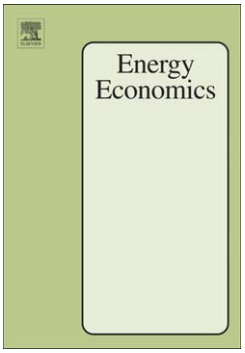
Accepted Manuscript



Construction of an efficient portfolio of power purchase decisions based on risk-diversification tradeoff

Javier Contreras, Yeny E. Rodríguez, Aníbal Sosa

PII: S0140-9883(17)30113-5
DOI: doi:10.1016/j.eneco.2017.04.007
Reference: ENEECO 3606

To appear in: *Energy Economics*

Received date: 26 September 2015
Revised date: 3 April 2017
Accepted date: 8 April 2017

Please cite this article as: Contreras, Javier, Rodríguez, Yeny E., Sosa, Aníbal, Construction of an efficient portfolio of power purchase decisions based on risk-diversification tradeoff, *Energy Economics* (2017), doi:10.1016/j.eneco.2017.04.007

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Construction of an efficient portfolio of power purchase decisions based on risk-diversification tradeoff

Javier Contreras[a], Yeny E. Rodríguez[b1], Aníbal Sosa[c]

[a]*Universidad Castilla – La Mancha, E.T.S. de Ingenieros Industriales; 13071 Ciudad Real, Spain; E-mail: Javier.Contreras@uclm.es*

[b] *Universidad ICESI, Financial and Accounting Department, Cali, Colombia; E-mail: yerodriguez@icesi.edu.co and - Universidad de los Andes, School of Management, Bogota, Colombia; E-mail: ye.rodriguez395@uniandes.edu.co*

[c] *Universidad ICESI, Mathematics Department, Cali, Colombia; E-mail: uasosa@icesi.edu.co*

ACCEPTED MANUSCRIPT

Abstract

We present a methodology based on the tradeoff between risk and diversification in order to evaluate a purchase portfolio of energy, where the assets refer to purchasing strategies of a retailer-generator of electricity in three markets: spot, regulated and non-regulated markets. We use two measures of diversification: i) entropy based on factors, constructed by principal components analysis, and ii) entropy based on asset risk. In each case, weights for each strategy are estimated by using the interior point method, for which monthly forecasts of returns are calculated a year ahead for each market. Spot prices are modeled using an ARIMA model and bilateral contracts are modeled using growth rates. We compare risk-diversified portfolios with mean-variance portfolio. Although diversification does not necessarily mean a lower risk, we show that the mean-variance portfolio's risk is not always lower than the risk-diversified approaches. Also, we show that diversification converges to one for the highest risk portfolio, but this does not happen in the case of entropy based on factors, because one asset can participate in more than one principal component. Clearly, the mean-variance approach is unable to perform a diversified allocation. These results are useful for retailer-generators who want combine the criteria of risk and diversification.

[1] Corresponding author. Tel.: +057 2-5552334 ext. 8181
E-mail addresses: yerodriguez@icesi.edu.co; ye.rodriguez395@uniandes.edu.co

دریافت فوری ← متن کامل مقاله

ISIArticles
مرجع مقالات تخصصی ایران

✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
✓ امکان دانلود نسخه ترجمه شده مقالات
✓ پذیرش سفارش ترجمه تخصصی
✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
✓ دانلود فوری مقاله پس از پرداخت آنلاین
✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات