

# TERRAVIVA



Hosted by Masdar



From left to right, Olafur Ragnar Grimsson President of Iceland, Sheikh Mohammed bin Rashid Al Maktoum Vice-President and Prime Minister of the UAE and Ruler of Dubai, Mr François Hollande, President of France, General Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, Ms Christina Fernandez President of Argentina, Sheikh Suroor bin Mohamed Al Nahyan, and HE Mohamed Ould Abdel Aziz.

## WITH RENEWED ENERGY

Sitting on 10 percent of the world's oil and gas, a fraction that transforms into massive reserves, Abu Dhabi might seem the least likely place on earth to avidly pursue renewable energy. But the Emirate is no longer content to be simply oil-rich; it is seeking a place as energy leader.

The sixth World Future Energy Summit now in Abu Dhabi is stated to have brought together more than 30,000 people from 150 countries. French President Francois Hollande, Argentinian President Cristina Fernandez de Kirchner and Queen Rania of Jordan were among world leaders to address the summit opening. As Queen Rania of Jordan recognised, over the years Abu Dhabi has become an "open global platform for cooperation and for partnership". And such cooperation and partnership is urgently needed.

She reminded delegates that 1.4 billion people - that is one in five in the world - still cannot access grid

electricity. For a billion more, access is unreliable.

"Without sustainable energy there can be no sustainable development," she said. "Energy is humanity's lifeblood."

The push toward renewables coming from Abu Dhabi is less surprising than it may seem at first. With alternatives to hydrocarbons on everyone's mind, much of the Arab world is figuring there is new energy to be drawn from a bright desert sun shining down with few clouds in the way - and often a fresh and steady breeze. New competition is arising among some Arab countries to tap these resources. The Desertec project in Egypt, worth hundreds of billions of dollars, seeks to supply thousands of megawatts to Europe. Abu Dhabi itself has the biggest solar project in the Middle East coming up. It's not the only country to find there's energy to be tapped from up and down and all around.



# POWER AND EMPOWERMENT



Queen Rania of Jordan

By S. Suri

The frustrated energies of Arab youth that burst on to the streets over the past two years will need energy by way of electricity to calm them, Queen Rania of Jordan said at the launch of the Abu Dhabi Sustainability Week. "It was Thomas Edison, inventor of the light bulb, who said that discontent is the first necessity of progress," Queen Rania said. "We've seen the discontent, now let's work on the progress. But in the absence of long-term sustainable solutions to our energy needs, progress will be slow and uneven."

The Arab world, she said, "includes some of the richest and poorest countries in terms of energy resources." On the one hand there is Abu Dhabi, "whose world vision for sustainable energy is transforming this nation and inspiring our region at a time when the Arab world is at

a critical juncture." And on the other, in Yemen there have been some days in the past year with less than an hour of electricity. "In Sudan, midwives crave that mothers will give birth in daylight. Because when darkness descends, it is only by the flickering flame of a kerosene lamp with its choking fumes that fragile newborns are brought into this world. In Iraq, precious medicines were destroyed because they couldn't be kept at the right temperatures." Her own country of Jordan, she said, relies on imports to cover 96 percent of energy needs. But there is light at the end of the tunnel, Queen Rania said. Renewable energy is an industry waiting to be tapped. "The Arab world is perfectly placed not only to tap it but to lead it."

## ENERGY FLOWS WITH WATER

Water and power keep close company, closer than we may think. "Today roughly 7 percent of the world's energy consumption is used for water," Masdar CEO Sultan Ahmed Al-Jaber told delegates at the launch. "Nearly 50 percent of the water withdrawn is used for energy. This interdependency will only grow over time."

In the UAE, he said, "a nation with the fifth largest global oil reserves, our leadership believes that water is more

important than oil. The close relationship between water and energy can no longer be underestimated. No longer can we consider water without considering the energy to withdraw, treat and transport it. And no longer can we address energy without considering the water needed to extract, generate and produce it." In the Gulf, he said, "a region that accounts for 20 percent of the global oil supply, and nearly 50 percent of

the world's desalination capacity, the relation between water and energy is even more crucial." There is a need, he said, to address energy and water through an integrated strategy. And that will need necessary policies, public and private partnerships, and stepped up investment - "collective actions on a massive scale, both from governments and businesses."



Solar panel fields in Provence, France.

## FRENCH FIND THE SUN

By A. D. McKenzie

Accompanied by three ministers and a delegation of industry chiefs, French President Francois Hollande attended the World Future Energy Summit to stress France's commitment to "green" energy, although his country is more known for its reliance on nuclear power.

"If we don't undertake to do anything ... we can be sure that catastrophe will surely arrive," Hollande said in his keynote speech at Tuesday's opening ceremony of the WFES which is taking place during Abu Dhabi Sustainability Week.

"We have an obligation to make the planet liveable for future generations," he added. Voted in as president last May, Hollande, a socialist, has said he will close France's oldest nuclear plant, the two-reactor, 35-year-old plant at Fessenheim in

north-eastern France; but that wouldn't be until the end of his first term in 2017.

He has also proposed to cut the amount of electricity generated from nuclear power in France to 50 percent from the current 75 percent by 2030. This would mean closing half of the country's 58 reactors.

Hollande has also emphasised that he wants to cut carbon emissions by 30 percent by 2020, which would be 10 percent higher than the European agreed objective.

He praised the leadership in the United Arab Emirates for placing emphasis on renewable and sustainable energy, saying the WFES "an opportunity to identify ways the global community can better work together to carve a pathway for sustainability and the deployment of clean energy." Hollande said that France has

offered to host the next conference on climate change, COP 21, because the country wants to see an ambitious and successful agreement on reducing greenhouse gas emissions in 2015.

France and the UAE have various joint projects already under way. The French oil and gas giant, Total, and Abu Dhabi's renewable energy company, Masdar, have partnered to build Shams 1 - a 100 megawatt Concentrated Solar Project (CSP). When complete, Shams 1 will be the largest CSP facility in the Middle East.

Some 500 French companies currently have operations in the UAE, and France is now hoping the country will buy 60 Rafale fighters from Dassault Aviation, the French aircraft maker.





Omar Zaafrani, strategy and international communications manager at Masdar.

## GREEN LIGHT AHEAD

By Zofeen Ebrahim

"While we are among the leading players in the global energy market and a significant hydrocarbon producer, the UAE leadership is farsighted enough to realise that these energy sources are finite," says Omar Zaafrani, strategy and international communications manager at Masdar. "We are not immune to the energy challenges either."

Masdar, meaning "source" in Arabic, is a commercially-driven renewable energy company based in Abu Dhabi. It was established in 2006 by the UAE government to contribute to the Abu Dhabi Economic Vision 2030 of diversification of the economy through advancement of renewable and sustainable technologies. At the same time, the UAE, with a population of eight million, also wants to be seen as contributing to global efforts to combat climate change and to amend the emirate's reputation as having one of the biggest per capita carbon footprints

in the world.

By 2020, Abu Dhabi will have seven percent renewables in its total energy mix, with a planned nuclear plant providing another 20 percent. But Masdar's piece de resistance, says Zaafrani, is the 100 megawatt Shams 1 concentrated solar power (CSP) plant situated in the Western Region of Abu Dhabi. It is "set to be the world's largest single-unit CSP" and will begin generating electricity to the national grid in the first quarter of this year, powering 20,000 homes currently using natural gas – the equivalent of planting 1.5 million trees or taking 15,000 cars off Abu Dhabi roads. About 14 km from downtown Abu Dhabi, the firm has built Masdar City, which is run solely on a 10 MW solar project.

"It's quite like going back to the roots. While the design is futuristic, when you strip that, you find a lot of our techniques are based on tradition."

The Japanese were giving away free bottled water. But for a change, it was not the expected mineral water. Just tap water from Tokyo. "We are making a point that our tap water is safe and good tasting," said one official. The offer also underscored that about 800 million people across the world are unable to obtain safe drinking water.

Students are clearly encouraged. They were right there among the prizes. But they were everywhere, doing the kind of things that would make prizes possible. The Green Ideas Fair brought students showing models for such challenging tasks as geothermal desalination, algae-based biodiesel and improving vehicle efficiency.

A Western visitor was heard grumbling, a bit good-humouredly: "They have it all, don't they? Oil underneath the ground, and all this sunshine to get more electricity from. What will they do with all this energy?" Having too much energy is not a problem we are likely to encounter in a hurry.

## A WAY TO GO ...



Boasting a yellow two-person convertible run on hydrogen gas, the Japanese pavillion at the Water and Energy Summit seemed to pull the biggest crowds.

Twenty countries have also set up national pavillions to exhibit their country's innovations including Japan, the United States, Russia, Germany, Norway, France, Italy, India, China and the Republic of Korea.

While electric, solar, and hybrid vehicles have been around for some time, Masayuki Murakami of the Osaka Sangyo University explained to TerraViva that this eco-friendly hydrogen cell fuel car runs at 80 km per hour and can travel a good 200 km before it has to be refuelled.

The car licence plate showed it was ready to hit the road. It was built as part of Osaka Sangyo University's ongoing research into hydrogen fuel cells as a potential power source for future generations of automobiles. The students assembled the car in their spare time using parts they bought on the open market.

## ... A WAY TO STAY

The centre table in the lounge is made of pine used for making crates. What's better, it's certified by the Forest Stewardship Council that promotes responsible management of the world's forests. The glass candle stand on that table and the vases around the room are made of recycled glass; the sofa filling is washed grain stack. The French window looking out on to the patio is well insulated yet allows a great deal of daylight in. It's a happy place to lounge around.

Around the villa are energy-efficient lights, taps that use no more than five litres of water per minute as opposed to the average 9 to 13 that slip down the drain at home. But the water feels soft and voluminous, not the trickle the numbers suggest.

"The initial cost is between three to four percent more than the regular home, but the in the long run, you are able to save anywhere between 20 to 30 percent energy and conserve up to 30 percent water," he says beside the life-size prototype of these eco-friendly villas.

The villa is by Estidama, which means 'sustainability' in Arabic. It's an initiative of the Abu Dhabi Urban Planning Council (UPC). It aims to define how a contemporary and sustainable Arab capital should look and how people in it could live.





# THINKING OUTSIDE THE BARREL

By A.D. McKenzie

The world's biggest oil producers aren't sitting on their laurels (or barrels) as the race towards renewable energy gathers global momentum.

Officials from oil-producing countries such as Saudi Arabia told the World Future Energy Summit Tuesday that renewable energy makes good, long-term economic policy and would become part of their energy mix.

Dr Khailid Al-Sulaiman, Vice-President for Renewable Energy at King Abdullah City for Atomic and Renewable Energy in Saudi Arabia, foresees a day when his country and the Arab region could sell solar-generated energy to other areas.

"Many in the world have questioned why Saudi Arabia with the largest proven oil reserves in the world would go to renewables, and the answer is very simple: it is sustainability," said Al-Sulaiman during a panel discussion on building national frameworks for renewable energy.

The kingdom has announced that it would make major investments over the next 20 years to develop renewable energy and to increase the share of the sector to a possible 30 percent in the energy mix. But the policy isn't based on just capturing the sun as a "commodity", according to Al-Sulaiman.

He said that although it would be easy for Saudi Arabia to construct solar and wind farms, that wouldn't be ultimately successful if the country did not see renewable energy as a viable economic sector.

Al-Sulaiman told journalists later that Saudi Arabia is working with a number of countries, including France, and that the diversified energy mix would include nuclear power.

"We're not a manufacturer or producer of power plants so we have to talk and discuss with potential partners," he told Terra Viva. "We're keeping our options open for every country."



Dr Khailid Al-Sulaiman



Todd Stern

## IN SEARCH OF A U.S. STRATEGY

Kitty Stapp

Starkly different assessments of U.S. energy and climate policy emerged during the opening panels and keynote speeches of WFES.

"Renewables are important and there is a lot of action, especially at the state level," said Robert Ichord, deputy assistant secretary for energy transformation in the U.S. "Internationally, we have the potential to move and transform and take advantage of natural gas resources (in a way) that complements the decentralised approach to meet the needs of big urban industrialised centres." Overall, U.S. emissions are falling, and the country would have met its targets under the Kyoto Protocol last year had it ratified the treaty, said Adnan Amin of the International Renewable Energy Agency, IRENA. But in remarks denouncing the slow pace of global action on climate change, Jeffrey Sachs, the U.N. special adviser on the Millennium Development Goals, flatly declared that, "The U.S. does not have an energy plan, no policy agreed or even put forward to explain how we'll get on a low-carbon trajectory.

"We don't have a carbon tax, we don't have a permit system," he said. "Natural gas is cleaner than coal, but not clean enough..."

This seems to be the situation despite the fact that last year was the warmest ever recorded in the U.S. More than 60 percent of the country was gripped by a devastating drought, and the eastern seaboard suffered at least 65

billion dollars in losses from Hurricane Sandy.

While U.S. climate change envoy Todd Stern agreed that the "only chance to contain climate change is to accelerate the growth of clean economies," he rejected "draconian obligations" that are inconsistent with a "country's core interests".

On the question of differentiation among poor, emerging and developed countries in the negotiation of any new treaty, Stern criticised the view that developed countries created this problem and it is their sole responsibility to fix it.

"The U.S. is not trying to put everyone on the same footing," he said. But "differentiation should be based on real and material circumstances of countries."

Stern called for a "flexible structure" under which mitigation commitments are nationally determined, and the emphasis is on the overall effectiveness of a country's climate programme - including features such as breakthrough technologies - rather than simply CO2 cuts. "Regimes that encourage a race to the top have the best chance of success," Stern argued, adding that "limits, reductions and restraints are much less appealing." Meanwhile, as a step in the right direction, Connie Hedegaard, European Commissioner for Climate Action, urged the phase-out of fossil fuel subsidies, which hit 523 billion dollars in 2012 - a 30-percent increase from the year before.





Ceres solar panels.



Two schoolboys hit the books using a d.light design.



Tanzanian students at a renewables project.

# SCHOOLKIDS SHED SOME LIGHT

Innovative high schools in Mexico, Britain, Tanzania and Abu Dhabi that aim to power classrooms with solar, biogas, wind and other sustainable energy sources were among the winners of the 2013 Zayed Future Energy Prize awards, held at the Emirates Palace in Abu Dhabi.

"We believe that investing in people is the future of our collective prosperity," said His Highness General Sheikh Mohammad bin Zayed Al Nahyan, Crown Prince of Abu Dhabi. "Through the Prize, we are not only recognising tremendous achievement, but also providing support to help accelerate promising technologies and fund organisations, schools and individuals committed to impacting communities around the world.

"Our winners have collectively reduced the plight of 140,000

displaced persons, provided hundreds of thousands of jobs and provided clean water and electricity to over eight million people in villages and rural parts of Africa and Asia."

Now in its fifth year, the Prize's other winners included Siemens, d.light design, Ceres, and Dr. Jose Goldemberg, former Brazilian minister of environment, who was given the Lifetime Achievement Award.

"When I started working with renewables, they were not much more than a scientific and technological curiosity. Today, they represent approximately 10 percent, and in all likelihood, will represent 30-50 percent of all energy consumption by 2050," said Dr. Goldemberg.

The Zayed Future Energy Prize hands out a total of 4 million dollars. It is awarded annually to

companies, schools and individuals that have made significant contributions to the future of energy, sustainability and climate change.

"It is our conviction that school communities are well-placed to stimulate change," said Manuel Salgado Cuevas, director general at Secundaria Tecnica 120 in Cuernavaca, Mexico, whose school will receive 100,000 dollars for its proposed project to upgrade the water, power and heating supply to use renewable sources.

"When students initiate renewable energy projects as well as demonstrate success and apply their learning at their homes, it creates a domino effect among families and the communities at large, committing more people to work for their environment."

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