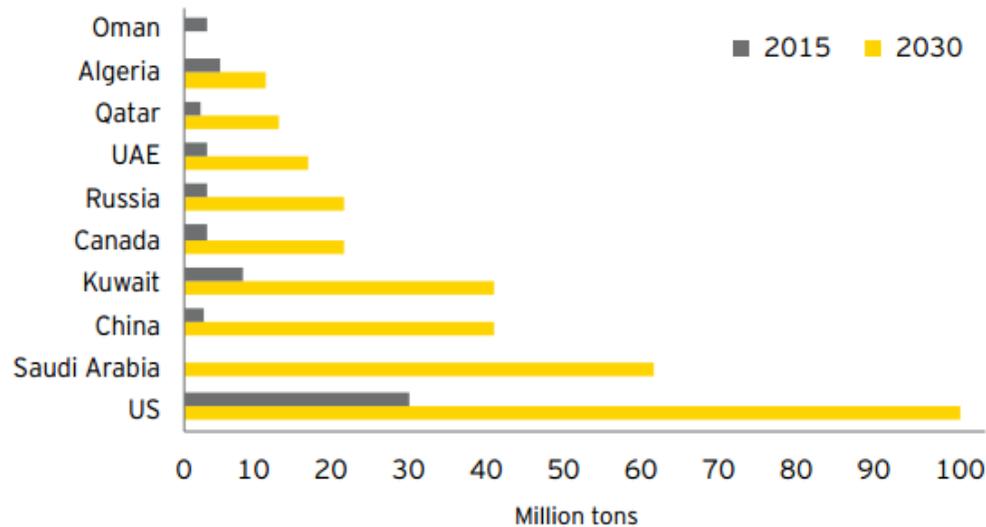
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GlassPoint's CEO, in an interview. "This application looks like the next step for solar."

**Figure 11. Forecast of EOR-based oil production – Russia's rank among other countries**



Source: International Energy Agency.

On its face, applying renewable energy to fossil fuel drilling may seem odd. However, industry participants note it is gaining increasing currency as the oil industry attempts to rein in its carbon footprint.

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Enhanced recovery is characterized by flooding wells with carbon dioxide, with major producers like **Occidental Petroleum** using the process **more than 70 percent of the time**. Natural gas is used to turn water into high pressure steam, which helps drillers access heavy oil.

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Consulting firm Ernst and Young sees the increasing use of EOR techniques as a hallmark of a world where the largest oil fields "are approaching depletion, and their remaining reserves are classified as hard to recover."

Companies spend at least \$5 billion annually on the process, **according to E&Y estimates**, and the need for methods to expand the efficiency of wells is particularly acute in places like Oman and Russia where oil fields are getting long in the tooth.

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Using solar rather than carbon-burning technology makes the process easier on the environment, and conserves natural gas, experts say.

"It is a rare situation to find a modern oil/gas well and field that does not use solar panels," said Steve Melzer, a Texas-based EOR consultant.

"With the remote locations of many oil fields... solar technology is a critical source of energy" for a range of oil drilling techniques, he said. However, in areas where high-power machinery runs constantly, renewable energy has its limits, Melzer added.

"Where energy intensity is high, solar technologies have not been able to compete for the reasons of electricity storage capacity for 24/7 applications," he said. The extraction process "will require a mix of solar and conventional energy sources."

GlassPoint's MacGregor, however, argues that solar is more productive than conventional EOR, simply because natural gas can be more costly to use.

"Solar-powered oil production will save valuable gas resources that can be used to establish new industries and create new jobs" in Oman, and other places where EOR is used, he said.

## Solar Panel Installation

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—By CNBC's Javier E. David



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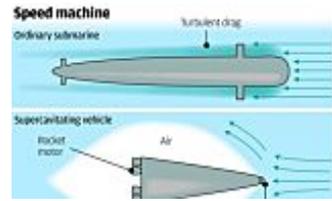
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