

## Supplemental Sources for Public Service Co. of New Mexico (PNM)

- PNM Project web site: primary public outreach vehicle for the project. It contains access to real-time data, resources and project-specific publications: [www.pnm.com/solarstorage](http://www.pnm.com/solarstorage)
- Annotated results: See accompanying PNM Prosperity Graphed Results.pdf.
- Project-Related Short Videos:
  - <http://www.youtube.com/watch?v=lges0KyNFxs&feature=youtu.be>
  - <http://www.youtube.com/watch?v=mtkyetyCfSg>
- Project Fact Sheet: see accompanying Prosperity Energy Storage Fact Sheet.pdf
- EPRI Smart Grid Demo Demonstration Project: PNM's specific efforts are tracked along with other host-utility efforts.
  - Five-year update: [http://www.smartgrid.epri.com/doc/epri-smart-grid-advisory-update-2012\\_02\\_09.pdf](http://www.smartgrid.epri.com/doc/epri-smart-grid-advisory-update-2012_02_09.pdf)
  - Three-year update: [http://www.smartgrid.gov/sites/default/files/doc/files/EPRI\\_Smart\\_Grid\\_Demonstration\\_Initiative\\_Three\\_Year\\_Update\\_201110.pdf](http://www.smartgrid.gov/sites/default/files/doc/files/EPRI_Smart_Grid_Demonstration_Initiative_Three_Year_Update_201110.pdf)
- Project reports to DOE (Project Description and Technology Performance Report), required under the DOE Smart Grid Storage Project: extensive reporting on methodology and interim results. [http://www.smartgrid.gov/recovery\\_act/program\\_impacts/energy\\_storage\\_technology\\_performance\\_reports](http://www.smartgrid.gov/recovery_act/program_impacts/energy_storage_technology_performance_reports)
- Northern New Mexico College
  - Android app developed for access to the Project website – available on Google Play: <http://tinyurl.com/solarpower-nnmc>
  - Public kiosk in the college lobby – interactive, instructional based and internet accessible: <http://205.166.231.215:8080/SmartPNM/>
- Battery partner Ecoult:
  - Main site <http://www.ecoult.com/>
  - Prosperity-specific site <http://www.ecoult.com/case-studies/pnm-nm-usa-solar-smoothing-and-shifting/>
- DOE/EPRI Energy Storage Handbook, featuring the Prosperity Project and a variety of input from PNM: <http://www.sandia.gov/ess/publications/SAND2013-5131.pdf>
- Technical Paper Compendium – following pages

## Compendium of Published and Pending Technical Papers Associated with the Prosperity Energy Storage Project

### IEEE Published Papers - <http://ieeexplore.ieee.org/search>

“PNM smart grid demonstration project from modeling to demonstration.” Abdollahy, S.; Lavrova, O.; Mammoli, A.; Willard, S.; Arellano, B. Innovative Smart Grid Technologies (ISGT), 2012 IEEE PES. Digital Object Identifier: 10.1109/ISGT.2012.6175594. Publication Year: 2012, Page(s): 1 – 6.

“Distributed control strategies for high-penetration commercial-building-scale thermal storage.” Mammoli, A.; Jones, C.B.; Barsun, H.; Dreisigmeyer, D.; Goddard, G.; Lavrova, O. Transmission and Distribution Conference and Exposition (T&D), 2012 IEEE PES. Digital Object Identifier: 10.1109/TDC.2012.6281608. Publication Year: 2012, Page(s): 1 – 7.

“Applying battery energy storage to enhance the benefits of photovoltaics.” Cheng, F.; Willard, S.; Hawkins, J.; Arellano, B.; Lavrova, O.; Mammoli, A. Energytech, 2012 IEEE. Digital Object Identifier: 10.1109/EnergyTech.2012.6304684. Publication Year: 2012, Page(s): 1 – 5.

“Analysis of battery storage utilization for load shifting and peak smoothing on a distribution feeder in New Mexico.” Lavrova, O.; Cheng, F.; Abdollahy, S.; Barsun, H.; Mammoli, A.; Dreisigmeyer, D.; Willard, S.; Arellano, B.; van Zeyl, C. Innovative Smart Grid Technologies (ISGT), 2012 IEEE PES. Digital Object Identifier: 10.1109/ISGT.2012.6175723. Publication Year: 2012, Page(s): 1 – 6.

“PV output smoothing with energy storage.” Ellis, A.; Schoenwald, D.; Hawkins, J.; Willard, S.; Arellano, B. Photovoltaic Specialists Conference (PVSC), 2012 38th IEEE. Digital Object Identifier: 10.1109/PVSC.2012.6317885 Publication Year: 2012, Page(s): 001523 – 001528.

“Distributed compensation of a large intermittent energy resource in a distribution feeder.” Abdollahy, S.; Mammoli, A.; Cheng, F.; Ellis, A.; Johnson, J. Innovative Smart Grid Technologies (ISGT), 2013 IEEE PES. Digital Object Identifier: 10.1109/ISGT.2013.6497911. Publication Year: 2013, Page(s): 1 – 6.

### IEEE Papers Pending Publication

“Real-Time Control of Utility-Scale Storage on a Distribution Feeder with High PV Penetration.” Cheng, F.; Willard, S.; Hawkins, J.; Arellano, B.; Lavrova, O.; Mammoli, A. Energytech, 2013 IEEE. Publication Year: 2013, Page(s): 1 – 5.

“Low-cost solar micro-forecasts for PV smoothing.” Mammoli, A., Menicucci, A.; Caudell, T.; Ellis, A.; Willard, S.; Simmins, J. 2013 IEEE Conference on Technologies for Sustainability (Sustech).

“Integrating heterogeneous distributed energy resources to manage intermittent power at low cost.” Abdollahy, S.; Heine, N, Poroseva, S.; Lavrova, O.; Mammoli, A. 2013 IEEE Conference on Technologies for Sustainability (Sustech)

“Maximizing the benefits of PV utility scale storage at PNM prosperity project.” Cheng, F.; Greenwood, W.; Arellano, B.; Hawkins, J.; Lavrova, O.; Mammoli, A.; Willard, S. Energytech, 2013 IEEE. Publication Year: 2013, Page(s): 1 – 5.

“PV Output Smoothing using a Battery and Natural Gas Engine-Generator.” Johnson, J.; Ellis, A.; Denda, A.; Morino, K.; Shinji, T.; Ogata, T.; Tadokoro, M. 39th IEEE Photovoltaic Specialists Conference, Tampa Bay, Florida, 16-21 Jun, 2013.

### **Other Source Papers**

“Modeling of PV plus storage for Public Service Co. of New Mexico’s Prosperity energy storage project.” Lavrova, O.; Cheng, F.; Nelson, T.; Abdollahy, S.; Mammoli, A.; Electrical Energy Storage Applications and Technologies Annual meeting, San Diego, CA, October 17-19, 2011.

“Interplay between energy-market dynamics and physical stability of a smart power grid.” Picozzi, S.; Mammoli, A.; Sorrentino, F. Bulletin of the American Physical Society 58. Publication Year: 2013.

“Smoothing and shifting PV – Applying energy storage to enhance the benefits of renewable energy.” Willard, S.; Lavrova, O.; Arellano, B.; Hawkins, J.; Mammoli, A.; McKeon, B. 2012 World Renewable Energy Forum; ASES 2012.

“Day-ahead cumulative solar irradiance prediction method using percent cloud cover forecasts.” Greenwood, W.; Mammoli, A.; Lavrova, O.; Cheng, F.; Willard, S.; Arellano, B. SOLAR 2013; ASES 2013 - Proceedings pending release.

“Optimization of solar PV smoothing algorithms for reduced stress on a utility-scale battery energy storage system.” Greenwood, W.; Mammoli, A.; Lavrova, O.; Willard, S.; Arellano, B.; Johnson, J. Abstract accepted to EESAT 2013.

“Model Predictive Control Application in PV and Storage System.” Cheng, F. Abstract accepted to EESAT 2013.

“Microgrids and clusters of microgrids: Integrating heterogeneous energy resources within a power distribution feeder.” Mammoli, A.; Hayat, M.; Heine, N.; Yasaei, Y.; Ghanbari, L. Poster presentation at DOE Santiago 2013 Symposium on Microgrids.