

The Casey Files

Peak Oil & Beyond

The start of 2008 has brought with it the first official sighting of \$100 oil. I say "first" because the age of cheap oil is coming to a close. While no one can say with absolute certainty where prices will go from here, the odds are in favor of them moving much, much higher. You can stand by and watch helplessly as your gasoline and other energy costs skyrocket, or you can make the trend your friend and profit from it. As you might have guessed, I'm in the latter camp.

I'm not alone. Matt Simmons is one of the world's foremost authorities on peak oil. Below is a transcript of a recent conversation he had with Bud Conrad, Casey Research's chief economist, about the dynamics at the tail end of our petroleum age.

Peak oil is one trend that you don't want to end up on the wrong side of. Take a minute to read the following interview and you'll be well ahead of the crowd in understanding this important issue, and better prepared to take advantage of the opportunities the new environment for energy will bring.

Marin Katusa
Chief Investment Strategist, Energy Division
[Casey Energy Speculator](#)

The Casey Interview with Matt Simmons

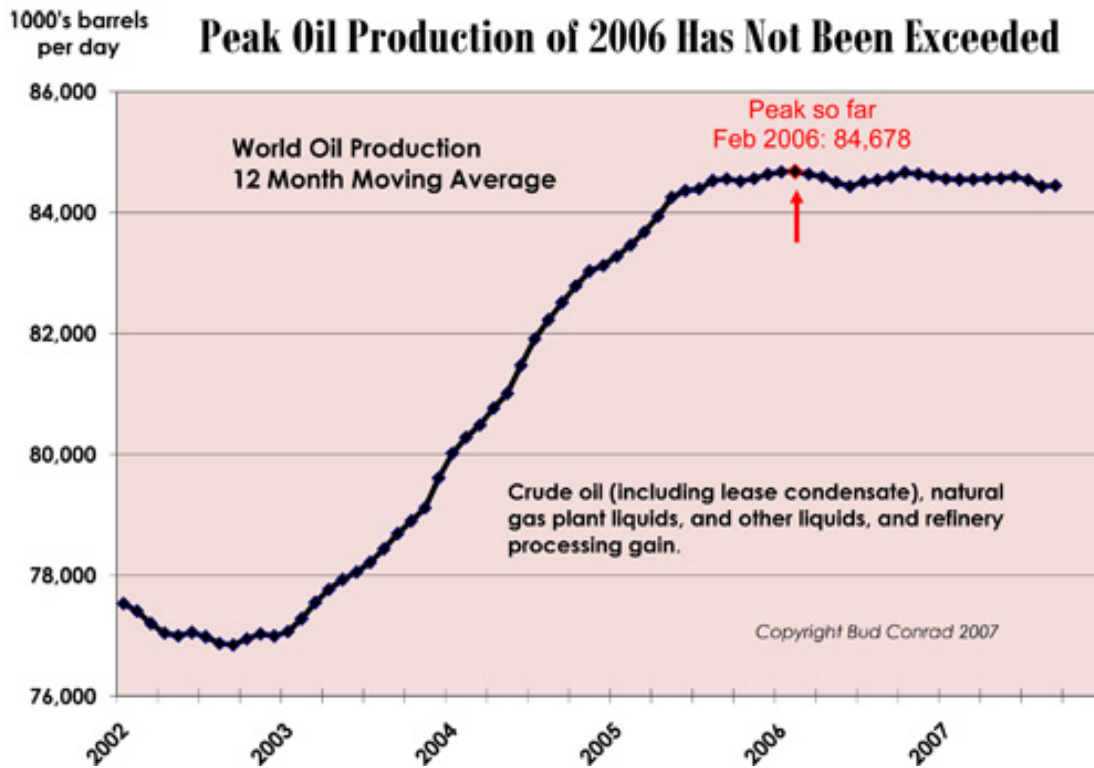
Matt Simmons has been an investment banker for 40 years. He is the founder and chairman of the world's largest energy investment banking company, Simmons & Co. International. In 2005, he published "Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy," a book that has galvanized the peak oil debate.

The following interview between Matt Simmons and Casey Research Chief Economist Bud Conrad was published in the August 2007 edition of the Casey Energy Speculator.

Bud Conrad (BC): Let's jump right into it. I'd like to ask your views about peak oil. Are we there now, or is it happening in the next decade? What's your opinion here?

Matt Simmons (MS): My opinion is that it's increasingly likely that we actually set an all-time record in May 2005 of 74,252,000 barrels per day. And for the first three months of 2007, we're almost a million barrels per day behind that, and we're dropping fast. If that record still holds a year from now, I'll bet someone ten-to-one that we set peak oil in May 2005 and it's now past tense.

(Ed. Note: Here is a chart of a slightly more inclusive measure that shows production is not growing.)



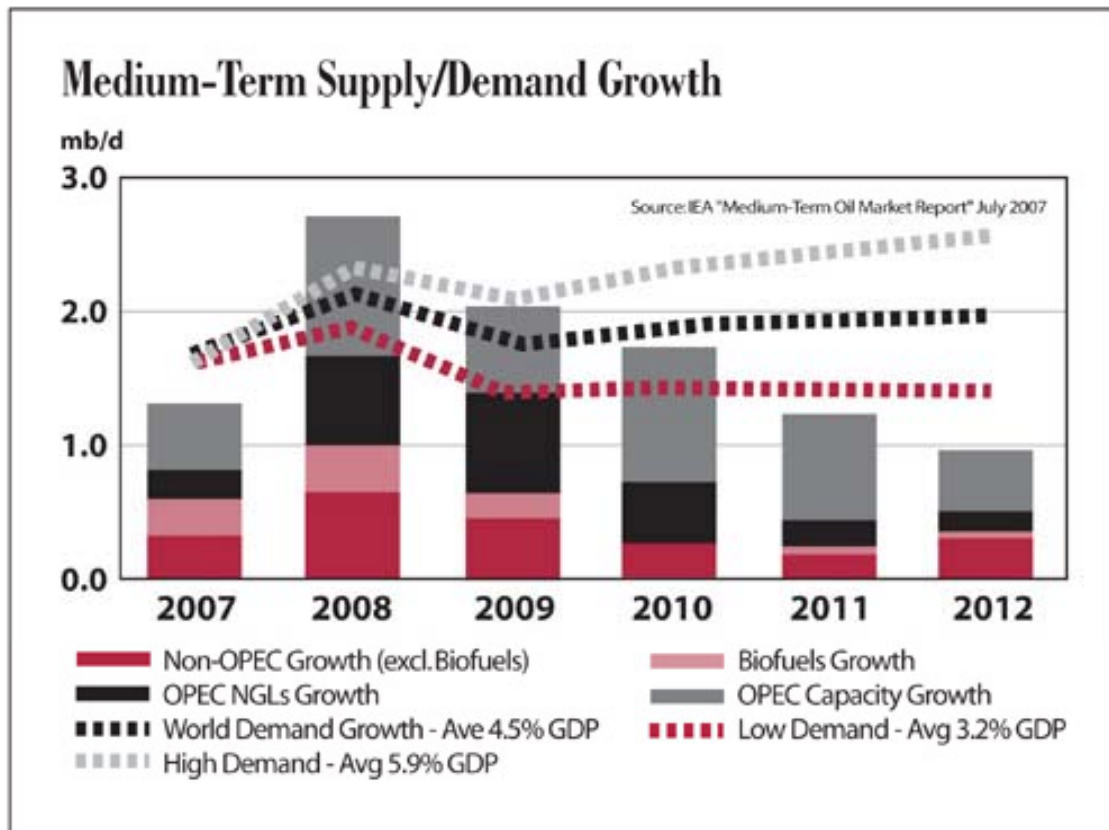
BC: It certainly looks ominous, and should be scary to more people than it seems to be.

MS: It ought to be. I don't know if you read the National Petroleum Council study that was released yesterday...

BC: The IEA report too!

(Ed. Note: Matt Simmons is referring to the National Petroleum Council report "Facing the Hard Truths about Energy," released July 18, 2007, which has been roundly criticized as glossing over all the hard truths and replacing them with the delusions of a Pollyanna mentality.)

Bud is referring to the IEA mid-term report that came out July 9, 2007, claiming that oil demand will outstrip production causing a supply crunch starting in 2010 that will worsen until 2012. The graph below shows the IEA conclusions, with increasing demand growth represented below by lines, and diminishing supply growth represented by bars.)



MS: The IEA thing, basically, was good news. That's the first huge change in the mood of the IEA of finally being realistic that we have some unbelievable problems. But you know what the major oil companies got wrong in this NPC study? They basically didn't understand that the peak oil people were talking about flow rates. They thought we were talking about the ultimate resource base, which is the funniest concept in the world.

BC: Let's discuss that for clarification. We know that flow rates are what we measure to understand whether we're at peak or not. In M. King Hubbert's work, peak oil is calculated using the total resource base, but your point is that we may still have oil that we're just not able to produce in an economic way.

MS: If it's in the ground and you can barely get it out, it's as irrelevant as me looking out over Penobscot Bay and saying "There's a vast amount of hydrates about a thousand miles from here, a thousand feet underwater." Well, so what? That's not useful energy.

BC: If it takes more energy to dig up that last barrel of oil than it produces, then there's no sense in trying.

MS: And another important concept is that if you're lucky enough to find a highly pressurized field and it turns out to be condensate, which is sometimes called natural motor gasoline, you can literally bypass the refinery -- because it's been baked in the

ground -- and put it right in your car. It doesn't run perfectly, but it runs. With the heavy oil out of Canada, you have to expend energy to make it ooze out of the ground, and once it's oozed out of the ground, you still have totally unusable oil.

BC: You still have to go through a fairly hefty process...

MS: ...of upgrading, and then finally diluting it with high-quality oil before it can flow. So one is total junk oil, and the other is the Rolls Royce of petroleum.

BC: The world needs to understand that we've been using up the Rolls Royces first because they're more available. The harder-to-find and harder-to-refine stuff is what's left. I think that's misunderstood.

MS: Oh, it's totally misunderstood. Sour, heavy oil is really not worth very much.

BC: We're probably in more serious a situation than most people would realize, and it's no better with natural gas. Switching gears for a moment, do you think the rise of LNG will be enough to keep up with declines in natural gas discovery and subsequently in natural gas production?

MS: Well, first of all, the problem with LNG is that if we try to develop a spot market out of LNG, the odds of it ending in bankruptcy are about 90%.

BC: Who goes bankrupt?

MS: All the players. The cost to produce and distribute LNG is so high that to make LNG work in any sort of financial reality, you would need a 25- or 30-year guaranteed supply. And then you can amortize it over 25 or 30 years. If you're going on a spot supply, you've got to write it off over 10 years and then you'll need \$40 per million BTU to make the economics work. The other thing is that about 35% of the hydrocarbon value gets chewed up in the process of cryogenically freezing natural gas, transporting it, and then re-gassing it.

BC: In your opinion then, LNG is not an economically viable solution. We won't do it.

MS: We shouldn't do it. But it turns out that high-quality natural gas – sweet, high-quality natural gas – is just like sweet oil. It's basically in decline.

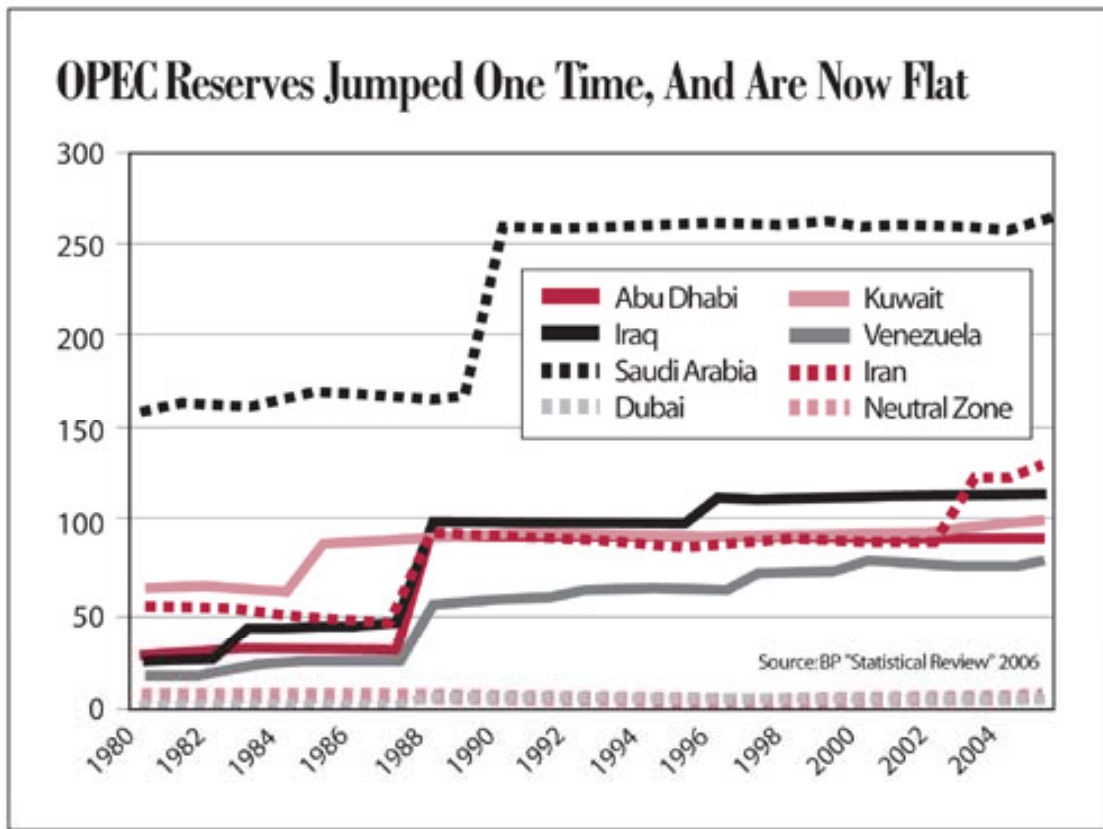
BC: And therefore also harder to find, despite our original hope of about a decade ago. Clean energy was going to fix everything through natural gas for electricity and everything else.

MS: Yes, and using natural gas for electricity turned out to be an unbelievably stupid decision. Using electricity for heat was equally stupid. Natural gas should be refined to one use and one use only, and that's creating instantaneous and high-efficiency heat.

BC: I've read "Twilight in the Desert," and I'm interested in your view of the overall Middle East reserves, particularly what happened in the mid-'80s when most of the countries in the Middle East magically doubled their reserves...

MS: At the very least...

(Ed Note: Here's a graph that shows the sudden jump in reserve numbers that occurred in the Middle East)



BC: OK, depending on the country, there were a huge amount of paper increases in apparent reserves. What are your thoughts on Saudi Arabia and what's going on in the Middle East?

MS: Well, I can tell you an awful lot of anecdotes that I've heard. It's been now two years since "Twilight in the Desert" came out, and I have so much more information that I've been able to gather in feedback from people within Saudi Aramco who, I'm told, learned an awful lot by quietly, secretly reading the book, which is sort of...

BC: (laughing) Saudi Aramco learns from you!

MS: Well, they had been so secretive over the years. If you think Saudi Arabia's a secretive place, within Saudi Aramco, it was even more secretive. And one of the first times that I got a glimpse of this was when I was a keynote speaker, this must have been six years ago or eight years ago now, at the bi-annual SPE global conference for coil tubing. This guy comes up to me afterwards and he's an American. I saw his card and he's from Saudi Aramco. So I said "Oh, do you live over there?" and he said "Yeah, I just flew over for the coil tubing conference." I asked him what he knew about Safaniya. He replied, "You know what – I've never heard anything about it. I've been there 18 years. I know where the field is, that's about it. Where did you get that data? You never hear field data in Saudi Arabia!" So I said, "What do you do at Saudi Aramco?" He said "I'm a production manager at Ghawar." I said "Gosh, Ghawar is the largest oil field in the world." He nodded, "Yep." I queried, "How big is Ghawar?" He said "God, I couldn't tell you that, I'd be sacked." I said, "Okay. Now if you walked from north to south and east to west, how big is it?" He said, "Oh, it's about 145 miles long and 20-25 miles wide at its widest point, but don't ever quote me on that. I could lose my job." And I've just talked about the dimensions! (laughter) Any map shows this.

BC: Unbelievable.

MS: I thought "Good lord, if they're that secretive within Saudi Aramco that this guy who is senior enough to be going to Houston for the coil tubing conference, and has been there 18 years, doesn't dare tell me. It took about three months after the book came out before I started getting feedback from within the system, and then there were these Saudi Aramco guys saying "God, what a fabulous book. We had all told ourselves that this stupid guy in Houston was writing this stupid book that Saudi Arabia no longer has any oil through total incompetence and how these camel jockeys screwed up the world's biggest oil fields, and it made us madder than hell." And, of course, the book didn't say anything like that.

BC: You're saying we don't know what the reserve numbers are, and that we need more people to honestly tell us. This is a world resource and we shouldn't be risking humanity's future without knowing what's going on.

MS: Absolutely.

(Ed. Note: Along these same lines, the former head of the National Iranian Oil Company, Dr. Ali Bakhtiari, made a bold statement recently that "It goes without saying that when assaying Middle Eastern oil reserves, one should tread carefully. Because, on the one hand, oil reserve estimation is both a science and an art; and on the other hand, seen from the point of view of most Middle Eastern countries, oil reserves are more political than geological. Thus, nonscientific views come to prime over science and further enhance the various types of shades that have led to an overall opaque situation in the Middle East." He's also stated that "As for Iran, the usually accepted official 132 billion barrels is almost 100 billion barrels over any realistic assay.")

BC: Saudi Arabia more than once announced that they were going to increase their production. They keep saying different numbers that they're going to increase it to, and they still wind up at 9.5 million barrels per day. Is it because they're holding back and there isn't a demand, as they say, or is it because they can't do it?

MS: Well, if I had to bet, I would bet somebody about four-to-one that they're producing every barrel that they can produce. The idea that no one wants their oil is really stupid. And they're also going to spend close to \$70 billion on some unbelievably hairy projects.

BC: If I can just interject, when you look at the big picture, and try to get to the big numbers of 342 million barrels of oil equivalent per year from all energy types that the world will demand for its energy needs by the year 2030, you need huge increases not only in the production of oil, but you need the other kinds of energy. And you need a huge investment. I've seen numbers like \$10 or \$15 trillion in the infrastructure to get there. My question when looking at the big picture is – how are we going to fund that sort of investment?

MS: And the answer is – the odds of that happening are less than one percent. If we were lucky enough to open up the entire outer continental shelf and then we were lucky enough to invent quickly enough seismic equipment to start doing some sort of a high-grading of where we should drill, and then we were lucky enough to have a growing fleet of newer offshore rigs that could drill wells and we just discovered two new North Seas, then there's grounds that we could basically spend four or five hundred billion dollars and maybe end up ten years from now with six million barrels a day of fresh supply. But the problem is that each one of those things that I said, "If we were lucky enough," we don't have. And to create each one of those is going to take ten to fifteen years to do. And ten to fifteen years from now, our 73 million barrels a day of current crude production could easily be down to 50 or 45. So you say even if you had another 6 million barrels per day, you can't climb back out of the hole.

BC: In one of your presentations, you have a very memorable clip of a ration book from World War II. Are we headed towards rationing and if so, between here and there, what are your estimates on what the price of energy might do, especially if we're hit by any ugly political events?

MS: I try to stay agnostic about political events because they're unpredictable. If you took a blackboard and filled it up with every political event that could impact the supply of energy, not a single one of them is positive. All political events are just unforeseen black swans.

BC: If you're looking at investments, what draws your interest?

MS: Our firm has daily recommendations, and I basically stay totally out of that. I tend to buy a stock and then hold it for five or ten years, unless I think that I've made a mistake. And I tend to think more about which sectors to avoid or be interested in to look at. One of the things that really amazes me about the stock market and their love/hate relationship

with energy is that of the current weighting of institutional investors in the market, the S&P weighting of energy is about 9%. Institutional ownership comprises about half of that. What's interesting is that about two-thirds of the ownership is in the major oil companies, which is the one group that I would avoid like the plague. So the market is invested in the wrong area – the major oil companies.

BC: They haven't been able to keep up their reserves.

MS: Yeah, and they can't. Their decline rates are so high and they operate such old, mature basins that they can't drill enough wells, and they don't have places to drill wells, and they don't have a sustainable strategy. So, in that respect, the oil service companies are the savior of all the problems.

BC: Specifically?

MS: The service industry is Schlumberger (NYSE: SLB), Baker Hughes (NYSE: BHI), Transocean (NYSE: RIG) and others. There's about 150 of them and, like in any sector, some of them are very poorly run companies, and some of them are outstandingly well run. What I really think is going to be the most active area is West Africa, or Libya, or that region. You can sort of name your scenario, and then you can pick the handful of service companies to give you good exposure. In the E & P business, you get companies like Chesapeake (NYSE: CHK), for instance, who have an unbelievably high talent, quality senior management, and they basically figured out a decade ago that the only way you grow production is by monopolizing drilling rigs and drilling like crazy. And so they've had double-digit production growth in their natural gas while almost every one of their peer group is in decline. I guess that's one thing that I would observe in forty years of energy investment banking is that management matters.

BC: No matter the sector, management always matters. Have you looked to any particular geographic areas that you would target your investments toward? Developments in Russia have been rather scary lately. They squeezed Shell out of a lot of the Sakhalin Islands.

MS: And Schlumberger has now almost ten thousand people working in Russia. One of the reasons that the Russians can kick the major oil companies out is that they basically realized that they weren't adding any value. The biggest well-kept secret is that major oil companies will come in and say "We will fix all your problems for ya, but we need 90% of your reserves," and all they needed was to hire Schlumberger. And now that oil prices are high, the Russians and the Algerians and the Angolans don't need the major oil companies, and don't like them, so they are kicking them out and circumventing and dealing directly with oil service companies.

BC: What's your view of Russia's recent assertion to 1.2 million square kilometers of the Arctic?

MS: Well, undiscovered oil has the same data quality as my undiscovered net worth. (laughter) I think there's probably some promise, but on the other hand, promises and useful energy are as different as the desire to have money and cash in the bank.

BC: What about alternative energies? Do you have any particular items that you like? I've noticed that your presentations have talked about ocean movements.

MS: You know, the ocean energy area – which I'm really highly enthusiastic about – is about where offshore oil and gas was about 50 years ago, maybe even 60 years ago, but there's really no investment way to play this, except the pure venture capitalists. And one of the things that I'm working hard to organize in mid-coast Maine is an ocean energy institute, which will basically operate sort of in tandem as a think tank to find research fellows and fund R & D projects. And also be a venture capital pool to actually be able to fund things that become commercial. There are a host of potential sources of energy in the ocean. Waves, tides, and currents are the most obvious, and maybe the most limited. So it's an area that could have a vast scope, but it's had almost no one working on it. There's probably less than 60 projects going on in the world today and they're all undercapitalized. Whereas, what's a little bit discouraging to me is how daunting the challenge is for almost all the other forms of alternative energy that we know about. Corn-based ethanol was just a terrible, tragic mistake.

BC: No argument there. Just on the net energy alone, not to mention the effects it's had on agricultural products.

MS: Even worse, it's a very low-quality source of energy. Low BTU, highly corrosive, you can't mix it with anything, it was just a terrible idea.

BC: It's stunning that it has even gotten this far.

MS: Well, because ADM cleverly labeled it grain. So the environmentalists just embraced it like it was some miracle drug. And no one ever took the time to figure out if this stuff made any sense. Ocean energy, on the other hand, could actually be very surprising. Liquid ammonia created by warm seawater could turn out to be a surprisingly fast replacement, and a high-quality replacement for motor gasoline.

BC: Liquid ammonia? We've never heard of this.

MS: Well, no one has because there's only about five people that are working on this. But we have transported liquid ammonia, and we have a history of almost 50 years of using it. It can be moved with exactly the same sort of pipeline system as motor gasoline. It has 111 octane, whereas corn-based ethanol has a very low octane. The biggest rap on it is that it's dangerous to your health if you drink it. Well, I keep telling people, "Have you ever had a good swig of motor gasoline?" (laughter)

BC: You're going to be a pioneer here, and I wish you well with that. Thank you for taking the time to speak with us.

MS: My pleasure.

Bud Conrad is the chief economist of Casey Research, LLC. and a contributor to the [Casey Energy Speculator](#) (CES), a monthly newsletter dedicated to uncovering deeply undervalued investment opportunities in oil, natural gas, uranium and alternative energy. The CES specializes in the unbiased investigation of small-cap energy companies with the very real potential to offer 100% or better returns over a short time horizon.

In the current edition of the CES, you'll read about the ultimate contrarian opportunity in today's oil and gas sector, and about the under-the-radar junior company poised to exploit these conditions.

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