

# Ikarus reaches for the stars

**Greece wants to step up “green development” and therefore passed an ambitious Renewable Energy Act in May. The country has its own special red tape that has scared off investors for some time. But now, renewables have a real chance despite the possibility of state bankruptcy.**

Written and photographed by Peter Korneffel

Since the summer Olympic Games of 2004, a modern metro has connected the modern airport with modern Athens. The fancy train drives alongside the urban highway, passing by straightlaced suburbs, commercial zones, tollbooths, and waste recycling facilities. Giant billboards tower over the remains of olive orchards. They claim you need fresh breath, smooth skin, and cold coffee. At the beginning of March, two of the most common billboards were selling a DVD recorder for EUR 49 and “Wind XL.” What could that be?

The wind logo on a sky blue background contains a white solar sphere above a slender red wave. Is Greece getting into wind power big-time? Or launching a new wind trade-show? At the end of 2010, 3,400 megawatts (MW) of wind power are to be online, and media reports say that authorities were combing through an astonishing 57,000 MW in applications at the end of 2009.

Suddenly, the suburban world disappears. The metro goes underground and gets louder. Every three minutes, it stops in brightly lit terminals, spits people out onto the platform, and sucks new ones in. Downtown, back in daylight, a telephone display reads, “Wind welcomes you to Greece. Dial \*1000 for the hotline and 14434 for your personal mobile guide.” Gotcha. Wind is a cell phone provider that wants to go XL.

## **Frustration and visions in wind energy**

Soon thereafter, I learn that wind is booming everywhere, just not with energy. “The last five years were very frustrating for us,” explains Ioannis Tsipouridis, president of

the Hellenic Wind Energy Association (HWEA). “We have the best wind conditions in Greece and excellent feed-in tariffs to boot. Nonetheless, we have not been able to do much.” Like countless other project developers in Greece, Tsipouridis knows only too well why: tortuously long approval procedures, court cases filed by local groups, and slow grid expansion. Archaeological discoveries and numerous micro-grids do not make things easier either. As Greece’s young environmental and energy minister Tina Birbili admits, the wind sector has been facing a stiff wind from two sides: “a lack of political will” and “bureaucratic incompetence” (see page 46).

But the new government under Giorgo Papandreou successfully campaigned with a completely new concept for Greece – “green growth,” a kind of New Green Deal on the Aegean. From now on, development, investments, and research would primarily need to be ecological and sustainable. The election of the Socialists in October 2009 was a sensation. For the first time in the country’s history, Papandreou set up a national Environmental Ministry and put it in charge of the energy department and the newly created department on climate change.

Since then, Ioannis Tsipouridis and his association have been optimistic. “By 2020, we will have between 9,000 and 11,000 MW of wind power on the grid,” the gray-haired man sounds the call. “40 percent of our electricity will then come from renewables, equivalent to 20 percent of our final energy consumption – more than the European Union requires.” Greece has an EU obligation of 18 percent (new energy 1/2009). For some, the possibility of state bankruptcy

seems like a blessing in disguise. “The new financial environment makes green growth the one and only viable way out of the energy, climate and economic crisis,” Tsipouridis stated in mid-May. “Three-in-one can’t be bad by anyone’s standards.”

## **The state gets to work**

Today, brown coal and gas turbines are the main sources of electricity in the country alongside numerous rudimentary island diesel power plants, which sometimes drive generating costs above an astonishing EUR one per kilowatt-hour (kWh). Greece spreads these extra costs for island electricity around by making citizens on the continent cover part of the extra expenses. Last year, renewables covered 14.2 percent of demand, though a full eight percent of that came from large hydropower. But Greece does shine internationally in the use of solar thermal for hot water. Currently, some 3.5 million square meters of solar collectors handle around 25 percent of domestic hot water supply.

Tsipouridis does not see himself merely as a lobbyist. Since the beginning of the year, he has also been head of PPC Renewables at the predominately state-owned Public Power Corporation of Greece (PPC). “PPC wants to become the biggest operator of renewables in Greece,” he says. “In 1982, the Greek state set up the first geothermal power plant and one of the first wind farms in Europe in 1983. And PPC aims to be a real competitor for the future of energy.”

Germany’s MAN provided the turbines back in the pioneer days. In the 1990s, Greece then attempted to set up its own wind turbine production facility. Pirkal,



Wind power for tourist areas? The Greek Renewable Energy Act stipulates that communities must benefit from revenue if they approve a local wind farm.

the official equipment supplier and ammunition manufacturer for the Greek army, built two prototypes of impressive size. The problem was that they didn't work. The turbines only held up for a few hours; they are now a symbol of the Greek pioneering spirit in an exhibition park for renewables south of Athens.

PPC Renewables now plans to get going in all fields: wind power, photovoltaics, geothermal, micro-hydro, and biomass. "Green development means more than buying German turbines and installing Chinese solar panels," the head of PPC Renewables explains. "When the Greeks see direct benefits from their own production, more local

groups will be convinced." Recently, a small group of Greek firms began producing photovoltaic panels.

### **Sick sheep, dirty work**

The next day, 14,000 taxi drivers in Athens went on strike against the drastic cuts that the government plans. It's back to the good old metro for a trip to the state Center for Renewable Energy Sources (CRES); after nine stops, I switch to the Spartan comfort of a Greek city bus – line 314 takes me to CRES after 41 stops. The researchers' parking lot under a solar roof is adjacent to a marble sawmill. CRES President Ioannis Agapitidis doesn't beat around the bush:

"The biggest obstacle towards the growth of renewables has always been public opposition," he says. "Opposition groups pop up out of nowhere and start talking about the effects of wind turbines on the health of sheep and birds. Others warn about scaring away tourists," the president of the research center adds. "But scarcely 10 percent of these complaints are justifiable. Here, it's generally local political and economic interest groups that claim to be concerned about the environment."

Up to 2009, there was no land planning scheme, so even the smallest campaigns had no trouble blocking a wind farm proposal in court. Foreign developers have an even

## “Environment can mean development”

**Tina Birbili**, Greek's Minister of the Environment, talks about national bankruptcy, corruption and emerging into a new energy future.

Interviewed and photographed by Peter Korneffel

**new energy: Minister Birbili, it was not our intention to talk to you in times of a heavy financial crisis in your country...**

Tina Birbili: ... if you don't combine this crisis with green development, you are about to lose. The problem with my country is that we are always lose hold of big opportunities, such as with the Olympic Games.

**ne: And the current crises will not kill your project of green development?**

Birbili: If we stay within our financial plan, Greece will once again lose a big opportunity. We have to direct the money we get from the EU to green projects. Some private foreign players, who were very disappointed and discouraged by bureaucracy in Greece, are coming back again, most of them Spanish and Portuguese companies.

**ne: But some areas, like grid extensions, will also require significant public investments.**

Birbili: Public investment, but also financed by the EU. And private companies who want to build a wind park on an island can also finance the grid to take electricity to the mainland. As soon as possible, a grid linking the whole of the Cyclades islands will be under construction and finished in one or two years. Finally, in our ambitious plan we will link the Aegean Sea with the big island of Evia and the mainland.

**ne: Again, will the cuts in your public budget called for by Brussels and announced by your president affect the investments in the grid and renewable energy?**

Birbili: No, definitely not. The public money is just for the co-financing of EU projects and private-sector projects. We want to eliminate contributions for EU projects in our crisis because that would put us on a leash. Renewables do not need public finance. At some point, consumers have to pay more for renewable electricity through their bills – more than the current eight to nine euros a year.

**ne: Are the Greeks willing to pay more for electricity? They are already striking against the recent cuts.**

Birbili: Today, they are not. However, people understand the country is in a very difficult situation. We will not raise electric bills in 2010 but have to charge a bonus for renewable energy.

**ne: Why has Greece failed to fulfil its renewable energy targets in the past?**

Birbili: We have taken the easy development path on big scale, while renewable energy is more decentralized. Today, Athens concentrates half of the Greek population in an area of overloaded capacity, while we have abandoned our countryside. We failed to develop renewables and don't even know exactly in which stage the investments are.

**ne: How does your government intend to leave this path?**

Birbili: Giorgos Papandreou has introduced the motion of green development in our public policy discussion. First, the idea was considered as something very utopian. Giving a concept and a context, the Greeks could now understand that environment can mean development, too.

**ne: The wind industry has frequently suffered from conflicts with local groups and the tourist sector. What is the way out?**

Birbili: Yes, it is a struggle. But it is also a big challenge for us to show that energy policy stresses renewable energy, not just carbon. That must be linked with the traditional environmental concerns, like the protection of biodiversity, forests, and birds. It is difficult, but we are trying to be more progressive in terms of energy.

**ne: But how will you convince the tourist sector and conservative mayors with your green project?**

Birbili: The new law stipulates that municipalities who accept the installation of a wind park receive some compensation. We try to divide this compensation up in three parts: one goes directly to the municipality, the second directly to people through their electricity bill, and the third one is a contribution to a new green fund that invests in biodiversity. This is a different approach and will alleviate the problem. It does not solve it.



**Tina Birbili,**

Born in 1969 and Greece's first minister of the environment, energy, and climate change since October 2009. The youngest minister in the Greek Cabinet, she holds a PhD in physics.

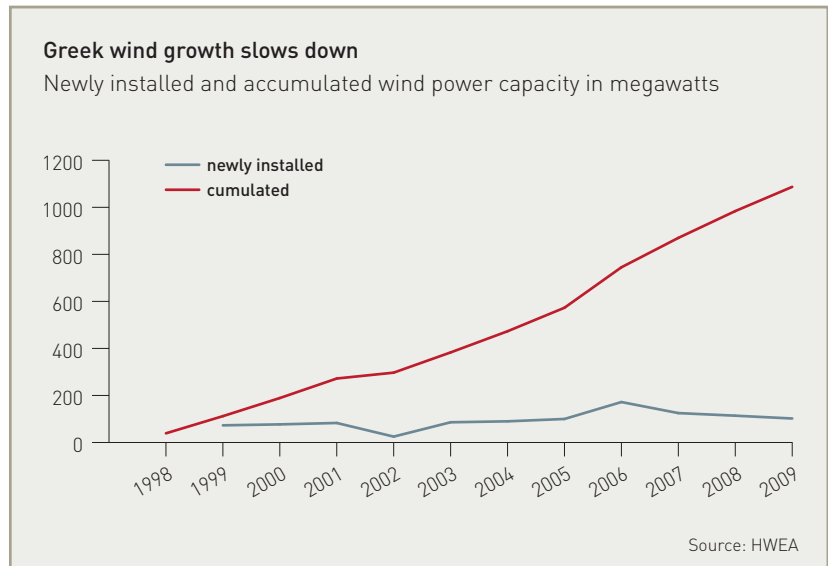
**ne: Will PPC Renewables be a big player in the future of the Greek wind industry?**

Birbili: Yes, we have given PPC Renewables the full potential to play the role as a pioneer in the Greek market because that will also change the mindsets of people who have only been used to working with coal. If they want to keep their jobs, they have to be flexible enough to see that their future is green energy.

**ne: The high level of corruption in Greece is another reason for your disappointing results in renewables development.**

Birbili: There was corruption in the whole procedure of licensing, a kind of licence trading that takes three to five years with more than 50 authorities involved. That creates corruption. The new law will reduce the stages of licensing to only one exclusive date with each authority and limit review time to ten months. We believe that this sort of exercise limits corruption. It does not eliminate it. Additionally, we installed an electronic monitoring with an online registry of publications. Corruption also grew through the almost uncontrolled subsidies for wind parks and PV parks. In the future, we will completely reduce the subsidy and raise feed-in-tariffs.

The interview took place on 3rd March 2010 in Athens.



harder time. “You always need a Greek consulting firm to do the dirty work for you,” Apapiridis explains, because all sectors of society are corrupt. Unmarked envelopes are handed over under the table. If you ask for a receipt, you’ll have a hard time getting a plumber. Lawyers and doctors give preferential treatment if you pay a little extra or come after hours. Everyone knows how the game is played.

But Michaela Balis, economic promoter at the German-Greek Chamber of Commerce in Athens, does not wish to scare off her members, including a large number of the 140 German firms currently set up in Greece. “Until there is evidence, charges of corruption are just rumor,” she argues with the diplomacy her chamber requires. “I also know of companies who have never come into contact with corruption.”

A large number of foreign players have given up on Greece. Nonetheless, such renowned German names as Enercon, Juwi and Siemens are still there. In 2009, Enercon even overtook Vestas in the ranking of newly installed capacity.

Despite the Greek outrage about malicious reports in German media at the beginning of the year, Germany remains Greece’s biggest trading partner, including for renewables. “All major German firms are currently interested,” Balis reports. “But the success of these companies depends on their expectations – and their stamina. Even after the dramatic approval of the EUR 750 billion lifejacket, “nothing major changed,” Balis says. “The situation remains positive.

Greece is the only country in Europe with such generous feed-in tariffs.”

### Phoenix rising

The German newcomers to the Greek market include Phoenix Solar of Sulzemoos, Bavaria. After some initial difficulties in 2008, the Greek subsidiary posted some major success last year. The firm now has 6.5 MW of PV arrays in the order books, including 28 projects within the popular category of 100 kilowatts (kW). Phoenix is currently also handling two large ground-mounted plants of one and two MW, respectively, for a large firm from central Greece, reports Christos Protogeropoulos. Before becoming general manager of the Greek Phoenix subsidiary, he worked for 14 years as a photovoltaics researcher at CRES. He does not believe the current financial crisis will slow down the market. “Even in the crisis, large Greek banks are surprisingly sound, and there are enough investors on the market,” he believes. But he also is exasperated about a modern Greek absurdity – excessively attractive financial terms.

The state-guaranteed feed-in tariffs of EUR 45.7 cents per kilowatt-hour (c/kWh) for PV arrays up to 100 kW and a generous 40.7 c/kWh for larger systems brought in a flood of 8,700 projects with a total nominal capacity of 3.7 gigawatts (GW) within just a few years. The authorities already had more work than they could handle, and the deluge of unprofessional, incomplete project applications only made things worse. Countless applicants were apparently just

after some quick money and had never really dealt with renewables. “The feed-in tariffs should not be so high,” Protogeropoulos complains. “A solar array should be a sound investment, not the chance of a lifetime. I think 28 to 30 c/kWh would be more appropriate. The Renewable Energy Act adopted on May 20th promises reliable growth. “We all expect that PV and other renewable resources will be in the priority lane and that the legal processes for the development of an investment will be eased, at least compared to the previous bureaucratic situation,” Protogeropoulos says.

The rates paid for wind power are also generous. In addition to 8.8 to 9.9 c/kWh, there are some considerable special funds from structural aid and tax benefits. CRES says that applications were filed for 55,000 MW of wind farms, 7,500 of which is currently being processed. In 2009, only 102 MW was actually installed (see chart). While citizen opposition, economic conflicts of interest, and excessive red tape have traditionally hampered growth, attractive subsidies brought local authorities to a standstill. Other forms of renewables are not faring any better. At present, some 50 to 60 MW of solar power is online. The biomass sector only has a meager 30 MW to show for itself – not much for an agrarian state.

### Ten years of planning

The example of former German project developer WRE Greece of Athens shows why that is. Managed by Victoria Alexandratou and her German husband Thorsten Kern- ▶



Strike or optimism? The financial crisis could slow down Greek state investments in renewables. The state Center for Renewable Energy Sources (CRES) has a visitor's park to raise awareness and acceptance.

er, the Greek stock corporation mainly develops, finances, installs, and operates small wind farms in Greece: a three-MW project in Crete, 3.8 MW in Euboea, and 4.5 MW (under construction) in Kos. "In Kos, development started nine years ago," explains Kerner, a determined German with the requisite tenacity. "In Laconia, we have even been developing a wind farm since 1996." Construction is expected to start this year – finally. "We would have been faster if we had paid off officials. But that is not part of our ethics," Kerner explains. In 2008, the government adopted special usage criteria for the energy sector in addition to land usage plans. Kerner says the change gradually made approvals easier. The revision of the Renewable Energy Act may also bring further progress.

WRE Greece is therefore also entering photovoltaics. A 20 kW pilot and test facility developed by Phoenix Solar in southern Attica is to provide the necessary experience so that construction of a 1.5 MW ground array can begin soon in central Peloponnes. Kerner says the dual-axis tracking solar farm will cost around seven million euros. The German is not complaining because "the Greek Development Aid

Act continues to cover up to 60 percent of investments in structurally weak regions." WRE had a fantastic 30 to 40 percent of its investments in wind farms covered. It is, however, not clear if the 40 percent structural funding scheduled for the Peloponnes will actually come to fruition; after all, we are talking about EUR 2.8 million.

### Check, please

Grid expansion is also key to the growth of renewables in Greece. Up to now, the grid officially has capacity for some 1,500 MW of renewables, not including 3,500 MW of large hydropower. For the Kyklades and Sporades, the bottleneck is especially painful. These areas are the best wind locations in Greece and are largely untapped; a number of sites have average wind velocities above 10 meters per second.

The resolution recently reached to expand the grid and the ambitious new Renewable Energy Act are to change things. In the first stage on the path to EU targets, 5,000 MW of renewables is to be online by 2012. Is this still feasible now that the country is practically bankrupt? "State funds could, of course, become scarce," Ioannis Agapitidis worries. "I hope that projects already

financed are not slashed after the fact." Although everyone is optimistic, the consequences of the financial crisis for renewables cannot be foreseen today. If Greece remains solvent within the euro zone, "green development" could run its course. At the moment, at least, Icarus is not flying a vulture.

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One taxi strike leads to the next general strike in Greece, creating an extra holiday for taxi drivers. "We are supposed to pay our taxes," says my driver, a former sailor with a lot of international experience. "The Greeks pay taxes everywhere – in Germany, in the U.S., even in Australia. Just not at home. The problem is that tax collectors are thieves." The 64-year-old man is talkative and says, "Papandreou is going to have to borrow money, either from Ms. Merkel or from Obama. But whatever happens, the rules are going to be stricter." At the end of our drive, he once again gives a demonstration of Greek hospitality: "I can print out a receipt for all of the money I made the whole morning if you want." And before I have a chance to answer, he puts a roll of paper on the machine. ◀