~~Study~~ The Effects of the 2030 Renewable Energ~~y~~ies Outlook Implementation ~~of Vision 1410 Policy Horizon~~ for ~~the~~ Renewable Energ~~ies~~y in Hybrid System of Khorasan's Regional Electric Company

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Extended Abstract

Renewable energy is derived from the natural processes that are replenished constantly. In its various forms, it derives directly from the sun, or from the deep heat generated ~~deep within~~ from the earth. It is~~Included in the definition~~ defined as the ~~is~~ electricity and heat being generated from solar, wind, ocean, hydropower, biomass, geothermal resources, ~~and~~ biofuels, and the obtained hydrogen ~~derived~~ from the renewable resources. The r~~R~~enewable energy resources exist over the wide geographical areas~~,~~ in contrast to other energy sources, which are concentrated in a limited number of countries. The r~~R~~apid deployment of the renewable energy and energy efficiency ~~is~~ result~~ing~~ in the significant energy security, climate change mitigation, and the economic benefits. The results of a recent review of the literature

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concluded that as the greenhouse gas (G~~H~~HG) emitters begin to be held liable for the damages ~~resulting~~ emerging from GHG emissions ~~resulting in~~in which lead to the climate change, ~~a~~ the ~~high value for~~ liability mitigation value would increase to provide powerful the incentives for the deployment of renewable energy technologies. At the national level, at least 30 nations around the world ~~already~~ have already renewable energy contributing to more than 20% of energy supply. The ~~n~~National renewable energy markets are projected to continue to grow strongly in the coming decade and beyond while~~, and~~ some 120 countries have various policy targets for the longer-term shares of the renewable energy~~,~~ including ~~a~~ the 20 percent~~%~~ of the targeted ~~of all~~ electricity generated ~~for~~from the European Union by 2020. Some countries have much higher long-term policy targets of up to 100 percent~~%~~ renewables. Outside Europe, a diverse group of 20 or more other countries have targeted the renewable energy shares in the 2020–2030 ~~time frame that range~~ rangimg from 10~~%~~ to 50 percent~~%~~.

~~In~~ T~~t~~his ~~research~~ study is an investigation of ~~with~~ the ~~survey~~ C~~c~~limatic characteristics of the regions of Khorasan and ~~Adjacent to this~~ the neighboring areas with~~in~~ the interior regions (Semnan, Sistan, Yazd, and Mazandaran) ~~and~~as well as the f~~F~~oreign regions (Turkmenistan and Afghanistan).~~;~~ B~~b~~esides, it is probing ~~the~~ technical-economic conditions of the renewable-fossil hybrid power generation along with~~,~~ T~~t~~he impact of the implementation of 2030 renewable energy o~~O~~utlook policies of Khorasan r~~R~~egional e~~E~~lectricity h~~H~~ybrid p~~P~~roduction s~~S~~ystem as well.~~, has been studied.~~

Methodology

Analytic programming was inspired by the numerical methods in Hilbert functional spaces and by GP. The principles of AP are somewhere between these two philosophies: ~~From GP stems t~~The idea of the evolutionary creation of symbolic solutions arise from GP, whereas the general ideas of the functional spaces and the ~~building~~ construction of the resulting function by means of a search process (usually done by the numerical methods such as ~~the~~ Ritz or Galerkin method) are adopted from Hilbert spaces. Like GP or GE, AP is based on a set of functions, operators and so-called terminals, which are usually constants or independent variables. All these 'mathematical' objects create a set from which AP tries to synthesize an appropriate solution. The main principle of AP is based on D~~d~~iscrete S~~s~~et H~~h~~andling (DSH), proposed ~~in~~ by Zelinka (2001). D~~SH~~ ~~iscrete set handling itself~~ can be seen as a universal interface between EA and the problem to be solved symbolically. That is, why AP can be carried out using almost any evolutionary algorithm. The set of the mathematical objects are functions, operators and so-called terminals (usually constants or independent variables). All these objects are mixed together ~~and~~ consist~~ing~~s of functions with different number of arguments. Because of the variability of the content of this set, ~~it is caled for~~ the article purposes of G~~"~~general F~~f~~unctional S~~s~~et~~"~~ (GFS) is required. The structure of GFS is nested, for instance~~i.e.,~~ it is created by the subsets of functions according to the number of their arguments. The content of GFS is dependent only on a user. Various functions and terminals can be mixed together. The subset structure presence in GFS is vitally important ~~for~~in AP. It is used to avoid the synthesis of the pathological programs, ~~i.e.~~for instance, programs containing functions without arguments, etc. Performance of AP is, of course, improved if functions of GFS are expertly chosen based on the experiencies with the solved problem. The important part of the AP is ~~a~~ the

sequence of mathematical operations which are used for the program synthesis. These operations are used to ~~transform~~ categorize ~~an~~ the individuals of ~~a population~~ the society into a suitable program. Mathematically ~~said~~ saying, it is mapping ~~from an~~ the individual domain ~~into~~ onto ~~a~~ the program domain. This mapping consists of two main parts. The first part is called ~~Dd~~iscrete ~~Ss~~et ~~Hh~~andling (DSH) and the second one ~~are~~ is the security procedures which do not allow ~~to~~ for the ~~synthesize~~ pathological programs synthesis.

Results and discussion

Simulation results show that the implementation of 2030 renewable energyies outlook policies~~these policies~~, will lead to 18.62 TWh optimal inter-regional and trans-regional exports which 2.32 TWh of this optimal export will be generated because of implementation of 2030 renewable energy ~~Outlook~~ outlook policies. This 14~~%~~ percent ~~increment~~ increase ~~of~~ in the inter-regional and trans-regional exports, ~~C~~ creates 5,000 j~~J~~obs in Khorasan ~~region~~ and increases the associated cost by 32 percent, but there would be little impact on ~~reducing~~ the environmental emissions' reduction. The related r~~R~~eason ~~of~~ for this insignificant reduction in the environmental emissions is the low l~~L~~imited renewable power generation in the production system. Besides, the ~~and~~ reason ~~of~~ for the significant increase~~s~~ in the price is the high capital cost of the solar and wind production which needs s~~S~~trong financial support from the technical-engineering wind and the solar projects as they ~~with sharing~~ share the cost of production with the customers. The maximum potential production capacity in order to cope with the fluctuating nature of the renewable generation, is the~~the~~ basic ~~work~~ attempt for the development of the renewable electricity generation~~are true~~.

Conclusion

Most of the world's leading countries in the field of renewable energy have used Feed-in Tariff to create an affordable price for the renewable power generation systems. It achieves this by offering long-term contracts to renewable energy producers, typically, based on the cost of generation of each technology. In addition, feed-in tariffs often include tariff degression which is a, ~~a~~ mechanism according to which the price (or tariff) ratchets down over time. This is done in order to track and encourage the technological cost reductions. Also, developing the required financial incentives and ~~the development of~~ promoting the standards for connecting ~~the renewable~~ the renewable sources to the grid is called for. ~~;~~ In addition, ~~to~~ the rules regarding the sharing of costs with the common network can also provide the necessary legal and technical infrastructure to make the hybrid production system.

Keywords: Simulation of regional power system, hybrid fossil-renewable production, power system Outlook

JEL Classification: N7 ،O13 ،P28 ،Q42.

References (in Persian)

Aslamloyan, K., ~~and~~ & Astadzad, A. H. (2012). ~~D~~determine the optimal share of renewable energies in a model of sustainable development: T~~t~~he case of Iran., *Journal of Environmental Economics and Energy*, ~~Vol. II, No.~~ 2(5 1-48), . (in

persian)

Ketbdari, M. J., & Ahmedi, M. E. (2011). Feasibility study of energy absorption by numerical modeling of ocean waves on the southern coast of Iran. *Journal of Marine Science and Technology*, *18*(60) 20-29. (in persian)

Khorasan Regional Electricity Company. (2012). *Report on the development of renewable energy power company*. Mashhad: Aryana Industrial Research Group. (in persian)

Meybodi Emami, A., & Haideri, K. (2012). The conversion of a simple gas turbine plants (SCGT) on the combined cycle (CCGT) and its impact on the consumption of fossil fuels. *Journal of Economic Research (Research, Development and Sustainable Development)*, *12* (3) 25-46. (in persian)

Rahimi, N. (May 2005). *Indicators for sustainable energy development in Iran*. Papers presented at the Fourth National Energy Congress, Tehran, Iran. (in persian)

References (in English)

Bilgen, S., Keles, S., Kaygusuz, A., Sari, A., & Kaygusuz, K. (2008). Global warming and renewable energy sources for sustainable development: A case study in Turkey. *Renewable and Sustainable Energy Reviews*, *12* (2), 372-396.

Connolly, D., Lund, H., Mathiesen, B. V., Pican, E., & Leahy, M. (2012). The technical and economic implications of integrating fluctuating renewable energy using energy storage. *Renewable Energy*, *43*, 47-60.

Henning, H. M., & Palzer, A. (2014). A comprehensive model for the German electricity and heat sector in a future energy system with a dominant contribution from renewable energy technologies. *Renewable and Sustainable Energy Reviews*, *30*, 1003-1018.

Lund, H. (2014). *Advanced Energy Systems Analysis Computer Model, Documentation Version 11.4*. Denmark: Aalborg University.

Kowalski, K., Stagl, S., Madlener, R., & Omann, I. (2009). Sustainable energy futures: Methodological challenges in combining scenarios and participatory multi-criteria analysis. *European Journal of Operational Research Journal*, *197* (3), 1063-1074.