

EUROPEAN ENERGY REVIEW

EER MONTHLY | DECEMBER 2012

A complete monthly survey of our new publications

**FOR
PREMIUM
MEMBERS
ONLY**



BAD NEWS, BAD NEWS

By Karel Beckman - editor-in-chief

November was the month of the broad Energy Perspectives. We were very grateful that we were able to do in-depth interviews with key representatives of the World Energy Charter, the World Energy Council and the International Energy Agency (IEA), who were willing to share their visions with our readers.

The most important publication to come out in November was no doubt the IEA's annual World Energy Outlook (WEO). The WEO is not only getting bigger every year, it is also

getting more and more publicity. This year's edition led to a veritable media storm, thanks to its sensational message that the US, after first causing a shale gas revolution, is now following this up with an unconventional oil revolution. This led to a lot of cheering in the US: whoopee, energy-independence, jobs, cheap energy, re-industrialisation. That's all well and good, as far as it goes. But for anyone who works in the energy sector, it would be a grave error to think that this was the only or indeed the major message of the WEO. Far

from it. It had a lot more to offer, all of it vitally important to the energy future we all have to deal with.

If you have no time to peruse the WEO yourself, the best we can offer (and it is a good alternative indeed) is our UK correspondent Alex Forbes' analysis that we published on 19 November. This provides you with an objective yet well-informed and critical overview that you won't find in any of the major media nor in the WEO's own executive summary or in the IEA's

TOP STORY

IEA's 'changing energy landscape' portends a dysfunctional future

NEW IN OUR FILES

 ENERGY PERSPECTIVES	8
 EU ENERGY POLICY	9
 NATIONAL MARKETS	10
 FUTURE OF FOSSIL FUELS	11
 GEOPOLITICS	12
 RENEWABLE ENERGY	13

press releases. Alex, who has closely followed the WEO over the years, concludes that – in spite of the cheers with which the document was greeted in the US – the IEA's latest energy outlook is its gloomiest yet. And that includes its take on the future of the global oil market.

That's the bad news for November. The worse news is that the IEA's gloomy scenario is its most optimistic one. As Alex writes, it could all end up a lot worse.

IEA's 'changing energy landscape' portends a dysfunctional future



Beyond the headline-grabbing projection that the United States will soon be the biggest producer of oil and gas, the latest energy outlook from the IEA is its gloomiest yet. The world will be well supplied with oil only if troubled Iraq becomes the second-largest exporter. Even so, oil prices will go on rising unless we enter another global recession. Carbon emissions will spew ever-faster into the atmosphere as we career towards being locked in to dangerous climate change; a credibility-stretching efficiency push could postpone this, but only by five years. Even by 2030, a billion people will lack electricity. Water is fast becoming a constraint on future energy supply. Perversely cheap natural gas will give US industry a competitive edge that will suck wealth away from OECD and emerging countries alike. And all this only if the IEA's arguably optimistic "central scenario" comes to pass. It could all end up a lot worse.

| *By Alex Forbes*

If there is one sentence in the International Energy Agency's latest World Energy Outlook (WEO) that chills the marrow, it is this: "Policy-makers looking for simultaneous progress towards energy security, economic and environmental objectives are facing increasingly complex – and sometimes contradictory – choices." In other words, achieving all three of these objectives is not just getting harder, it is now verging on the impossible. Even to those of us seemingly inured to the increasingly gloomy messages that the IEA has been propagating for some years, there is a feeling that we have crossed some kind of Rubicon – that in some pro-

found sense, as Julius Caesar once uttered, "the die is cast".

The messages in the 2012 edition of the IEA's WEO – seen by many as the most authoritative and influential annual projection of long-term energy trends – fall into two categories. The first consists of messages that we have heard before, but which have been updated to reflect another year of hindsight. It is the second category – messages we are hearing for the first time, or which have acquired a decisive new emphasis – that make this year's outlook especially interesting.



Launching the WEO in London last week, the executive director of the IEA, Maria van der Hoeven, said: “The global energy system is hugely complex, constructed of many interconnected parts that pull and push on one another. All of these changes need to be analysed and understood together if decisions are to be taken that put the world on track towards a secure, affordable and sustainable energy future . . . The global energy landscape is changing rapidly, and these changes will re-cast our expectation about the role of different

countries, regions and fuels over the coming decades.”

Inexorable growth in demand, carbon emissions and oil price

We knew already that the IEA expects global demand for energy to continue rising over the next two decades as the world’s population grows, and as people in emerging economies aspire to the standards of living enjoyed by those who live in the wealthy economies of the OECD. In this year’s WEO the projections are

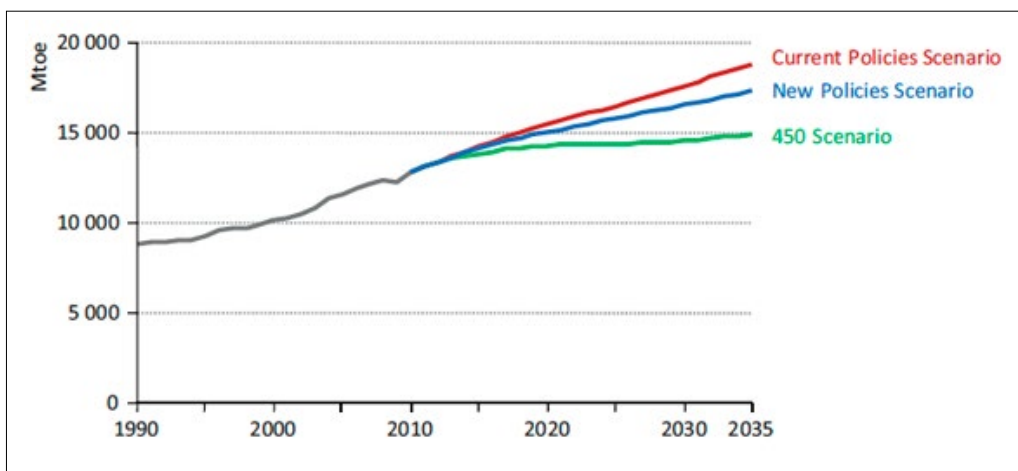


Chart 1: Primary Energy Demand

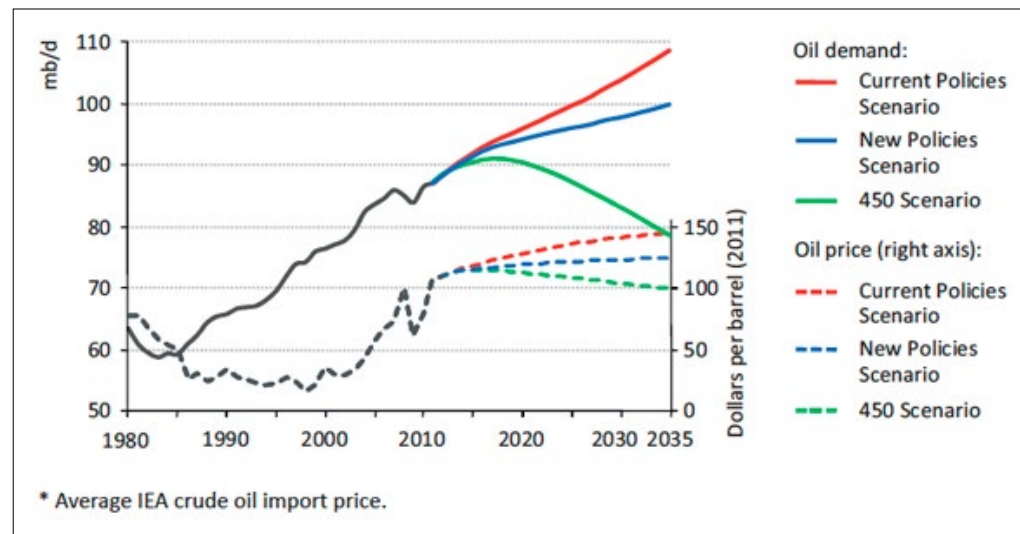


Chart 2: Oil demand and price

very similar to last year’s: in the central New Policies Scenario (NPS), global energy demand grows by one-third over the period to 2035 (see chart 1), with China, India and the Middle East accounting for 60% of the increase – so the “centre of gravity” of global energy demand growth continues to move eastwards.

Another ‘old’ message is that the IEA believes that “the world is still failing to put the global energy system onto a more sustainable path”. According to Fatih Birol, the agency’s chief economist and lead author of the WEO, “last year [energy-related] carbon dioxide emissions increased by about 1 Giga tonne (Gt) to 31.2 Gt, which is a record high”. Asked about

the chances of keeping global warming within a 2°C rise on pre-industrial temperatures, he replied: “The chances are getting slimmer and slimmer. But we still hope that governments will change their position, because we need government support to address climate change.”

We have become used to high oil prices and it was no surprise to learn from Birol that “as of the beginning of this month, we have the highest oil price ever, on average, which plays a negative role in the global economic recovery efforts”. This year’s WEO assumes that average oil prices will stay high, increasing to \$125/barrel in real terms (in 2011 dollars) by 2035 in the NPS (see chart 2).

So what's new?

The most dramatic new projection – reflected in headlines around the world – was that the United States is on track to become the world's largest producer of natural gas by 2015, overtaking Russia, and the largest producer of oil by 2017, overtaking Saudi Arabia for several years – with all that these developments imply. It is a result of a revolution in the production of unconventional oil that has followed on the heels of the revolution we have seen in production of unconventional gas.

A major implication is that US energy import dependence will plummet from today's levels. Chart 3 shows how the projected US trend compares with projections for other countries; China, India and the European Union all move sharply in the other direction, while Japan, which already imports almost all its energy, stays more or less where it is now. As the WEO comments: "Together with efficiency measures that are set to curb oil consumption, this energy renaissance has far-reaching consequences for energy markets, trade and, potentially, even for

energy security, geopolitics and the global economy."

Birol said that today's US oil imports of around 10 million barrels/day (b/d) were projected to fall to 4 million b/d within ten years, with 55% of the drop accounted for by rising indigenous production and as much as 45% "due to new efficiency standards for cars and trucks". By the end of the projection period, 2035, imports into the United States are only 3.4 million b/d and North America as a whole becomes a net exporter, as oil sands production in Canada grows to 4.3 million b/d.

This scenario of increasing self-sufficiency in oil in the US raises tricky geopolitical questions. One consequence would be that international oil flows would re-align, with around 90% of Middle East exports going to Asia. In the NPS a rising share of global oil trade has to flow through the Straits of Hormuz, the mouth of the Persian/Arabian Gulf (which Iran often threatens to blockade). As oil flows from the Middle East to Asia rise there will also be a growing reliance on the Straits of Malacca, with "oil

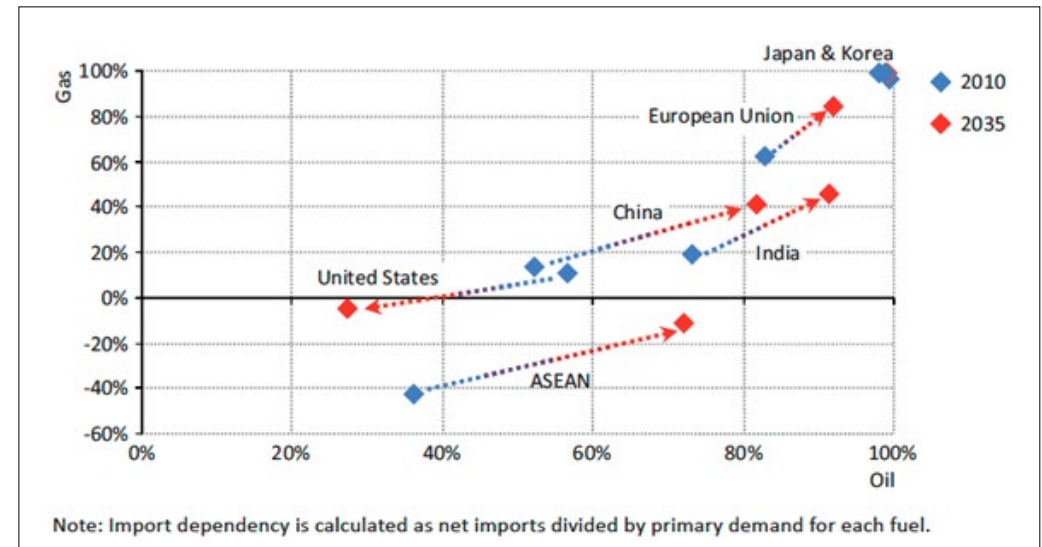


Chart 3: Import dependency

transit volumes as a share of global trade rising from 32% in 2010 to 45% in 2035", according to the WEO.

Some analysts have argued that the US would have less of an incentive to protect these vital shipping routes, while China, for example, would increasingly feel the need to ensure their security.

The key change in US oil production has been the rise in production of unconventional oil – so-called "light tight oil" – using the same production techniques used for shale gas. The IEA sounds a note of caution about its projections, given how new this phenomenon still is and the uncertainties

surrounding policy, especially in the face of public opposition to the production techniques used, especially hydraulic fracturing, or "fracking".

Over-reliance on Iraq?

Not that the world can relax about the adequacy of oil supply even if the IEA projections for the US are realised. Even with the projected increase in North American production, oil supply will only comfortably meet projected demand if another expected new development becomes reality: an increase in oil production in Iraq so large that it would make the nation the world's second-largest exporter by the 2030s, overtaking Russia.

Energy is a factor of production and any time that you have a cost advantage in a factor of production means you're going to be competitive in that area

In other words, Iraq accounts for 45% of the growth in global production to 2035.

“Today Iraq is producing about 3 million b/d,” said Birol, “and in our central scenario, which is significantly lower than the government’s expectations, that goes to 6 million b/d by 2020 and to 8 million b/d by 2035. According to our numbers, Iraq’s oil will be very cheap to produce – about 15 times cheaper than the Canadian oil sands for example and about 7 times lower than Russian oil production. And, unlike some of Iraq’s neighbours, international companies and capital can go to Iraq for investment.”

That said, Iraq remains a troubled country. As the WEO comments: “Development of the [oil and gas] sector will be determined by the speed at which substantial

impediments to investment are removed, clarity on how Iraq plans to derive long-term value from its hydrocarbon wealth, international market conditions, and Iraq’s success in consolidating political stability and developing its human resource base.”

Birol concedes that failure would hinder Iraq’s recovery and put global energy markets on course for “troubled waters”. Because of the uncertainties, the IEA has developed a “Delayed Case” scenario for Iraq that results in a much less ambitious trajectory for oil production growth – capacity reaches 4 million b/d by 2020 and 5.3 million b/d in 2035. A global consequence would be oil prices nearly \$15/b higher by 2035 than in the NPS.

Given the importance of oil prices, EER asked the IEA’s deputy executive director Ambassador Richard Jones to explain how prices are determined for the WEO projections. He replied: “We only assume the prices, we don’t project them. What we do is look at what the impact of certain policies will be. First we look at the impact

on demand and ask: ‘What kind of price will generate the supply?’ Then we do an iteration. ‘At that price would the demand be the same?’ The answer is ‘no – it would be affected in some way or another’. So we get new estimates of demand, of supply and price. The price is a solution of the model. It’s designed to balance the assumptions that we make in other areas.”

Gas price tensions

One trend that was already clear last year but which has gained new emphasis is the divergence of natural gas prices we are seeing in the three main gas-consuming regions: North America, Europe and Asia Pacific. Not only has this divergence persisted, it has grown wider. “At its lowest level in 2012,” says the WEO, “natural gas in the United States traded at one-fifth of import prices in Europe and one-eighth of those in Japan.” US gas prices have since risen but the differentials are still huge and likely to remain so for the foreseeable future.

The differentials are having some dramatic consequences. In the US, where gas prices

are set by gas-on-gas competition, the gas glut caused by the unconventional gas revolution has pushed prices to levels not seen for a decade. Even today, Henry Hub prices are struggling to reach \$3.50/MMBtu. At these levels, those electricity producers that can be switching from coal to gas.

This in turn has freed up cheap coal for export, much of which is finding its way to Europe, where gas prices are much higher, causing electricity generators there to switch from gas to coal. A bizarre result – though driven largely by market forces – is that in the US, where climate policy is virtually absent, greenhouse gas emissions have fallen sharply, whereas in Europe, where climate policy is almost an obsession, emissions are rising.

More fundamental is an industrial renaissance under way in the United States, based largely on cheap gas – and therefore cheap electricity – which is giving it a competitive advantage over other regions. This is particularly so in the case of Japan, which imports gas in

Policy-makers looking for simultaneous progress towards energy security, economic and environmental objectives are facing increasingly complex – and sometimes contradictory – choices

the form of LNG, mainly under the terms of long-term contracts linked to oil prices. Average import price in recent months has been over \$16/MMBtu, with prices under pressure as more LNG is imported to fill the gap left by the closure of most of Japan's nuclear power stations in the wake of last year's accident at Fukushima. Chart 4 shows how the IEA expects average household electricity prices to evolve in China, the United States, the European Union and Japan by 2035.

"That's one of the things that we hope people are paying attention to," Ambassador Jones told EER. "Energy is a factor of production and any time that you have a cost advantage in a factor of production means you're going to

be competitive in that area. Electricity prices in the US and China are lower than in Europe and are likely to stay lower because gas prices are lower. And this isn't a question of subsidisation, it's strictly supply and demand."

Birol's view is that: "Oil-indexed pricing will be more and more under pressure. We have seen some countries make improvements even in existing contracts. We expect that there may be tough negotiations between the exporters and importers in new long-term contracts – and the hands of the importers will be stronger. It is far too early to say that the days of oil-indexed pricing are over, but we expect more flexibility in favour of importers."

Fall-out from Fukushima

Another trend re-shaping the global energy system that was already evident a year ago but which has gained emphasis over the past 12 months is the impact of the accident at Fukushima on the nuclear ambitions of several countries, including Japan, Germany, Switzerland and France.

Even a year ago, few believed that we would see the closure of all Japan's 54 nuclear power stations by the middle of this year. Even today, only two plants have been allowed to re-start. Meanwhile, in the US and Canada, the competitiveness of nuclear is being challenged by the availability of cheap natural gas.

The IEA has therefore scaled back the anticipated role of nuclear power in the

NPS. However, while projections are lower than in last year's WEO, nuclear output still grows in absolute terms in the NPS, as capacity expands in China, South Korea, India and Russia.

"To be honest with you, we are worried about what happens to nuclear energy," said Birol, "because in the absence of nuclear energy the 2°C [climate change trajectory] will be completely impossible."

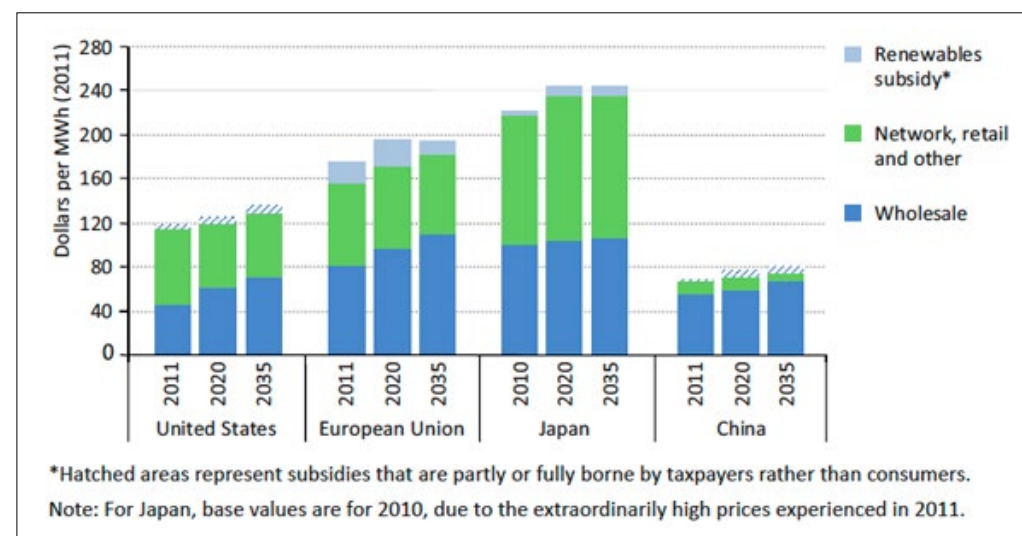


Chart 4: Household electricity prices

Efficiency push

A key initiative in this year's WEO is a focus on energy efficiency and what can be done to make the most of this "hidden fuel". "Energy efficiency is a key option in the hands of policy-makers," said van der Hoeven, "offering cost-effective benefits with regard to energy security, emissions reduction and a host of other policy objectives. In the last year many energy-consuming countries – including China, the United States, the European Union and Japan – have announced new energy efficiency measures. But, despite this, current efforts fall well short of tapping the full potential."

The IEA has therefore come up with recommendations which, it believes, would, if effectively implemented, generate substantial benefits, including: halving the growth in global primary energy demand to 2035; making universal access to modern energy easier to achieve; and, crucially, extending the amount of time available to tackle climate change by five years.

Time to focus on adaptation?

Worthy as the IEA's work is, it is hard to escape the feeling that the 2°C climate change objective is not just unattainable but moving further out of our reach. Rivalling the bone-chilling effect of the WEO sentence that we began with is this one: "No more than one-third of proven reserves of fossil fuels can be consumed prior to 2050 if the world is to achieve the 2°C goal, unless carbon capture and storage (CCS) is widely deployed."

The IEA has been consistently over-optimistic about the prospects for CCS and there is little evidence that it will have any substantial impact on greenhouse gas emissions any time soon, It makes so much more sense to pay to avoid climate change than to adapt to it at least in the case of coal, given the physics involved and the efficiencies likely to be achievable. As others have commented, the best way to store the carbon in coal safely and permanently is almost certainly to leave it in the ground. Meanwhile, one of the few parameters that can be forecast

with reasonable certainty is the growth of population, one of the main drivers of energy demand.

With this in mind, EER put the following question to Ambassador Jones: "Doesn't the 2°C target look rather hopeless? We're going into the [UN climate change] talks in Doha now, following on from Durban, Cancun and Copenhagen. Isn't it time to abandon the 2°C target and target adaptation?"

He replied: "Let me tell you: adaptation's more expensive. I don't want to abandon a less expensive alternative prematurely, just because politically people are having problems with it. I can't say that the recent hurricane [in the US] was caused by global warming, but all the models predict that there will be more such events. Think about the expense for that. It makes so much more sense to pay to avoid climate change than to adapt to it." ■

RELATED ARTICLE

"European countries missed a big opportunity by closing their doors to shale gas in a dogmatic way"



Energy decisions that are being made in Europe are seriously hurting the European economy, says Fatih Birol, Chief Economist of the International Energy Agency (IEA) and the guiding spirit behind the IEA's flagship publication, the World Energy Outlook, in an in-depth interview with EER. In particular, Europe has failed to use the trump card of unconventional gas to obtain more favourable terms from its major gas suppliers, says Birol. As a result, European industry and consumers are faced with unnecessarily high energy prices.

[Read the full story →](#)

file

Energy perspectives

“Energy perspectives” is the most widely defined of our files. It contains articles that in some form or other convey a long-term vision of our energy future. Anyone concerned with energy strategy should be able to find plenty of food for thought here.

22/11

Interview: Howard Chase, industry representative with the Energy Charter
 “This is not the time to lose the Energy Charter”

Another man of great experience, who definitely belongs in the European gallery of energy luminaries, is Howard Chase, formerly of BP, now with Dow Chemical, and Chairman of the Industry Advisory Panel of the Energy Charter. EER spoke with him about the importance of adapting the Energy Charter to the modern world. He notes that sometimes “even very senior policymakers” do not sufficiently appreciate how important energy and hydrocarbons are to “our way of life”. [Read the full story →](#)

19/11

IEA’s ‘changing energy landscape’ portends a dysfunctional future

See [page 2](#) of this Monthly.

19/11

Interview Fatih Birol, Chief Economist of the International Energy Agency
 “European countries missed a big opportunity by closing their doors to shale gas in a dogmatic way”

In addition to Alex Forbes’ take on the World Energy Outlook, we featured an in-depth interview with the “man behind the WEO” – the IEA’s Chief Economist Fatih Birol. Given that the WEO has become such an influential document, surprisingly few questions are asked about how it is put together. At EER we made a start with this by asking Birol who really writes the WEO and who decides on what topics are highlighted. [Read the full story →](#)

8/11

Interview: Christoph Frei, Secretary-General World Energy Council
 “Energy is bigger than any single country”

Next to the International Energy Agency, the World Energy Council is one of the most important international energy institutions in the world. The WEC’s (relatively) new Secretary-General, Christoph Frei, is a man with a mission – and interesting stories to tell. “You need to work with, not against”, says Frei, about how he deals with governments around the world.

[Read the full story →](#)

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- The IEA dares not lose faith in a “clean energy future”
- Open markets to the rescue - the story of energy in 2011, and its lessons for the future
- Interview: Maria van der Hoeven, new chief of the IEA - “We must find mechanisms to strengthen cooperation with the emerging economies”

file

EU Energy Policy

People often think that European Energy Review is based in Brussels, but actually we are based in the Netherlands. And why not? Europe is after all more than the EU or “Brussels”.

Yet “EU energy policy” is of course crucial to the European energy market, and we follow it closely, mainly thanks to our correspondent Sonja van Renssen (and her predecessor Hughes Belin). In November we took up four EU energy policy themes.

26/11

Interview: biofuel-expert André Faaij

“EU biofuel policy is addressing the wrong issue”

Freelance author Loes Knotter did an eye-opening interview with André Faaij, one of the world’s leading experts on biofuels, who takes a very dim view of the latest legislative proposals on biofuels to come out of the European Commission. [Read the full story →](#)

15/11

The EU risks ending up with not a single CCS demonstration plant

The CCS mess

Sonja van Renssen produced another one of her unique inside-stories on “the CCS mess” in Europe. There are very few places where you will be able to find the detailed information Sonja has on carbon capture and storage developments in the EU. [Read the full story →](#)

5/11

Why the EU should stop relying on a global climate treaty

Oliver Geden of the Berlin-based think tank SWP (German Institute for International and Security Affairs) argued why he believes the EU should just carry on with its decarbonisation policy without waiting for some kind

of global treaty to be signed. A highly topical piece with the UN Climate Conference in Doha witnessing perhaps the end of the Kyoto treaty. [Read the full story →](#)

1/11

We need to move beyond the East-West division inside the European Union

Talking about EU climate policy, sometimes it is argued that the EU should apply different standards to the new member states, like Poland, who have a different energy mix and historical background than the “old” member countries. Emilia Zankina, an Assistant Professor in Political Science at the American University in Bulgaria, disagrees. She argues that when it comes to climate policy, the EU should have a common energy and climate strategy that applies equally across the EU. [Read the full story →](#)

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National markets

EER regularly pays attention to important developments in national (European) markets. In November we published three articles highlighting significant developments in Italy, Denmark and Germany.

15/11 Italy finally has an energy plan

Our Italian correspondent Heather O'Brian reported on the new Strategia Energetica Nazionale (SEN), which the Italian government has recently released (in a first, draft version). It is the first time in many years that Italy has a national energy strategy again. The main priorities:

- Italy wants to continue to promote renewable energy, but reduce subsidy levels
- To establish a competitive gas market
- To reduce energy import dependence by promoting domestic production of oil and gas
- To take decision-making powers away from local governments

[Read the full story →](#)

12/11 A fossil-free future? The Danes just do it

Although Italy has of late been a “growth leader” in solar power, when it comes to renewable energy probably no country in Europe is further ahead than Denmark. Celebrated energy author (and nuclear energy critic/specialist) Walt Patterson had to see it to believe it. He went on a tour of north-western Denmark to discover what a fossil-free future might look like in practice – and came away with the conviction that it's much more realistic than most people imagine. “The Danes just do it!” he headlined his enthusiastic account. [Read the full story →](#)

12/11 Germans and Central Europeans lock horns over energy

Germany too is of course a pioneer in renewable energy, but this country is encountering a lot more problems on its way to a fossil-free future. Its main problem is that it produces too much of it – frequently more than the current German electricity grid can handle. This means that Germany perforce has to export large amounts of wind- and solar-based electricity – at erratic moments. This, in turn, can lead to problems for its neighbours. At a German-Czech conference in the Czech town of Ostrava, the Czechs made it clear to their neighbours that they have just about had enough of this: they are threatening to close the Czech-German border to German electricity imports, if they threaten to overburden the Czech grid. But the Germans too had some complaints: they don't like it that the Czechs want to build a new nuclear power plant right near the German border – at a time when Germany itself is closing all its nuclear power plants. [Read the full story →](#)

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file

Future of fossil fuels

Some people might wonder, do fossil fuels have a future at all? Well, it would be, let's say, slightly premature to write them off. Certainly when the IEA predicts a "golden age of gas".

5/11

MOST
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The US LNG export stampede: another gas revolution in the making

In what could become one of the major upsets in international energy markets, the US, which has for some years enjoyed a domestic shale gas boom, is now on the verge of becoming an LNG exporter. Gas prices in the US are only a fraction of what they are in Europe and Asia, and the LNG terminals that were built in the US to import LNG before the shale gas revolution, can easily be converted into export terminals. The only thing gas companies are waiting for is permission from the US government. Alex Forbes was onto this story as one of the first reporters, and he did quite a bit of research to find out what the potential is of US LNG exports and what the implications are for world gas markets. [Read the full story →](#)

22/11

A Secret War of Activists - With the World in the Balance Frack Fight

In the meantime, it would be a mistake to think that American citizens are universally cheering the advent of shale gas in their country. Many wish that the US government would be like the French or other European governments, who have stopped shale gas exploitation dead in its tracks. That, at least, is the view sketched by well-known environmentalist author Ellen Cantarow in a hair-raising report on what she calls the Shale Gas War in Upstate New York. Doubtless there are lessons to be drawn from this for Europe. [Read the full story →](#)

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file

Geopolitics

In our section Geopolitics, we have an interview this month with the CEO of the Canadian oil and gas producer Emperor Oil, Andrew McCarthy.

15/11

Interview: Andrew McCarthy, CEO of Emperor Oil

“Investing in Africa and the Middle East is no riskier than in the US or Europe”

McCarthy takes an interesting perspective on “risks” in international oil markets. His company is active in Sudan, for example, which has a turbulent political climate. But, says McCarthy, what about the political climate in the US? Or the EU? As an oil producer you can run into quite a bit of problems there. Ask BP!

And “high-risk” countries like Sudan have one great advantage, McCarthy points out: they have easy to access, cheap oil and gas resources. You can’t say as much for the US and EU! [Read the full story →](#)

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file

Renewable energy

While the development of shale gas, tight oil, nuclear energy, biofuels, coal-fired power generation, offshore wind, onshore wind and other forms of energy is often hotly contested, the one darling source of energy that everyone loves is no doubt solar power. If we can believe the experts, solar panels are becoming ever cheaper and their use is spreading around the world like wildfire.

1/11

US and EU trade sanctions against Chinese solar PV cells: a blow for solar power and sustainable development

However, there is one problem with this success story: cost reductions have been driven by the large-scale development of PV panels in China – and the Chinese success has put pressure on US and European solar panel producers. So much so that they are asking for protective tariffs. The US has already implemented them. According to John A. Mathews, professor of global strategy at the MGSM Macquarie University in Sydney, Australia and a foremost expert on renewable energy, this is highly unfortunate. In a truly fascinating article he wrote for EER, he explains how the solar power sector is structured, why it works on a global basis and why tariffs will only undermine the growth of solar panel worldwide. [Read the full story →](#)

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Colophon

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