

ENERGISING TOMORROW'S WORLD

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Contents

UN energy targets 'would jack up global emissions 20%'	p.1	Funding devils in the detail of the UN's energy targets.....	p.6
Is green growth possible?	p.2	UN energy goals threatened by fossil fuel subsidies, campaigners say ...	p.7
Half of Europe's renewable energy 'comes from wood'	p.4		

UN energy targets 'would jack up global emissions 20%'

An ambitious but little known set of UN sustainable energy goals for 2020 aims to double global improvements in energy efficiency and renewable energy capacity, and provide universal access to modern energy services. But achieving this last target would cause a carbon emissions explosion, according to a senior UN economist.

More than one in five of the planet's 7 billion inhabitants lack access to electricity and another 1 billion lack stable supplies, a gross inequity that the UN Sustainable Energy For All (SE4ALL) initiative aims to end by mobilising governments, business, and civil society.

But EurActiv understands that, while in an ideal world, only locally-sourced renewable energy would be included within the initiative, in practice less sustainable sources will be relied on wherever necessary.

According to Ulrich Hoffmann, a senior economist with the UN Conference



on Trade and Development (UNCTAD), speaking in a personal capacity from the secretariat's offices in Geneva, this could have "catastrophic" consequences.

"We are far from an ideal situation and in reality if you were to hook these 1.3 billion people onto any form of energy supply – assuming current average consumption and production patterns – whatever is available in terms of energy mix, it would automatically jack up carbon emissions by no less than 20% globally," he said.

Hoffmann argues that the 'rebound effect' of increased energy supply without

a corresponding decoupling from carbon sources in absolute terms, can only feed a cycle of increased production, consumption, and thus carbon emissions.

Instead he proposed a massive decline in the developed world's carbon intensity, and redistribution of 'development space' – the amount of carbon emissions possible without exceeding 2 degrees Celsius of warming – to help the developing world.

If 1.3 billion were simply connected to electricity supplies, "the effect would be catastrophic," in advancing global warming

Continued on Page 2

Continued from Page 1

with a potential to make life on large parts of the planet uninhabitable, he said.

But Hoffmann's perspective faces opposition from governments, private sector companies, NGOs and participants in the UN SE4ALL initiative.

Philosophical criticisms

Catherine Ray, a spokeswoman for the Development Commissioner, Andris Piebalgs, said that Hoffmann's position was "interesting but quite philosophical", and that projects sponsored by the EU would focus on providing locally-sourced renewable energy.

"You have to be pragmatic and everyone can agree that it is better for African countries to tap their renewable

energy sources rather than going all through fossil fuel, which is more polluting," she told EurActiv.

Half of the 1.3 billion people lacking access to modern energy services are African, and the results, especially for women, can be life threatening on a scale unimaginable in the planet's rich north.

"If we are going to invest in Africa, maybe it is better to try and invest in these [renewable] sectors rather than leaving them being energy dependent?" Ray said.

Detail in the development

On 16 April, the EU launched an 'Energising Development' programme, as part of SE4ALL. Speaking alongside the UN secretary-general Ban Ki-Moon, EU president José Manuel Barroso committed

the EU to help provide access to sustainable energy services to 500 million people by 2030.

More than 50 countries have signed up to SE4ALL, and the initiative claims to have catalysed \$50 billion of private sector investment – more when public funds are counted – although the sums mobilised will also be directed towards the initiative's other two 2030 targets.

The initiative only has four members of staff working full-time on the project, deliberately so the UN claims, so as to keep it lean and efficient.

"It is quite an achievement that in one year, the movement has been so fast because you have had two summits, a lot of money committed and a lot of projects launched under this umbrella," Ray said.

Is green growth possible?

Clean tech jobs to power green growth is considered a no-brainer by progressive policy makers, NGOs and businesses, and the idea forms the core of the UN's Year of Sustainable Energy For All (SE4ALL). But some economists, academics and environmental thinkers increasingly question its central premise.

Critiques of 'green growth' have often been articulated by business lobbies opposed to climate action, but also by environmentalists and socialists, who argue that infinite growth is impossible in a finite natural world.

One EU official speaking to EurActiv on condition of anonymity said that achieving the emissions cuts needed to contain global warming to the UN's 2 degrees Celsius target, while maintaining growth was an "outlandish" notion.

"If you want growth in the way that we define it as exponential – a year-on-year increase – and project it into the future, then you have an incredible gap between the increase in total economic output and the decline in total emissions that you rely on," he said.

Indeed, many climatologists now see the 2 degrees target as doomed.

Last month, a report from Germany's green Heinrich Böll Foundation argued that increased energy savings do increase productivity and result in income gains, but that these in turn also stimulate demand.

Because this demand will be met by a still mostly-carbonised grid, 'Green Growth Unravelling' contends that the "fatal fallacy" of this kind of green growth is that its 'rebound effects' will actually increase CO₂ emissions.

For instance, increased airplane fuel efficiency may lower flight prices and lead more people to take long-haul holidays.

13 types of rebound

The Böll study considers 13 different kinds of rebounds – financial, material, psychological – and concludes that "energy efficiency improvements in an economic

system will on average yield half the theoretical savings potential" and in some cases less than that.

Efficiency standards for appliances or production processes have the greatest rebound potential, while eco-taxes potentially harbour the least, the study finds.

But the rebound theory has many environmental critics, who argue that the effects of rebounds are trivial, often positive, and decline over time.

In practice, critics of green growth sabotage the 'only game in town,' they say, not least because the Obama administration made a strategic decision in 2009 to downplay climate change statements in favour of green jobs advocacy.

"As the world goes through an economic recession, an efficient energy market can help wealthier nations recover and developing nations grow, by allowing the poor access to goods and services that they previously couldn't have," Marina Migliorato, head of corporate social responsibility for the Italian energy giant, Enel told EurActiv.

Continued on Page 3

Continued from Page 2

Universal energy access

Leading economists say that the SE4ALL goal of providing universal energy access to 1.3 billion people by 2030 need not greatly increase carbon emissions.

The International Energy Agency World Energy Outlook Report in 2011 argued that because of the low level of energy per capita in the developing world and the relatively high proportion of renewable energy involved, overall emissions rises would be limited.

The IEA estimated that the UN's target would require an additional 220GW of electricity and so increase global CO₂ emissions by a modest 239 million tones of CO₂ in the year 2030.

"The biggest part of emissions comes not from Africa but from us," Christophe Yvetot the representative of the United Nations Industrial Development Office (UNIDO) to the EU told EurActiv.

Under the IEA's SE4ALL scenario, 45% of additional electricity would be generated and delivered through existing national grids and 36% by mini-grid solutions. Around 60% of this total would come from fossil fuel sources, particularly coal. Incentives would thus be offered to help emerging economies use locally-based renewable energy sources, Yvetot said.

Rurally-located off-grid solar solutions such as panel systems can provide electricity during the daytime, without themselves increasing carbon emissions, and are expected to make up 20% of the SE4ALL total, according to the IEA.

"Maybe for the poorest of the poor we can support them going green," Yvetot said. "They won't be able to do it [on their own] in all cases so at the same time those polluting more should make the structural changes to move to carbon-free industries."

"Apocalyptic implications?"

But Ulrich Hoffman, a senior economist at the United Nations Conference on Trade and Development



told EurActiv that this was irredeemably optimistic and the emissions increase from such a scenario would be higher than 20%.

GDP-per-capita growth and a predicted world population leap from 7 billion now to 9 billion in 2050 would make a decoupling of growth from CO₂ emissions all but impossible, in his view.

"With the benefit of hindsight, the arithmetic of growth does not suggest there are cases of such decoupling in absolute terms [having happened before]," he said, speaking in a personal capacity.

The "mammoth challenge" facing the planet could be illustrated by the fact that annual efficiency gains of 0.7%-1% over the last 25 years would need to increase ten-fold every year to 2050 to contain global warming to 2 degrees Celsius, he said.

"A purely arithmetical point of view would tell us that the techno fix can't work," Hoffmann added. "I'm afraid to say that if trends continue unabated we are looking at climate change of between 4-6 degrees, which will have apocalyptic implications, and those who have contributed least to it will be the first and worst affected."

Businesses which have begun moving away from fossil fuel investments, such as Shell, stress the potential for investment in the developing world to lift people out of poverty.

"In the next 20 years, demand growth is not going to come from Europe but from the world population going from seven to nine billion people, and three billion

more coming out of poverty and joining the middle class," Dick Benschop, Shell's Netherlands Gas Markets vice president, told EurActiv.

"I describe it as the moral demand for energy," he added. "We have to cater for that growth with cleaner energy so that people can read at night and educate themselves away from biogas cooking, buy their first motorbike, fridge and everything, that's where demand sits."

"Not precisely a barrier"

However, Kandeh Yumkella, the chief executive of SE4ALL and director general of UNIDO in overall charge of the SE4ALL initiative acknowledged the rebound problem in 2011, when he signed off on a UNIDO energy efficiency report.

This paper listed the various energy savings policy ricochets that "must be taken seriously" but said that they were "not precisely a barrier" to adoption.

"Rebound effects may be mitigated by gradually increasing carbon and energy taxes or imposing increasingly stringent cap and trade schemes," the paper explained.

The trouble is that these may be precisely the sort of measures that face the greatest political opposition and are thus least likely to be incorporated into climate initiatives

Both the SE4ALL and UNIDO's papers argue that efficiency efforts alone will not reduce emissions, and that analysts and policy makers need to keep their eyes on the potential rebounds.

Half of Europe's renewable energy 'comes from wood'

Practically half of the EU's renewable energy currently comes from wood and wood waste, according to the EU statistics office Eurostat, but a lack of sustainability criteria for measuring its environmental impact is stoking fears of a hidden carbon debt mountain.

The new Eurostat numbers were issued in conjunction with the UN's Year of Sustainable Energy For All (SE4ALL), which sets ambitious renewables, energy efficiency and universal energy access targets.

According to the Eurostat statistics, on average, 49% of renewable energy in the EU 27 states came from wood and wood waste for 2010, and most EU states met the majority of their renewable energy obligations this way.

Forest products were most popular in the Baltics, accounting for 96% of Estonia's renewable energy and 88% of Lithuania's. At the other end of the table, Norway and Cyprus only used wood materials for 11% and 13% of their renewable energy needs respectively.

"The bad news behind these figures is that the carbon debt from much of this wood means that CO₂ emissions in the real world will actually go up," Faustine Defossez the bioenergy policy officer for the European Environmental Bureau (EEB), told EurActiv.

EU states must source a fifth of their energy mix to renewables by 2020 and because wood is cheap, easily accessible



and considered 'carbon neutral', it is quite literally a 'low hanging fruit'.

But an increasing body of environmental science views the 'carbon neutral' tag as mistaken, because of a lack of common criteria to enforce sustainable practices such as cascade use.

Cascading involves the energy use of wood at the end of its life cycle, in the form of woodland wastes and residues, or byproducts such as furniture, panels and paper, 70.4% of which is now recycled according to the European Recovered Paper Council.

Burning wood

If living wood is simply burned for energy, a temporary carbon debt can be created until CO₂ emissions caused by the release of all the carbon it has absorbed, and the loss to the carbon sink, are compensated for by fully-grown replacement trees.

Climate scientists say that this time lag can run over many decades – sometimes centuries – causing environmental tipping points to be reached in the interim that render any

expected eventual carbon savings moot.

Last month, EurActiv revealed that a leaked EU study had concluded that bioenergy production often increased short-term carbon emissions, for this reason.

That study has still not been released and, as rumours of textual modifications swirl, EurActiv understands that the EEB is considering suing Brussels for its release, even though it is itself funded by the European Commission and 13 EU member states.

As with the Indirect Land Use Change (ILUC) dispute that paralysed EU biofuels policy for years, environmentalists believe that the carbon debt issue has the potential to ignite biomass sustainability criteria as an issue, because of what they call a 'shoot first, aim later' approach to policy making.

"Carbon debt is definitely the new ILUC," Defossez said.

UN fears

Fears are being raised that the same

Continued on Page 5

Continued from Page 4

problem could take root on a wider scale, in the UN's target to double the amount of renewable energy in the global energy mix by 2030.

"There is a very high risk that if you are just driven by short term simplistic targets and blunt incentives that the environmental results are likely to be very damaging," one EU official told EurActiv.

Despite their headline renewables target, UN officials contacted by EurActiv were uncertain whether sustainability criteria would be used for wood-based energy within SE4ALL, what they might be, or what percentage it would make up in the scheme.

"It's a very sensitive question," said Christophe Yvetot, the United Nations Industrial Development Office's representative to the EU.

But a November 2011 Vision Statement by the UN secretary-general Ban Ki-moon made clear that biomass would have a role to play in meeting the SE4ALL targets.

"Countries with abundant biomass resources, like Sweden and Brazil, now get 50% of their energy from renewable resources," he wrote approvingly. According to the new Eurostat figures, Sweden sources 57% of its renewable energy to wood and wood waste.

Zero emissions?

The problem with carbon accounting stems from the UN Intergovernmental Panel on Climate Change (IPCC) counting of CO₂ emissions from biomass burnt for energy as zero in the energy Sector, so long as the net CO₂ emissions are logged in national agriculture and forestry inventories.

This method was set when it was assumed that the world would adopt the Kyoto Protocol. But only a very small sub-group of nations have Kyoto targets requiring such records to be kept, leaving a carbon accounting hole where wood imports are concerned.

Common criteria for registering land use emissions from biomass in Kyoto signatories are also considered problematic in many instances.

"The burning of wood is considered as zero emissions, when burned, because international rules assume that these emissions are correctly accounted for when trees are cut," Nuša Urbančič an expert at the green NGO, Transport and Environment told EurActiv.

"However, this is not the case in most countries. As long as this is not fixed, biomass has an unfair advantage compared to other truly low carbon renewables."

Wood industry allies with environmentalists

Sections of the wood industry, losing out to the biomass industry because of renewable targets, have begun to ally themselves with environmentalists, with whom they share a common interest.

We as a wood industry are strongly for the cascade use principle," said

Filip De Jaeger, the secretary general of the European Confederation of Woodworking Industries. "We prefer raw materials to be used for panels and recycled at the end of their life cycle for energy purposes."

Incentives for the use of biomass as a renewable were creating "fierce competition" for wood he said: "In many cases, the energy sector benefits from schemes to produce green certificates or green energy, which give them a higher buying power and create difficulties for panel mills that don't have these additional support mechanisms."

Brussels had been expected to propose new sustainability criteria for the use of biomass for energy this year, but the initiative was delayed and is now absent from next year's workplans.

"The good news is that it is not too late to avoid another biofuels debacle if the Commission comes with new measures to address this," Defossez said.

Many veterans of the EU's biofuels battles though are not optimistic.



Funding devils in the detail of the UN's energy targets

Funding plans for initiatives as ambitious as the UN's Sustainable Energy For All project (SE4ALL) traditionally contain as many details as they do devils, and from financing sources to fossil fuel emissions, SE4ALL is no exception.

The UN is committed to three 2030 targets that mesh energy politics with emissions reductions and the global poverty eradication agenda: a doubling of global renewables and energy efficiency improvements, along with providing universal energy access to all.

The initiative has already notched up some impressive achievements, with a claimed \$50 billion of investment from businesses and investors backed up by tens of billions of dollars more from governments, multilateral development banks and civil society groups.

Earlier this year, an EU technical facility was set up with a €50 million budget to spend over the next two years. At the Rio+20 Conference in June, the EU president, José Manuel Barroso also proposed to mobilise €400 million by June 2014 "to support concrete new investments".

"We are very aware that our money alone won't be sufficient [to meet the SE4ALL goals] as you need billions of investment," Catherine Ray, a spokeswoman for the Development Commissioner, Andris Piebalgs told EurActiv.

The idea was that the "EU money would be used as grants and mixed with development bank funding from the European Investment Bank or African Development bank to create innovative



methods of financing," she said.

The EU has pledged to help provide energy access to 500 million people currently lacking supplies, and this is considered a concrete pledge by SE4ALL and Brussels alike.

"It's a clear commitment, no doubt," said Christophe Yvetot, the United Nations Industrial Development Office's representative to the EU told EurActiv. "The €400 million is already secured and allocated, and in 2030 they want to report that they have connected 500 million people."

Despite an economic crisis, which has seen cuts in climate protection of €3.8 billion in Spain, €3.1 billion and €1.5 billion in Germany, Yvetot said that future EU funding would continue and refocus on the energy priorities of the world's poorest countries.

The German government has committed to helping provide energy access for 100 million people, Norway has pledged €232 million for an 'Energy+' sustainable energy package, and the UNSE4ALL goals could be incorporated into post-2015 development frameworks.

"A global tracking framework is being developed which will be used to track progress against the goals to 2030, with institutional arrangements to support it," Simon Trace, the chief executive of Practical Action, an environmental NGO told EurActiv.

Successes and limitations

The success of fundraising in this UN Year of Sustainable Electricity may be measured by the fact that the UN General Assembly is reportedly soon to vote on extending it to cover the decade.

But the huge sums collected so far still fall far short of the \$48 billion per year that the International Energy Agency says will be needed to actualise the universal access to energy goal alone.

Questions such as total project costs, what percentage should come from the public sector, and whether it should be measured to ensure that it is new and additional to what would have happened anyway, remain to be resolved.

Yvo de Boer, the climate change advisor to the KPMG group and former secretary of the UN Framework Convention on Climate Change (UNFCCC), says that a ballpark estimate based on historic ratios would see 85% of funding coming from the private sector.

Policy incentives

"The critical question is how government policy incentivises or drives private sector investment in the right direction," he told EurActiv.

De Boer highlighted three instruments

Continued on Page 7

Continued from Page 6

for intervention to ensure the proper pricing of carbon as a driver for greenhouse gas reductions. "You need taxation, you need trading and you need regulation," he said.

"I personally believe that the challenge we face is now so massive that we don't really have the option of picking one or two of those, we need to go for all three."

One emissions reduction instrument expected to be finally unveiled at the Doha Summit is the Green Climate Fund.

"Funding [for SE4ALL] could come from the Green Climate Fund," Yvetot said. "I hope it will be open for any activities to deal with energy systems, because energy efficiency can dramatically reduce emissions."

However, UN SE4ALL's measurements will not be counting the additionality of such investments. "We don't make the distinction," Yvetot said. "The important thing was to put energy back on the agenda."

This does however mean that, for instance, Microsoft's commitment to going carbon neutral can be cited as a SE4ALL

achievement even though the initiative is not mentioned in Microsoft's literature announcing the move.

Public funds enabling electricity?

Another initiative, Enabling Electricity, launched by the Italian energy firm Enel claims that it will double the one million people worldwide utilizing the company's energy access programs.

Marina Migliorato, Enel's head of corporate social responsibility told EurActiv that UN funds "boosted our projects but we were already fully aware that sustainable energy can definitely create the environment to foster Human Development."

The use of public sector support for private investment was "essential," she said, singling out "a need for long-term and effective market mechanisms and legislative frameworks to support and motivate private sector actions."

"It is a reality that sustainable access to energy requires robust financing mechanisms to address the specific needs of stakeholders," she said.

Enel investments have paid for local solar photovoltaic projects for rural communities which do not involve grid connections, but also infrastructure projects for new network connections, which do.

As well as transporting whatever energy a host country mostly uses, central grid-based approaches can have transmission losses and problems in matching demand to supply which can raise carbon emissions.

Other innovatory Enel projects though, such as pricing mechanisms that have provided €420,000 in discounts to more than 300,000 families who brought their waste to recycling collection points will clearly have a CO₂-reducing effect.

"The important thing about this initiative is that it puts climate and energy-related issues in a developmental context," De Boer said.

"The primary concern of many people in the south is economic growth and poverty eradication [while] climate change is something they'll get round to addressing afterwards, so in that sense I think it is very constructive," he said.

UN energy goals threatened by fossil fuel subsidies, campaigners say

UN plans to double the world's renewable energy capacity within two decades are under threat from fossil-fuel handouts, which have almost doubled in three years, campaigners say.

More than 60 nations have committed to the UN's ambitious Sustainable Energy For All (SE4ALL) targets on renewables, energy efficiency and universal energy access.

But the world currently spends twelve times more on fossil fuels subsidies than renewable ones, according to Bloomberg New Energy Finance, and campaigners say this could threaten the SE4ALL project.

"There is a problem there," David Turnbull the campaigns director for Oil Change International told EurActiv, on the phone from the UNFCCC Climate Summit in Qatar.

"One of first things you need to do when you're in a hole is to stop digging and if we want to move towards a truly sustainable future, we need to end those subsidies."

In 2009, world leaders pledged to phase out fossil fuel subsidies by 2020 at

a G20 summit in Pittsburgh. But in the three years that followed, carbon handouts for consumers almost doubled from €232 billion to €405 billion, mostly in the developing world, the International Energy Agency (IEA) says.

"Whether it is hypocrisy or speaking out of both sides of their mouths is not absolutely clear but we want to see them live up to their commitments," Turnbull said.

What is a fossil fuel subsidy?

For fossil fuel consumers, subsidies can reduce the price of petrol, public transport and heating bills, although the IEA's World Energy Outlook last year found that only 8% of such payouts went to the poorest 20% of the population.

Continued on Page 8

Continued from Page 7

Where fossil fuel production is concerned, a lack of transparency has traditionally occluded assessment of a wider range of financial instruments in play, including:

- Tax incentives, breaks and loopholes
- Exemptions from environmental regulations
- The offloading of costs for 'externalities' such as accidents and public health impacts.

Around €77 billion was spent on subsidies to fossil fuel producers in 2009, according to data collated by the Global Subsidies Initiative.

Several participating nations in the SE4ALL initiative dispense largesse to producers and consumers of their coal, oil and gas industries. Some have tried to the turn off the money tap.

Protests in Indonesia and Nigeria

Earlier this year, the Indonesian president, Bambang Yudhoyono, proposed a 33% cut in Jakarta's annual €3.8 billion fossil fuel subsidies, only for the country's parliament to veto the legislation, and replace it with a further € 19 billion of

high carbon energy aid.

When Nigeria shelved fuel subsidies on petrol imports, it faced a general strike and four days of mass nationwide demonstrations, that led to a partial government climbdown.

"Scrapping fossil fuel subsidies to make millions of already poor people even poorer is not the way to go," said Yvo de Boer, the ex-secretary of the UNFCCC and current climate advisor for the KPMG group.

"The way to go is to price energy properly in terms of the pollution that it causes, and to provide poor people with affordable alternatives," he told EurActiv.

This is a consensus view in UNFCCC circles, although Indonesian media report that more than half of their country's total fuel subsidy benefit was enjoyed by the richest 20% of the population, who were more likely to own cars and use them frequently.

Money for carbon in the EU

It is not just developing world aid recipients of SE4ALL initiative that dish out money for carbon. Net SE4ALL donors such as the EU are also subsidizing

their coal industries until 2018 – Germany to the tune of €2 billion a year, Spain with €1 billion.

With EU development banks coughing up similarly large sums for loans to build coal plants in Eastern Europe, discussion on subsidy removal may need to start closer to European homes.

"The developed world needs to tackle its own subsidies first," Turnbull said. "That will not only impact industry and way that the EU and US incentivise clean technologies but also free up tens of billions of dollars."

In this context, how much money developed nations should give emerging economies to help level their energy playing fields was "a very sensitive question," Carlos Fernandez, a senior analyst at the International Energy Agency told EurActiv.

"Unfortunately it won't be a happy figure," he added.



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Contact us

Delia Nicolaescu

events@euractiv.com
tel. +32(0)2 788 36 72

Ross Melzer

publicaffairs@euractiv.com
tel. +32(0)2 226 58 17

Other relevant contacts:

Rick Zedník

ceo@euractiv.com
tel. +32(0)2 226 58 12

Frédéric Simon

executiveeditor@euractiv.com
tel. +32(0)2 788 36 78