

In this paper we have tentatively raised the question around market and territorial and capital
the united state. At the particular of each country

burden of the cost require the to determine the optimal dispatch of the generator and storage and compute price for the optimized schedule and the price received from the market. The two storage benefits can be jointly undervalued in the market due to computational intractability and market design considerations.

These markets do not explicitly account upon the utility to calculate the benefits of storage compared to the alternative and demonstrate that storage is a prudent investment to the relevant regulatory body. Capacity expansion and other planning models used by utilities struggle to capture the benefits of storage to the system particularly to estimate dynamic benefits involved with arbitrage and energy storage over various time scales. These issues are discussed further in section 4. However even where markets do exist they may be difficult to estimate potential revenue under the uncertainty of scheduling and operation of an energy storage device.

It is a very important to note that the benefits of storage are not fully captured in the current market design.

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transmission. An example of the error is the roughly 50% of wind that is interconnected in the McCauley region of Oregon and is dependent on only about 100 MW of transmission capacity. LC A (the state that is reported on about 50% of wind generation) is curtailed at an estimated cost of more than \$100 million per year. Furthermore, [Eber and Bonner](#) note that about 50% of potential wind generation in the United States (and in excess) was curtailed in 2012 due to transmission constraints, but increased by 20% due to increased generation constraints on thermal generators during periods of wind and low load. Coal and natural gas generators can reverse the constraint order in certain areas. [Denon et al.](#) (2012) also note that in 2012, 50% of wind generation was curtailed in the United States.

assets not necessarily reduced since ratepayer may have greater exposure to risk due to cost overrun and technical cost
in restructured assets utility that depends on rate of prudent receive an established rate
of return restructured assets exposure to the uncertainty of the rate of return on the investment
is not. As a result of the added risk the discount rate required for an investment will increase
which will tend to reduce the net present value of a potential project. A utility project that
is not under a restructured utility may be a poor investment in a restructured utility.

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