

SOLAR VEHICLES AND ROADS

Branko Davidović¹, Miroslav Božović, Nikola Maksimović

UDC:629.331.5; 62.835

ABSTRACT: Solar photovoltaic energy possesses a unique potential for producing a considerable quantity of pure energy which has no part in global warming. This kind of energy has the greatest power (globally 170 W/m²) of all the renewable energy sources. The growing interest for its usage in traffic led to the idea of solar vehicles and solar public roadways development, primarily roads. The long-term objective of solar roads development is the covering of all the concrete and asphalt areas exposed to sunlight by solar panels, which will reduce human dependence on fossil fuels. All the researches move towards the cheap storage of that energy, which still cannot replace the presently dominant fossil fuels to a great extent. The aim of this paper is to provide an insight into the advanced technological solutions which are linked to solar vehicles from the aspect of usage and the ways to use this renewable energy source. Its aim is also to point to the idea of using solar energy on the examples of public roadways and vehicles.

KEY WORDS: solar energy, panels, vehicles, roads

SOLARNA VOZILA I PUTEVI

REZIME: Solarna fotonaponska energija poseduje jedinstveni potencijal za proizvodnju značajne količine čiste energije koja nema nikakvu ulogu u globalnom zagrevanju. Ova vrsta energije ima najveću snagu (globalno 170 W/m²) od svih obnovljivih izvora energije. Sve veće interesovanje za korišćenje ove energije u saobraćaju vodi do ideje razvoja solarnih vozila i javnih puteva, pre svega puteva. Dugoročni cilj razvoja solarnih puteva je pokrivanje solarnim panelima svih površina betona i asfalta izloženih suncu, što će smanjiti čovekovu zavisnost od fosilnih goriva. Sva istraživanja se kreću ka jeftinim skladištenjima te energije, koja još uvek ne može da zameni trenutno dominantnu upotrebu fosilnih goriva u velikoj meri. Cilj ovog rada je da pruži uvid u napredna tehnološka rešenja koja su u vezi sa solarnim vozilima sa aspekta upotrebe i načina korišćenja ovog obnovljivog izvora energije. Takodje, cilj je da ukaže na ideju korišćenja solarne energije na primerima javnih puteva i vozila.

KLJUČNE REČI: solarna energija, paneli, vozila, putevi

¹ *Received September 2014, Accepted October 2014, Available online November 2015*