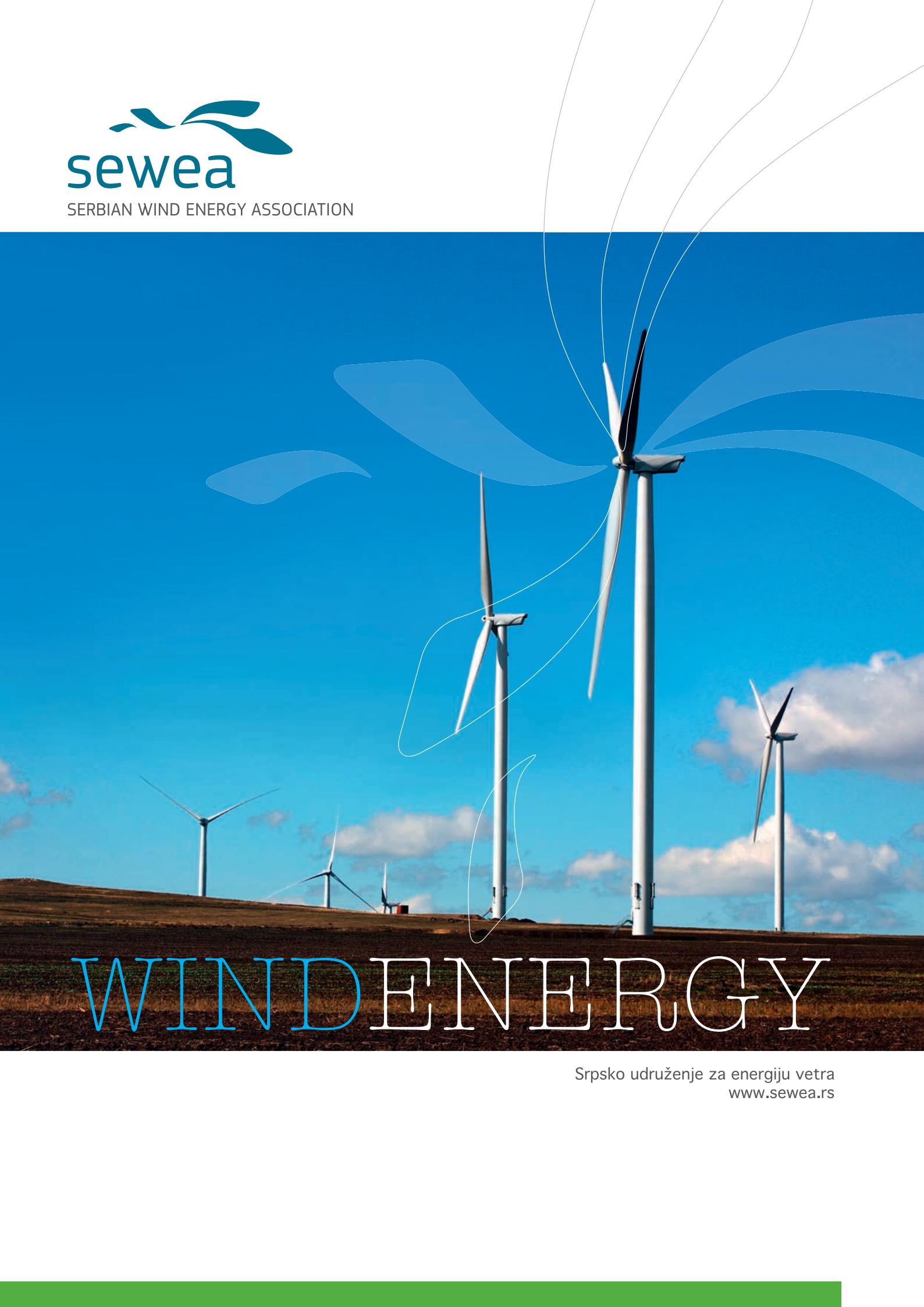




WINDENERGY

Srpsko udruženje za energiju vetra
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sewea

Srpsko udruženje za energiju vetra | Serbian Wind Energy Association

Srpsko udruženje za energiju vetra – SEWEA osnovano je u oktobru 2010.

Članice SEWEA su renomirane kompanije, ozbiljne u svojoj nameri da investiraju u obnovljive izvore energije i izgrade vetroparkove u Srbiji, u skladu sa standardima Evropske Unije.

sewea misija

Misija Srpskog udruženja za energiju vetra – SEWEA je saradnja sa donosiocima odluka na nacionalnom i lokalnom nivou, kao i sa svim zainteresovanim grupama u cilju razvijanja i implementacije zakonodavnog okvira koji omogućava izgradnju vetroparkova u Srbiji.

SEWEA želi da vidi Srbiju u zajednici evropskih zemalja koje su posvećene ekološkoj i obnovljivoj energetskoj budućnosti i održivom razvoju.

Članice SEWEA žele da u naredne četiri godine investiraju u Srbiji 1,5 milijarde evra i izgrade vetroparkove instalisane snage od preko 1000 MW.

SEWEA ima potencijal da u Srbiji organizuje regionalni centar za proizvodnju komponenata za vetrogeneratore, što bi ostvarilo svake godine dodatne milione evra prihoda srpskoj industriji i otvaranje novih radnih mesta.

Svi SEWEA investitori trenutno planiraju i / ili sprovode društveno odgovorne projekte.

Ove inicijative uključuju projekte u lokalnim zajednicama i sponzorstva. Lokalne vlasti prihoduju kroz lokalne komunalne takse poreze i naknade na godišnjem nivou, a poljoprivrednici prihoduju od zakupa zemljišta, imaju godišnji prihod od poreza na izdavanje parcela za svaku turbinu, ali i dalje sa pravom da obrađuju zemljište na ovim parcelama. Na taj način se efikasno subvencionišu poljoprivredne delatnosti.

Investicije u vetroparkove snage 1000 MW će rezultirati smanjenjem emisije CO2 za 2,7 miliona tona. Trenutno srpske termoelektrane, snage 4000MW, proizvode oko 24,9 miliona tona emisije CO2. Zbog toga vetroparkovi imaju potencijal da smanje emisije CO2 za najmanje 10% od trenutnog nivoa.

KAKO RADI ENERGIJA VETRA

Energija vetra je kinetička energija koja zavisi od brzine vetra ali i od gustine vazduha na koju utiču temperatura i pritisak.

Kod vetrogeneratora, snaga raste značajno sa porastom brzine vetra. Kako na brzinu vetra utiče i tzv. hrapavost terena, elise vetrogeneratora se podižu na veće visine.

The Serbian Wind Energy Association – SEWEA was founded in October 2010.

Members of SEWEA are renowned companies, serious in intention, and ready to invest in renewable energy and build the first wind farms in Serbia, in accordance with the European Union standards.

sewea's mission

The mission of the Serbian Wind Energy Association is to cooperate with decision makers at national and local levels, and with all other stakeholders, to develop a legal and regulatory environment that supports the construction of wind farms in Serbia.

SEWEA wants to see Serbia in the community of European countries that are committed to a renewable and sustainable energy future.

The members of SEWEA want to invest 1.5 billion Euros in the next four years and build wind farms with an installed capacity of over 1000 MW.

SEWEA has the potential to organize a regional centre for manufacturing components for wind generators in Serbia, which would bring millions of Euros of additional income to Serbian industry and new job creation.

All SEWEA investors are currently planning and/or implementing Corporate Social Responsibility initiatives. These initiatives include: community projects/sponsorship.

Local governments receiving communal land taxes on an annual basis, and local farmers receiving annual income from leasing plots for each wind turbine, but still having the right to farm the land on these plots, effectively subsidizing the farming activity.

These investments in 1000 MW of wind farms would result in a reduction of 2.7 million tonnes of CO2 emissions, more than 10% of the 24.9 million tons emitted today by Serbia's current 4000 MW of coal plants.

HOW DOES WIND ENERGY WORK

Wind energy is the kinetic energy possessed by wind currents. The amount of energy is mainly determined by wind speed and the density of air affected by temperature, altitude and air pressure.

With wind generators, power output energy increases with the increase of wind speed. The speed of wind is also affected by the terrain configuration and that is why wind turbines are erected on tall towers.





PREDNOSTI ENERGIJE VETRA

Vetar je jedan od najčistijih načina za proizvodnju električne energije. Jednom podignute turbine ne troše gorivo, pri proizvodnji struje nema nikakvih otpadaka, ne stvaraju se gasovi staklene bašte tako da je proizvedena električna energija potpuno oslobođena emisije CO₂ i drugih zagađivača. Vetrogeneratori ne remete poljoprivredu, a mogu predstavljati i turističku atrakciju.

BENEFITS OF WIND ENERGY

Wind is one of the cleanest ways to generate electricity. Once erected the turbines do not consume fuel, there is no waste during the production of electricity, and greenhouse gases are not created, so the electricity produced is entirely free of CO₂ emissions and other pollutants. Wind turbines do not harm agriculture, and thus can co-exist with farming. They can also be a tourist attraction.

ISTORIJA KORIŠĆENJA VETRA

Stari Egipćani su koristili vetar za pokretanje brodova. U Persiji su korišćeni mlinovi na vetar, kao i pumpe za vodu. U Evropi su se vetrenjače pojavile krajem 12. veka. U periodu od 12. do kraja 19. veka, vetar je korišćen kao najznačajniji izvor energije. Sredinom 19. veka u Holandiji je postojalo oko 9.000 vetrenjača, u Nemačkoj 18.000, Engleskoj 80.000, Danskoj 3.000, Francuskoj 20.000.

Početkom dvadesetog veka nastaje prvi višekilovatni vetrogenerator u Evropi, na Krimu, na obali Crnog mora.

Tradicija korišćenja vetra na području Srbije postojala je u Vojvodini. U 19. veku u Vojvodini je bilo oko 280 vetrenjača, a prva je izgrađena krajem 18. veka u Elemiru kod Zrenjanina.

Pre pronalaska parne mašine i industrijske revolucije, polovina energije proizvodila se uz pomoć vetra, a druga polovina korišćenjem hidro-potencijala.

Krajem 80-tih i 90-tih godina dvadesetog veka u Evropi počinje razvoj i izgradnja savremenih vetrenjača za proizvodnju energije, na šta je uticalo smanjenje zaliha fosilnih goriva i želja da se smanji zagađenje planete.

Danas u Evropskoj Uniji postoji više od 12.000 turbina na vetar, kapaciteta 84 GW, a 9.1% energetskeg kapaciteta proizvodi se zahvaljujući vetru.

DA LI JE ENERGIJA VETRA SKUPA?

Energija vetra je, kada se posmatra samo iz perspektive trenutnih troškova proizvodnje, skuplja od energije koju proizvode stare elektrane na uglj u Srbiji. Međutim te elektrane su potpuno amortizovane i njihov će se proizvodni vek uskoro završiti. Kada Srbija najzad izgradi nove elektrane, kao što mora, cena struje koja se proizvodi od uglja će skočiti znatno iznad današnjih cena i približice se cenama troškova za proizvodnju energije vetra. To će se desiti u narednih 5 godina.

Ali, to čak i ne uključuje troškove emisije CO₂. Kako Srbija bude usklađivala svoje energetske regulative sa EU, elektrane na uglj će morati da kupe "sertifikate za dozvolu" emitovanja CO₂. Ovi "sertifikati za dozvolu" su veoma skupi i povećaće cene električne energije proizvedene na uglj na isti ili viši nivo električne energije koja se dobija korišćenjem vetra.

Dakle, električna energija proizvedena od vetra u suštini nije skupa – ona samo deluje skupo na veštačkom srpskom energetskeg tržištu koje ne tera zagađivače da plate za emisije ugljenika i koji ne odražava stvarne troškove novih termoelektrana u ceni električne energije.

Na dugi rok, dok emisija CO₂ bude postajala sve skuplja, vetar će postajati ekonomski sve privlačniji u odnosu na druge izvore energije.

HISTORY OF THE USE OF WIND

Ancient Egyptians used wind to launch boats. The Persians used windmills and pumps for pumping water.

In Europe, windmills appeared in late 12th century. Between the 12th and late 19th century, wind was used as a major source of energy. In the mid 19th century there were about 9,000 windmills in the Netherlands, 18,000 in Germany, 80,000 in England, 3,000 in Denmark, and 20,000 in France.

The first multi-kilowatt wind generator in Europe was created at the beginning of the 20th century in Crimea, on the Black Sea coast.

The tradition of using wind in Serbia existed in Vojvodina. In the 19th century there were about 280 windmills in Vojvodina, and the first was built in the late 18th century in Elemir near Zrenjanin.

Before the invention of the steam engine and the industrial revolution, half of Europe's energy was produced through wind, with the other half from hydropower.

In the late 1980's the development and construction of modern windmills for production of energy began in Europe, influenced by the oil crisis and influenced by a desire to reduce pollution.

Today there are more than 12,000 wind turbines in the European Union, with a total capacity of 84,000 megawatts, and 9.1% of energy capacity is produced due to wind.

IS WIND ENERGY EXPENSIVE?

Wind energy, considered purely from a current cost-of-production perspective, is more expensive than the energy produced from Serbia's old legacy coal plants. But those plants are fully depreciated and will shortly end their service lives. When Serbia finally builds new coal plants, as it must, the price of coal-produced electricity will jump to a price well above today's retail prices and close to the cost of wind energy. This will happen within the next five years.

But this does not even include the cost of CO₂ emissions. As Serbia harmonizes its energy regulations with the EU, coal plants will need to purchase 'permission certificates' to emit CO₂. These permission certificates are very expensive and will increase the cost of electricity produced from coal to a level at or above that of wind.

So wind electricity is not really expensive – it just seems expensive today in an artificial Serbian energy market which does not make coal polluters pay for carbon emissions, and which does not reflect the real cost of new coal stations in the power price.

In the long term, as CO₂ emissions become more and more expensive, wind will look more and more attractive economically compared to other sources of power.

6 VETAR U SRBIJI

Rezultati mnogih sprovedenih studija ukazuju da je vetar u Srbiji dobar resurs za proizvodnju električne energije. Koristeći energiju vetra naša zemlja bi godišnje mogla da proizvede 2,5 milijardi kilovat-časova električne energije, što je 10% sadašnje proizvodnje.

Lokacije pogodne za izgradnju vetrogeneratora u Srbiji su planinski venci istočne Srbije, Vojvodina, planinske zaravni u centralnoj Srbiji, doline Dunava, Save, Morave.

Investicije u energiju vetra predstavljaju green field investicije i kao takve su od višestruke koristi za građane Srbije:

Konstruisanje vetroparka od 100 MW instalisane snage imaće za posledicu: Izgradnju do 50 km puta i kreiranje 200-300 radnih mesta tokom realizacije projekta

Ukoliko se u Srbiji izgrade vetroparkovi instalisane snage 1000 MW biće moguće proizvesti i do 10% ukupnih energetske potrebe zemlje, ali i kreirati na stotine stalnih radnih mesta (dobavljača opreme, servisera...), koja će opsluživati novo tržište.

Trenutno u Srbiji nema vetroparkova, jer postojeći pravni okvir onemogućava izgradnju vetroparkova i bilo kojih drugih većih projekata u oblasti obnovljivih izvora energije.

REGULATORNI IZAZOVI

SEWEA se zalaže da novi Zakon o energetici, čije se usvajanje očekuje tokom 2011, postavi jasna pravila i pruži podršku investitorima u obnovljive izvore energije.

Srbiji treba novi Zakon o energetici koji bi uređivao tarife i regulatorne režime koji će podsticati obnovljive izvore energije, uključujući i vetar. Uspešan režim bi trebalo da sadrži odredbe o obaveznoj kupovini enegije proizvedene u vetroparkovima od strane distributera vetra po tarifi koja se može uporediti sa onima koje postoje u drugim evropskim zemljama (srpska tarifa se trenutno ne usklađuje prema inflaciji, pa će u budućnosti biti značajno manja), ali i da sadrži niz drugih promena zakona u vezi sa planiranjem, kako bi se farme vetrenjače što jednostavnije izgradile. Trenutni zakonski okvir u Srbiji nije adekvatan za bilo koga ko želi da izgradi objekte za eksploataciju obnovljivih izvora energije. Posledica toga je da je za sada izgrađen samo 1 megavat malih hidro proizodača i nijedan drugi projekat obnovljivih izvora energije.

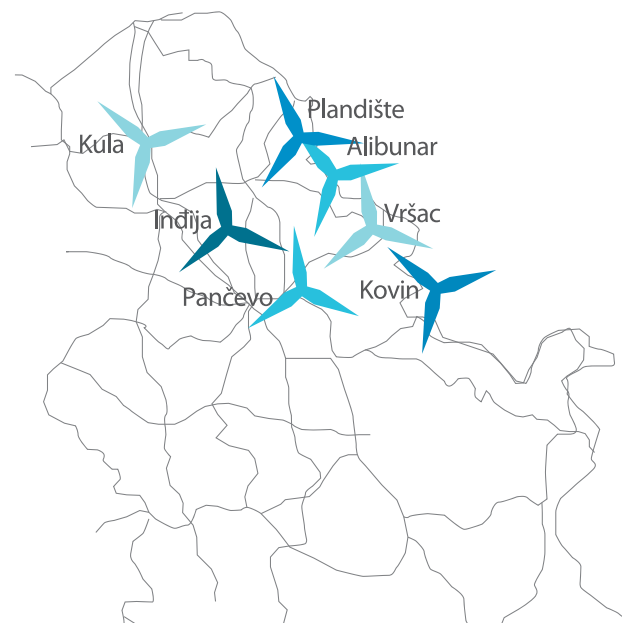
ENERGETSKA BUDUĆNOST

Evropska unija je predvidela da energija dobijena od obnovljivih izvora u 2010. godini čini najmanje 10 % ukupno proizvedene energije, na šta se i naša zemlja obavezala potpisivanjem Ugovora o Energetskoj zajednici 2006. godine. Nažalost, ovaj cilj je još uvek daleko od ispunjenja.

Evropska unija je otišla dalje i postavila još ambiciozniji cilj. Do 2020. godine energija dobijena od obnovljivih izvora trebalo bi da čini najmanje 20 % od ukupne potrošnje energije u Evropi, a proizvedena struja od obnovljivih izvora energije treba da učestvuje sa 37% u totalnoj evropskoj proizvodnji struje. Ovo povećanje udela obnovljivih izvora energije je nužni doprinos u borbi sa globalnim klimatskim promenama.

SEWEA čvrsto veruje da Srbija kao buduća članica Evropske Unije, može da dostigne ciljeve koje je postavila EU, ispuni svoje međunarodne obaveze i izgradi bolju energetsku budućnost, ukoliko se ne propusti šansa za donošenje zakonske regulative koja će omogućiti investiranje u obnovljive izvore energije.

Opštine u kojima članice SEWEA investiraju u prve vetroparkove u Srbiji



ELEKTRIČNA ENERGIJA IZ VETRA

Nemačka 25.000 MW	Holandija 2.237
Španija 20.676 MW	Rumunija 500MW
Italija 5.797 MW	Bugarska 350MW
Francuska 5.660 MW	Mađarska 170MW
Velika Britanija 5.204 MW	Hrvatska 50MW
Danska 3.752 MW	Srbija 0 MW
Portugal 3.702 MW	

Tržište razvoja vetrogeneratora za potrebe proizvodnje električne energije još uvek je relativno mlado u svetu, a u Srbiji je na pionirskom nivou. Električna energija proizvedena u vetrogeneratorima je postala važan činilac na svetskom energetskom tržištu.

Gradnjom vertoelektrana otvaraju se nova radna mesta. Ova grana energetike u svetu trenutno zapošljava preko 400.000 ljudi, a očekuje se da će u bliskoj budućnosti ova cifra iznositi nekoliko miliona.

WIND IN SERBIA

The results of many studies suggest that the wind in Serbia is a good resource for generating electricity. By using wind energy our country could produce 2.5 billion kilowatt-hours of electricity per year, which is ten percent of current production. Mountain ranges of eastern Serbia, Vojvodina, mountain plateau in central Serbia, the valley of the rivers Danube, Sava, Morava are the appropriate locations for constructing wind energy generators in Serbia.

Investments in wind energy are green field investments and as such are multiple benefits for the citizens of Serbia:

Constructing a 100 MW installed capacity wind farm will result in construction of up to 50 km of roads and the creation of 200-300 job positions during the construction phase.

Overall, if Serbia builds 1000 MW of wind farms, we expect wind to provide 10% of Serbia's energy needs, and to create hundreds of permanent jobs as suppliers of equipment and services serve this new market.

Currently there are no wind farms in Serbia because of legislation that does not support investment in renewable energy.

REGULATORY CHALLENGES

SEWEA argues that the new Energy Law, expected to be passed in 2011, should provide clear rules and clear support to investors in renewable energy.

Serbia needs a new Energy Law which puts in place a tariff and regulatory regime which will encourage renewable energy, including wind. A successful regime would include provisions for compulsory purchase by the energy distributors of all power produced by wind farms, at a tariff comparable to those which exist in other European countries (the Serbian tariff today, because it does not adjust for inflation, is in future years much lower), and would include a variety of other planning-related changes to law to make it easier to build wind farms. The current framework in Serbia is insufficient for anybody to build renewable energy facilities in Serbia – in fact so far there is only 1 megawatt of small hydro production built, and no other renewable energy projects.

ENERGY FUTURE

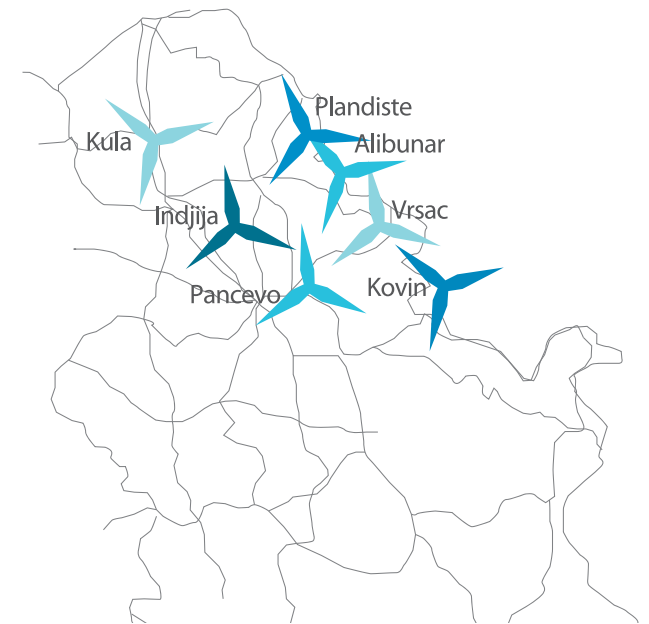
The European Union has mandated that for EU members the energy obtained from renewable sources in 2010 should consist at least 10 percent of total energy produced, to which our country has made a commitment through the European Energy Community Treaty which we signed in 2006. Unfortunately, this goal is still far from completion. The European Union has gone further and set an even more ambitious goal. By 2020, energy obtained from renewable

sources should make at least 20 percent of the total energy produced, and electricity produced from renewable energy sources should participate with 37% of the total European production of electricity.

This increase in the share of renewable energy sources is necessary contribution to the global fight against climate change.

SEWEA firmly believes that Serbia can reach the targets of the EU, of which it will become a member, meet its international obligations and build a better energy future, if it doesn't miss the chance for enactment of legislation that would allow investment in renewable energy.

Municipalities in which the members of SEWEA will be investing in Serbia's first wind farms



ELECTRICITY FROM WIND

Germany 25.000 MW	Netherlands 2.237
Spain 20.676 MW	Romania 500MW
Italy 5.797 MW	Bulgaria 350MW
France 5.660 MW	Hungary 170MW
United Kingdom 5.204 MW	Croatia 50MW
Denmark 3.752 MW	Srbija 0 MW
Portugal 3.702 MW	

The market of wind generators for electric power production is still relatively new in the world, and at a pioneer level in Serbia. Electric power produced in wind generators has become an important element in the global energy market. Construction of wind power plants creates new jobs. This segment of the energy sector employs more than 400.000 people in the world and is expected to reach several millions in the near future.



SEWEA čine multinacionalne kompanije i domaći investitori, što predstavlja odličan spoj za investiranje u obnovljive izvore energije.

Rezultat te saradnje je da članice SEWEA za sada imaju više od 350 MW izgrađenih vetrogeneratora u Rumuniji, a u toku je izgradnja još 250MW (takođe u Rumuniji), čiji se završetak planira u 2011.

Članice SEWEA će u 2011. početi izgradnju dva nova projekta ukupne snage 250 MW u Rumuniji, 165 MW u Australiji, kao i projekte u Austriji i Bugarskoj. U pripremi su i drugi projekti u Jugoistočnoj Evropi.

SEWEA veruje u čistu i zelenu Srbiju, na taj način deleći viziju svojih suseda iz Evropske Unije, a sve u cilju održive energetske budućnosti.

SEWEA consists of multinational companies and local investors, which is an excellent combination for investing in renewable energy.

The result of this collaboration is that members of SEWEA currently have more than 350 MW of wind turbines built in Romania, and the construction of another 250MW (also in Romania) where construction is underway for completion in 2011.

SEWEA members will also construct beginning this year two projects totally 250 MW in Romania, 165 MW in Australia, and projects in Austria and Bulgaria. Other projects in South-East Europe are also under preparation.

SEWEA believes in a clean and green Serbia, sharing the vision of its EU neighbors for a sustainable energy future.




sewea
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