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Energy Storage for Intermittent Generation

Presentation to TiE Clean Energy Special Interest Group

by:

Marcus Wood
Stoel Rives LLP

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Stoel Rives' Renewable Energy Team

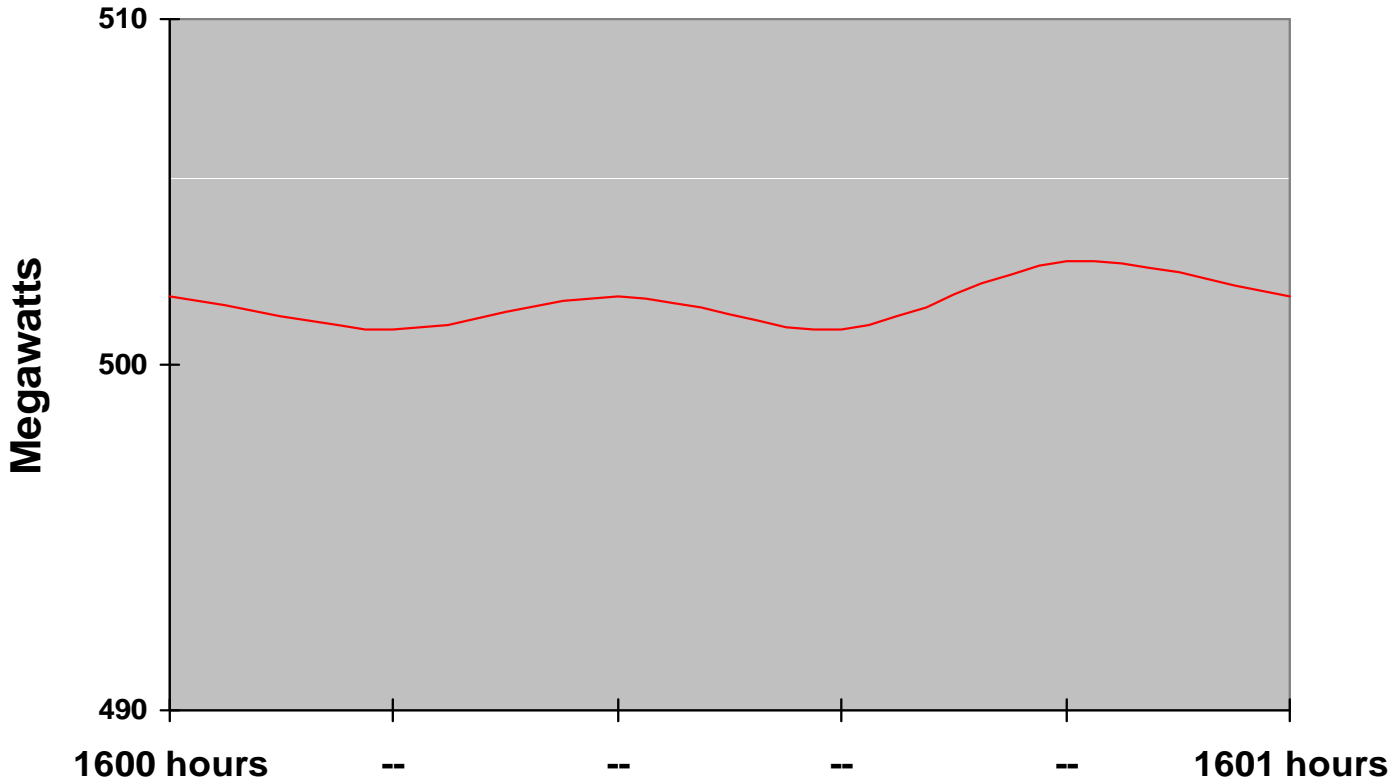


Who Is the Customer?

- The answer turns on the type of storage service and the regulatory market design. The customer could be
 - A generation owner
 - A retail electric utility
 - A regional transmission organization
 - A retail electric customer



What Is the Storage Need?

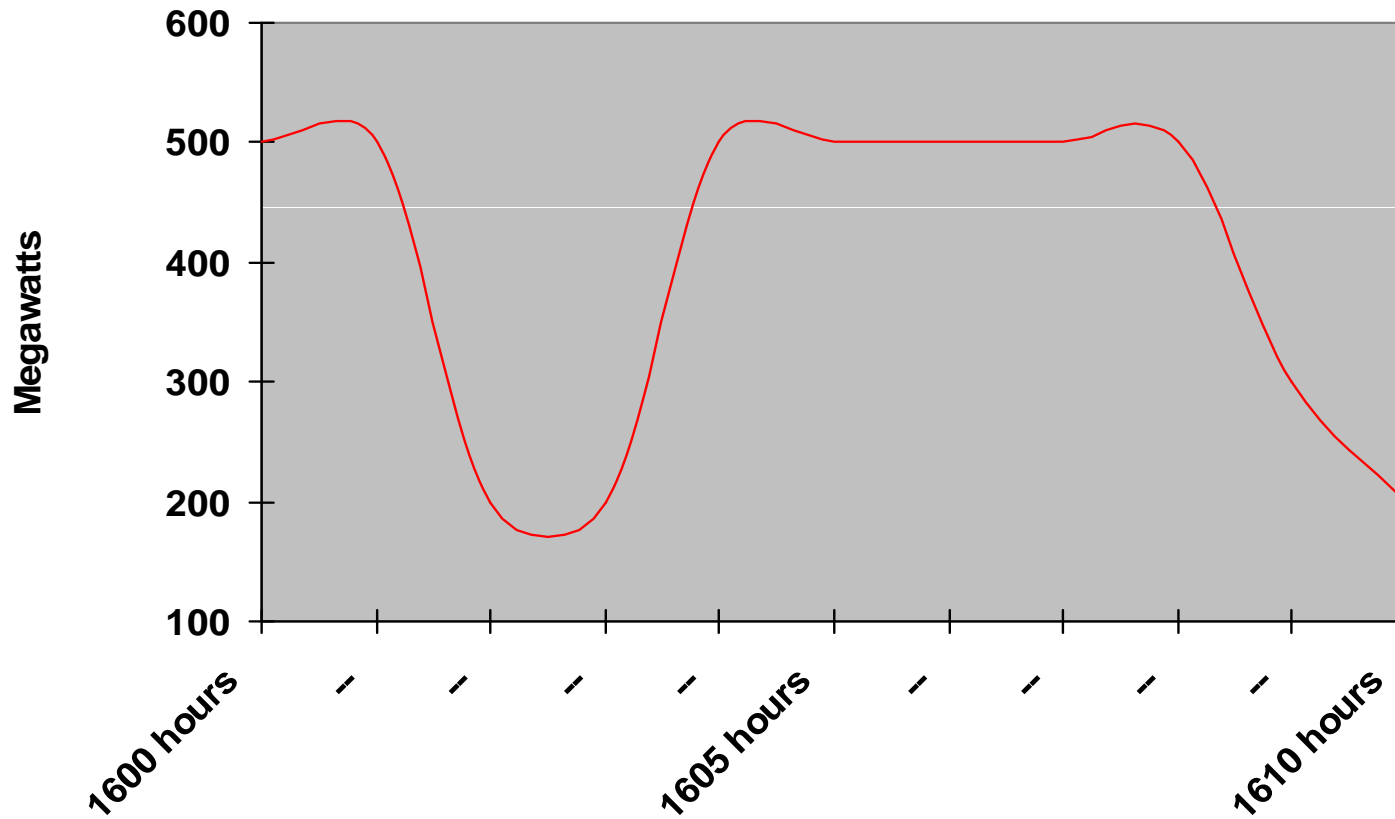


Within Minute Pattern for Wind Generation





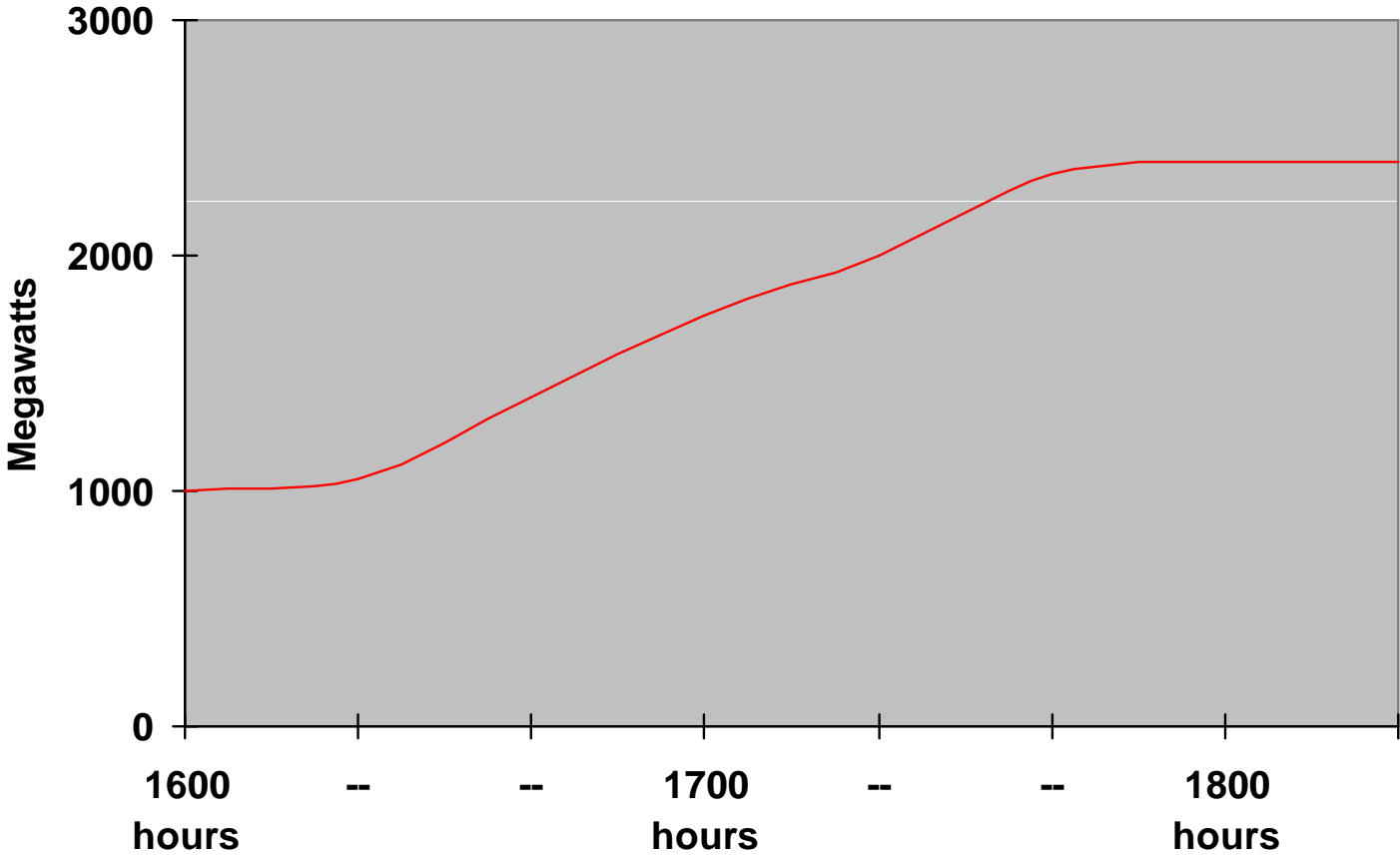
What Is the Storage Need?



Photovoltaic Array – Partly-Cloudy-Day Generation



What Is the Storage Need?

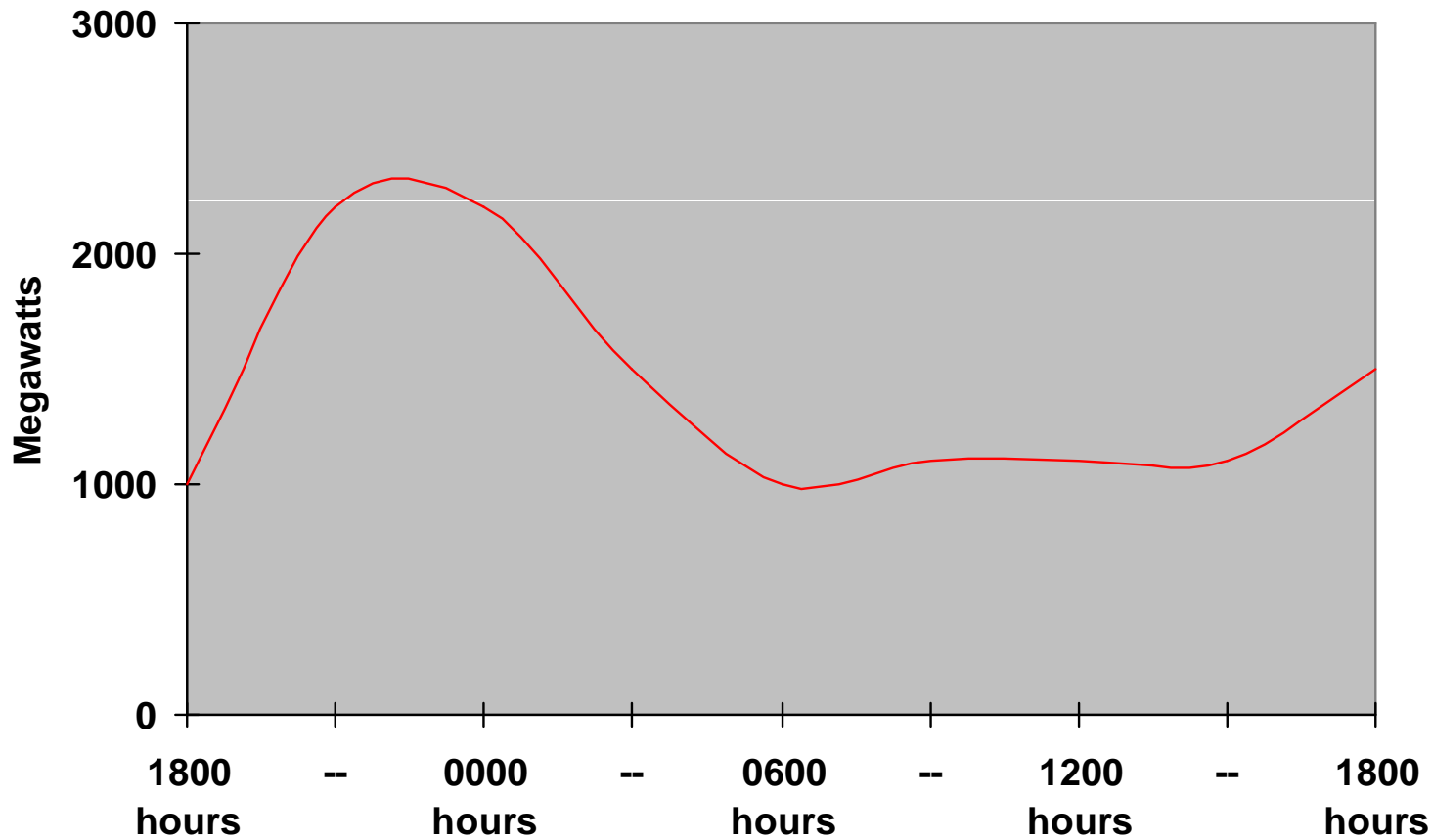


Wind Generation – Weather Front Moving Through





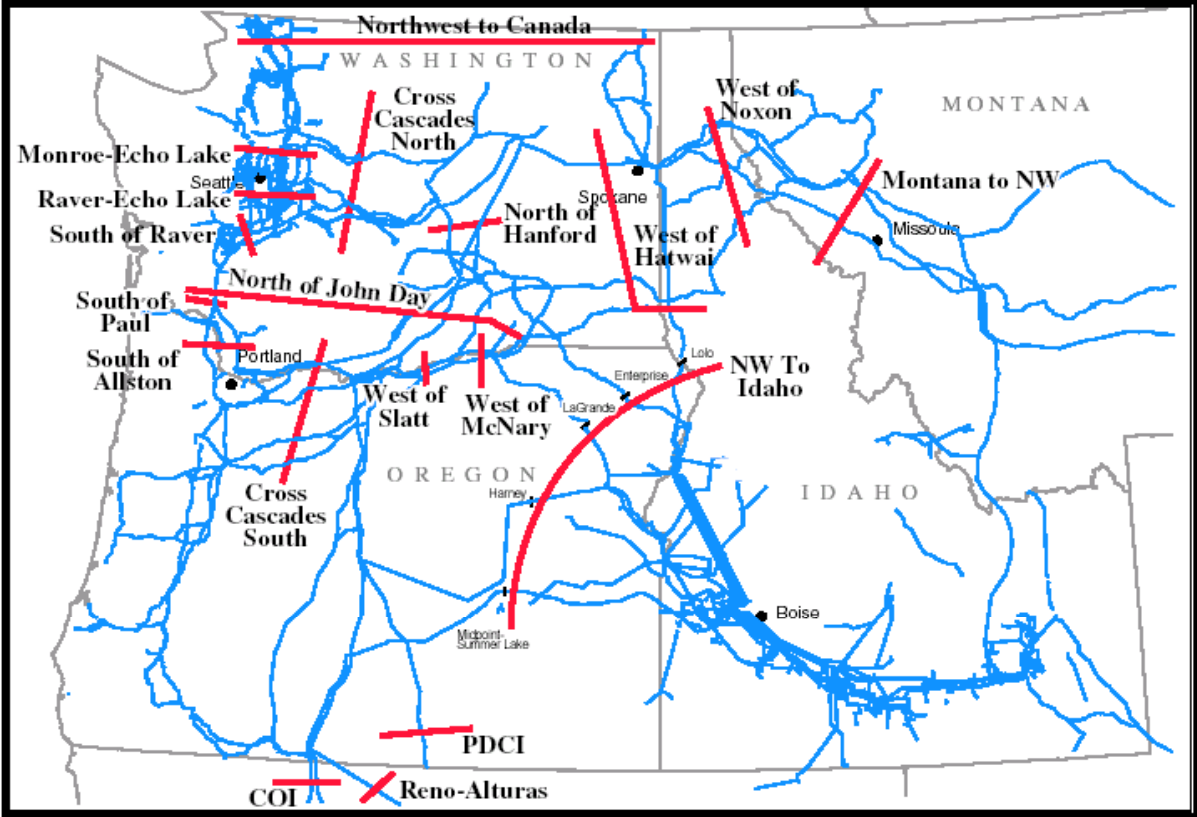
What Is the Storage Need?



Wind Generation – Night-Time Peaking



Transmission Needs



Northwest Transmission Cut Planes





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Marcus Wood * (503) 294-9434 * mwood@stoel.com * www.stoel.com

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