

Expected production in 2028, 220-250,000 b/d.

Supergiant fields expansions.

The deep depletion of the old supergiant fields such as Ghawar or Greater Burgan, has forced the production of giant fields that have a lower exhaustion rate, such as Zuluf, Marjan or Berri in Saudi Arabia or Upper Zakum in the United Arab Emirates.

These super giant fields are underdeveloped and show little exhaustion. Even so, they begin to decline strongly in 2035, 2043 and 2047.

Again, observe the rapid sinking of production, once the plateau is finished.

Zuluf, Saudi Arabia.

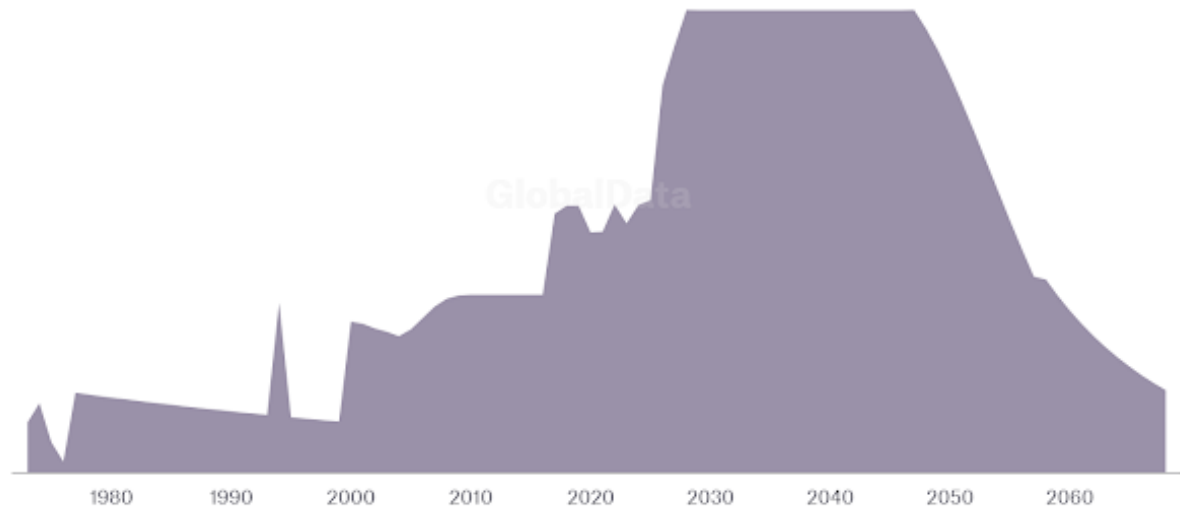
<https://www.offshore-technology.com/marketdata/oil-gas-field-profile-zuluf-conventional-oil-field-saudi-arabia/>

The Zuluf conventional oil field recovered 29.32% of its total recoverable reserves, and a maximum production is expected by 2047. According to economic assumptions, production will continue until the field reaches its economic limit in 2068. The field currently represents approximately 7% of the country's daily production.

Zuluf total production

Total production (boed)

■ Value



Source: GlobalData Oil & Gas Intelligence Center

Current production approximately 700,000 b/d, expected production 2027, 1.3 million b/d.

Shaybah, Saudi Arabia.

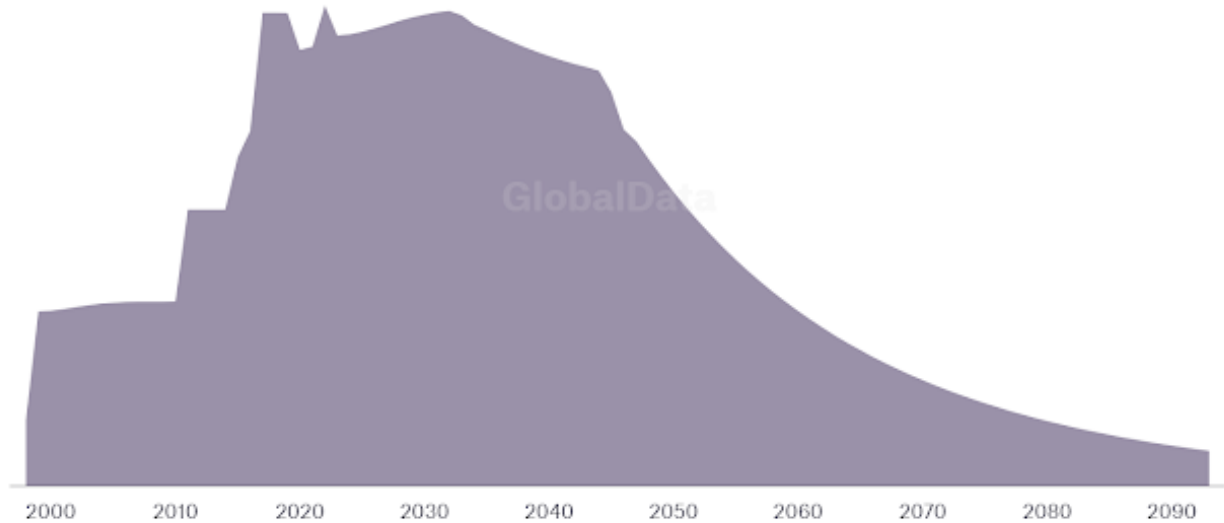
<https://www.offshore-technology.com/marketdata/oil-gas-field-profile-shaybah-conventional-oil-field-saudi-arabia/>

The Shaybah conventional oil field recovered 30.57% of its total recoverable reserves, with a maximum production in 2022. According to economic assumptions, production will continue until the field reaches its economic limit in 2093. The field currently represents approximately 10% of the country's daily production.

Shaybah total production

Total production (boed)

Value



Source: GlobalData Oil & Gas Intelligence Center

Current approximate production 1 million b/d.

Upper Zakum, UAE.

<https://www.offshore-technology.com/marketdata/oil-gas-field-profile-upper-zakum-conventional-oil-field-uae/>

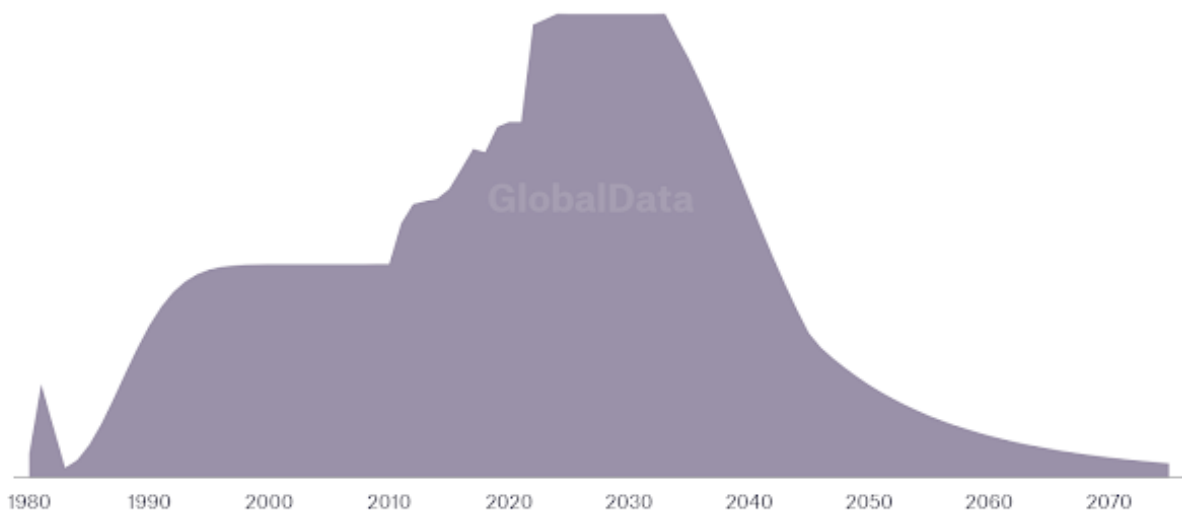
The conventional oil field of Upper Zakum recovered 48.74% of its total recoverable reserves, and a maximum production is expected by 2033. According to economic assumptions, production will continue until the field reaches its economic limit in 2075. The field currently represents

approximately 19% of the country's daily production.

Upper Zakum total production

Total production (boed)

■ Value



Source: GlobalData Oil & Gas Intelligence Center

Current approximate production 600,000 b/d.

The obvious conclusion shown by these graphs seen as a whole, is that by 2050 there will hardly be oil left, so an energy transition is mandatory to maintain a certain quality of life and it is also essential to rethink the system based on infinite growth, before an inevitable collapse. We can deceive ourselves by thinking that these graphs are wrong or in the fabulous AI that will allow us to live better with much less material requirements, but what

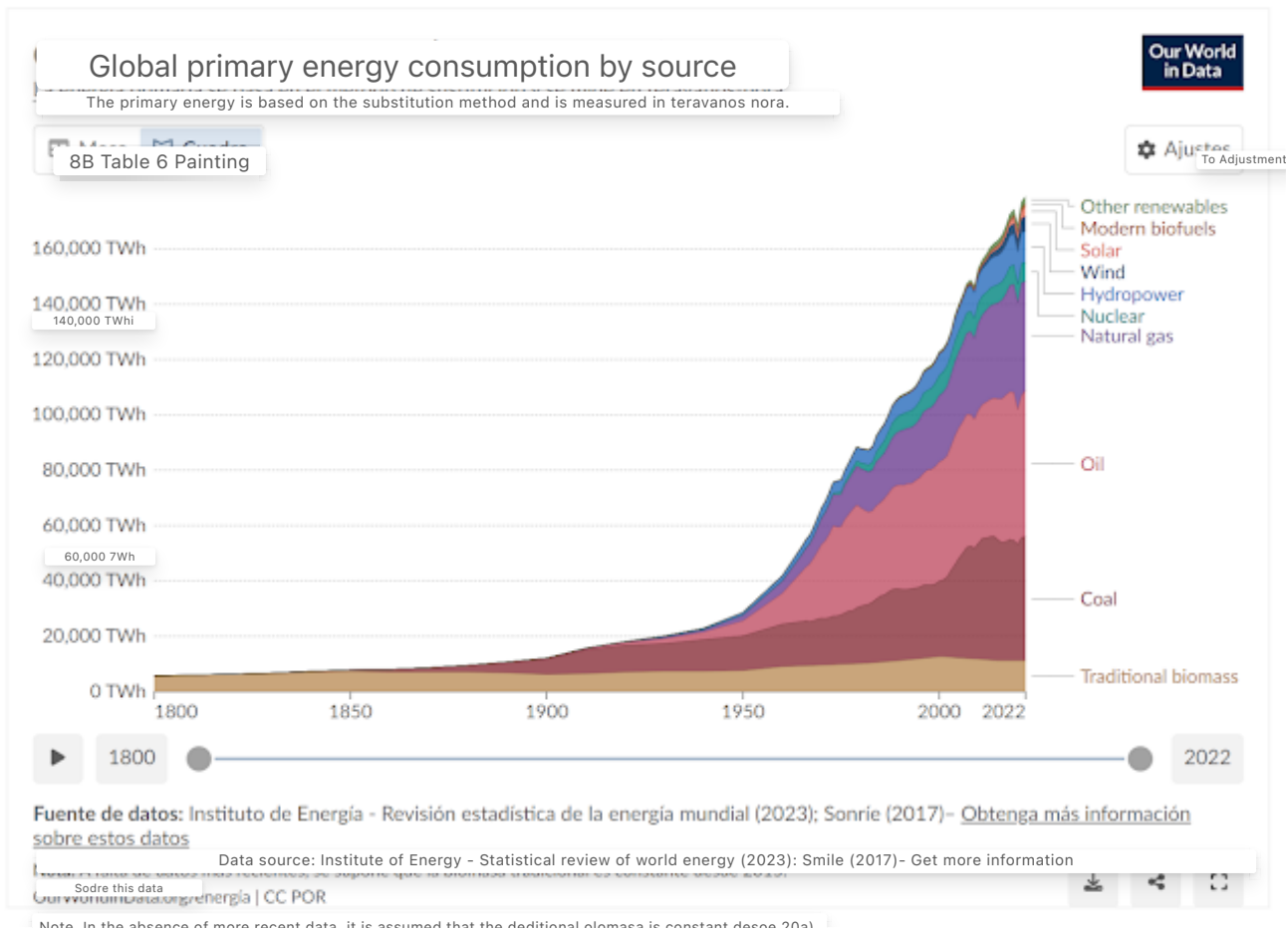
these graphs and [other similar things](#) show is that we are running out of time.

In just over two decades we are going to move from a system absolutely dependent on oil to a completely different one, where oil has almost disappeared. The continuity of civilization as we know it depends on our ability to achieve it.

Let me be skeptical at this point, when it is quite evident that until now, the energy transition is nothing more than an energy expansion, where each of the energy sources contributes to the global supply necessary to meet the global demand for energy.

Neither the transition from biomass to coal, eliminated the use of biomass, nor the transition from coal to oil eliminated the use of coal, nor nuclear energy has eliminated gas, nor renewables have retired fossil fuels. At the moment, each of the aforementioned energy sources is at an all-time high, because we need all the sources.

This graph is unappealable.



And using a much less dense energy source than fossils (renewables) adds nothing but enormous difficulties when it comes to replacing no less than 80% of primary energy.

What's coming is a transition yes, but destroying the previous graph. When oil and gas are exhausted, what we are going to have in motion is the beginning of a violent degrowth, in a system that is designed to work only in infinite growth mode, so the shock of the (negative) transition will imply a real revolution, without it being possible to assure that it is not very, very painful.

We are already fully immersed in a trade war, probably about to start a world war and on the verge of the abyss of the energy crash, which will not cease to accompany us in the long descent.

As if that were not enough, the fiduciary system is a joke, where each problem is solved by issuing money as if the role that supports everything, was useful for something at the moment when the energy shock occurs. The abuse of the printer has formed a financial bubble of a size that is shocking if we think that the puncture of every bubble returns us to the starting point.

It can't surprise us that the zenith of civilization is like this. The human species does not have a special behavior. It grows as much as it can while it has "food" (both food and energy) and when it begins to become scarce, civilization collapses. It has happened many times before and it will happen again after ours. But it is also human, denying the evidence and resisting to the end, waiting for ingenuity and technology to solve the exhaustion.

Ads such as the IEA are flights forward. Chaos is undoubtedly the worst in these situations and surely closed systems are being prepared with a turn towards the digital dictatorship and autarky, to try to avoid an extension of the Haitian revolution.

At the moment, there are few good solutions, if you know of any that is not Matrix or techno-optimism, I will be happy to listen to it. We have a few years ahead of us, or maybe the collapse will start tomorrow, no one knows.

Of everything that is happening, the worst is the possibility of a world war. Wars are known how they begin but not how they end.

Excuse me for a somewhat pessimistic opinion ... or not.

Regards.



Gabitrail *June 13, 2024, 7:03 PM*

The IEA always talks about barrels, never about net energy, things are much worse, how much oil we use to produce oil.



quark *June 13, 2024, 7:07 PM*

The TRE is always getting worse.

In the case of the new fields, because they are smaller, or they are in ultra-deep waters or they are oil from Canadian sands.

In the case of the old super giant fields, the extraction has more and more water and less oil, so the net energy per barrel decreases over time.

Regards.

REPLY



Zackary *June 13, 2024, 10:09 PM*

"The American Infinity Power announces that it has developed a nuclear battery the size of a button cell that can generate tens of milliwatts for 100 years"

https://www.linkedin.com/posts/alfredo-garc%C3%ADa-67411054_la-estadounidense-infinity-power-anuncia-activity-7206947368175362049-XqZR?utm_source=share&utm_medium=member_desktop

www.quenovamosamorrcienesdeveces.com



quark *June 13, 2024, 23:34*

A few months ago the news came out, but then it wasn't Infinity Power, it was a Chinese company.

<https://elperiodicodelaenergia.com/china-crea-la-bateria-del-futuro-dura-50-anos-y-es-nuclear/>

Beijing Betavolt New Energy Technology announced on January 8 that it has successfully developed a miniature atomic energy battery. This product combines the disintegration technology of the nickel 63 nuclear isotope and the first diamond semiconductor module (fourth generation semiconductor) from China to successfully carry out the miniaturization of atomic energy batteries, modularization and low cost, initiating the process of their civil use.

Betavolt atomic energy batteries, capable of generating electricity in a stable and autonomous way for 50 years without the need for charging or maintenance, have entered the pilot phase and will be put into mass production on the market. Betavolt nuclear power batteries can meet the needs of durable power supply in multiple scenarios, such as aerospace, artificial intelligence equipment, medical equipment, MEMS systems, advanced sensors, small drones and microrobots. This new energy innovation will help China gain an advantage in the new round of AI technology revolution.

Principle of using released energy

Atomic energy batteries, also known as nuclear batteries or radioisotope batteries, work according to the principle of using the energy released by the disintegration of nuclear isotopes and converting it into electrical energy through semiconductor converters. This was a high-tech field in which the United States and the Soviet Union focused in the 1960s. Currently, thermonuclear batteries are only used in the aerospace sector.

Regards.



SMO *June 14, 2024, 2:09*

I add to the exchange a wired article about it... as if it is not the panacea, far from it:

<https://es.wired.com/articulos/cuando-estaremos-usando-bateria-nuclear-en-nuestros-telefonos>



God, my patience *June 14, 2024, 11:11 p.m.*

And where is the news?

The first pacemakers used exactly this technology. They could last many decades (the person's life) without needing replacements.

They had two serious problems:

- In case of incineration or accidents, radioactive contamination could be spread.

- They were very expensive.

Therefore, now pacemakers are used with batteries that last about 10 years, and then they change it for you. It's cheaper than using one of the old ones.

What I don't understand is how a battery that generates "dozens of milliwatts" will solve the energy crisis. We would need 1000 of these batteries to turn on an LED bulb.

Suppose they sold them to me for ten euros each (I guess the price is much higher). It means that if I spend 10,000 euros I will be able to turn on a light bulb day and night for a hundred years. Is it really a good business?

REPLY



quark *June 14, 2024, 8:17*

I am surprised by the lack of comments.

Anyone who has looked at the oil production charts by field, can see that in 2050 practically all fields in the world are in terminal decline.

The IEA's Net Zero scenario is not just another option, it is the scenario that will happen, because oil production will be totally sunk in 2050.

The period 2030-2050 is the decline through the abyss of oil production and if by then we have not achieved some form of transition, it is very likely that the war for resources will be the highlight of those decades.

Regards.



Lazarus Long *June 14, 2024, 8:48 a.m.*

Why does it surprise you? We are in shock. Some of us think that

it's finally here and that I already told you and the others are looking for data to contradict these forecasts.



quark *June 14, 2024, 8:59*

Because the sinking occurs between 2030 and 2050, but that only refers to world oil production. The importing countries (all of Europe for example), we will notice it much earlier.

The logical consequence of this future shortage is the acceleration by law of the energy transition and a great possibility of commercial-military wars on a scale unknown until now. This is going to affect us a lot before 2050...

Regards.



SMO *June 14, 2024, 10:34*

Quark, how are you?

I think that all the readers of the blog understand what you indicate and the seriousness of the moment.

Today's geopolitical, financial and social madness, which most people do not understand, is dictated by what you indicate. The various elites are already at war, I would say that openly since 2019, covid was the move of some groups to start their plan.

As you have already shared, oil is the mother of all crises, but that of copper, silver, even gold is not less. Let's go to a simplification, we have to see what the shat is like, whether violent or soft. I'm leaning towards the first one.

Below I leave some concept maps of Michaux to help understand the geopolitical and mineral problems:

www.simonmichaux.com/copy-of-gtk-reports



quark *June 14, 2024, 1:05 p.m.*

Interesting about Michaux, thank you.

Yes, it's the peak everything with the unexpected consequences for most of the world.

We'll see.

Regards.



KARLO_1 *June 14, 2024, 2:22 PM*

Quark, most of us who walk around here are aware, you have prepared another good article full of data that continues to set the trend of the hypotheses in which we move. We are like at the beginning of a big storm, first a few scattered drops and then the flood. It seems that Orlov's 5 collapses are moving at the same time, look at politics in Europe, increasingly undote and less exciting.

When this begins to move we will all have personal problems that will not let us see the whole, then the best and worst of the human being will come out.



quark *June 14, 2024, 15:11*

Well, until now I had not seen long-term graphs of supergiant fields. Ghawar and some other, but it's normal to see global charts.

By contemplating the graphs of individual fields, you get an idea of how they come together to give that decrease that so many times the IEA has put us for the fall in production due to the natural decline.

An important point is that the current decline has always been compensated with shale oil or the implementation of projects such as the Gulf of Mexico, Sverdrup, Guyana or Brazil. Since 2030, there is practically nothing that can reverse the natural fall in production. And seeing the universal drift of all fields, in 2050 there are only the crumbs left.

From here you can understand the interest in developing an accelerated transition that will be very advanced in 2030, because then it will be much more difficult. As Espartal says, after 2030 only some countries will be able to withstand growth, the rest will begin their journey through the desert ...

Regards.