

عنوان مقاله:

Real Benefits of Multipurpose Hydropower Projects from National Points of View

محل انتشار:

اولین کنفرانس بین المللی و سومین کنفرانس ملی سد و نیروگاههای برق آبی (سال: 1390)

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خلاصه مقاله:

Quantifying real benefits of multipurpose Hydro Power Plants (HPPs) are very important in economically justifying the projects. In Iran, benefit of HPPs is usually determined by the costs of substituted Thermal Power Plants (TPPs) considering fuel subsidies and disregarding other benefits of the project. This paper estimates real benefits of hydro energy by omitting the subsidies of fuel and quantifies minor benefits such as dynamic advantages of HPPs, water supply, flood control, recreational, and so on. The results indicate that the benefits of hydropower energy would be more than 1.5 times by eliminating subsidies of fuels. Basically, the current benefits of 9 cent/Kwh would increase to 14 cent/Kwh after cutting subsidies and considering social costs of TPPs (2 cent/kwh). Moreover, dynamic revenue of hydro electricity generation due to flexibility in the power network would increase the benefits of HPPs in comparison to existing regulations. On the contrary, the tariffs and actual revenues of hydroelectricity are much lower than the real benefits of under operation projects. On the other hand, irrigation and flood control benefits of multipurpose HPPs can be remarkable depends on the reservoir capacity and characteristic of the region. For instance, irrigation benefit has been estimated for Karun 3 and Karkheh dams around 40 and 130 million \$/year respectively. Flood control revenue has been over 35 M\$ in a single flood of 2005 in Karun 3 and the average rate has been 5 M\$/year for Karkheh dam. The paper indicates that under development HPPs would save 55 billion m³/year natural (20% of current annual natural gas production of the country) equal to 11.5 billion \$/year till 2025. Furthermore, natural gas supply would face 53 billion m³/year shortages due to domestic demand rising in the 2025. This indicates that HPPs regardless of economic revenue should be considered in long term planning of national energy supply and demand.

کلمات کلیدی:

Keywords: HPP, Benefit, Fuel, Multipurpose, Subsidy

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