# بهينه‌سازي مصرف انرژي در لوازم خانگي برقي و كاهش نشر $CO_2$ در ايران

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**واژه‌های کلیدی:** بهينه‌سازي مصرف انرژي، لوازم خانگي برقي ، $CO_2$ ، NOx ، $SO_2$ ، هزينه‌هاي اجتماعي

**خلاصه**

با توجه به ميزان بالاي سرمايه‌گذاري جهت تأمين و احداث نيروگاههاي مورد نياز كشور و نيز هزينه زياد بهره‌برداري و حجم زياد سوخت مصرفي نيروگاهها و با توجه به اين نكته كه در ايران توليد انرژي الكتريكي به انگيزه‌هاي اقتصادي (سود بردن از فروش) انجام نمي‌شود بررسي كليه روشهاي كاهش مصرف انرژي الكتريكي منطقي و معقول به نظر مي‌رسد.

در اين تحقيق پتانسيل بهينه‌سازي مصرف انرژي برخي از لوازم خانگي برقي مورد بررسي قرار گرفته است. با استفاده از نرم افزارهاي انرژي و محيط زيست و GGIS پتانسيل كاهش نشر $CO_2$ ، $SO_2$ و NOx در مورد اين لوازم و نيز كاهش هزينه‌هاي اجتماعي مرتبط محاسبه شده است. نتايج تحقيق نشان مي دهد كه پتانسيل صرفه جويي انرژي در تعدادي از لوازم خانگي برقي در ايران معادل ۸۹۷/۱ گيگاوات ساعت، ميزان كاهش نشر $CO_2$ برابر ۵۱۰.۴۷/۱۱ تن ، و هزينه حذف هر تن دي اكسيد كربن معادل ۷۰/. دلار آمريكا مي باشد.

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# Energy Saving in Electrical Home Appliances & Reducing CO2 Emission in Iran

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**Keywords:** Energy saving, Electrical home appliances, CO2, SO2, NOx, Climate change, Social costs

**Abstract**

Technologies and measures to reduce greenhouse gas emissions are continuously being developed. Many of these technologies focus on improving the efficiency of fossil fuel use since more than two thirds of the greenhouse gas emissions addressed in the Kyoto Protocol (in carbon dioxide equivalent) are related to the use of energy. Energy intensity and carbon dioxide intensity have been declining for more than 100 years in developed countries without explicit government policies for decarbonization and both have the potential to decline further.

According to high needed financing for establishing new power plants in Iran, high costs for exploiting these plants, high amount of fuel consumption & also this fact that in Iran producing electricity is not for economical benefits, so surveying about all ways for conserving energy and reducing electricity consumption is really necessary.

Water heating, refrigeration, space cooling, and lighting ate the among of largest residential energy uses, respectively, in most developed countries. In developing countries, cooking and water heating dominate, followed by highting, small appliances, and refrigerators.

In this research, potentials for energy saving in electrical home appliances in Iran (such as refrigerators, freezers, washing machines, samovars, irons, pumps, coolers, etc) have been mentioned by using energy labels. By using energy and environment & also GGIS soft wares, amount of CO2, SO2 and NOx emission is calculated and potentials for reducing the amount of this emission (and at the same time energy saving) have been projected for the above mentioned electrical home appliances. As greenhouse gases and also pollutants have adverse effects to the environment and human being so the related social cost of these emissions are very high and important. For this reason at the same time decreasing social costs due to reducing emission has been calculated. The results of this research show: potential for energy saving in some of the electrical home appliances in Iran is equal to 897.1 Gwh, potential for reducing

CO2 emission is equal to 510047 tone and the cost for eliminating one tone of CO2 is 0.7 US$. The time period of this projection is 5 years , during our future fourth development plan in the country. In this way the effects of climate change and global warming will be reduced.enrgy potential/e