

High Penetration PV in Electricity Networks

ARENA: \$125,057

In kind: \$226,264

March 2010 to December 2013

Participants:

- UNSW
 - IT Power
 - CAT Projects
 - CSIRO
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APVI participation in IEA PVPS Task 14

Iain MacGill, Anna Bruce, Glenn Platt (CSIRO), Muriel Watt, Ben Noone

- **Key Australian contributions**

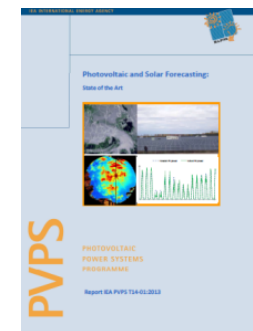
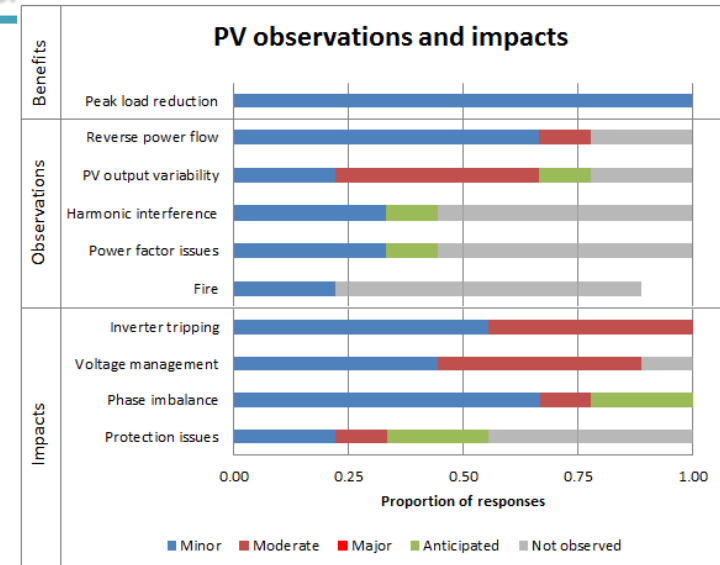
- 3 case studies of high PV: Alice Springs, Carnarvon, Townsville
- DNSP survey of high PV impacts (*final report forthcoming*)

- **Other relevant Australian work**

- *Modelling and Analysis of distributed PV's technical impacts on dx feeders*
- *MA of economic value of distributed PV*
- *MA of technical feasibility and economics of system-level high penetration PV scenarios*
- *Investigation into use of storage with high penetration PV*
- *Distributed energy market options and opportunities*

- **Recent task outcomes – current and forthcoming**

- ST1 / ST3: PV and solar forecasting report
- ST2: *High PV penetration in the Dx grid with case studies – 11 countries including Aust*
- ST3: *High PV penetrations system-level with case studies – 6 countries including Aust*
- ST4: *Inverter and grid connection – international survey*



Task 14 Extension

- Key specific objectives of Task 14 in second term
 - Discuss implications of high PV penetration levels at the electricity market level
 - Develop, verify technical requirements for PV systems in different grid scenarios to ensure stability, reliability of power systems with massive penetrations of PV, other RE
 - Discuss, develop new solutions for operation, grid planning for high PV scenarios
 - Discuss opportunities for PV to provide advanced grid support services – local, system
 - Discuss the possible role of PV in a future Smart Grid
 - Revised Task Structure
 - **Cross-cutting subtask: Market implications with High PV Penetration**
 - Subtask 1 (extended): Energy management with high PV penetration
 - Subtask 2 (extended): High penetration PV in local distribution grids
 - Subtask 3 (extended): High penetration solutions for central PV generation scenarios
 - Subtask 4 (extended): Smart power converters for high penetration PV & Smart Grids
 - Subtask 5 (new subtask): Communication and Control for high penetration of PV
 - Australian participation?
 - Invitation to lead new cross-cutting subtask on market implications with high PV
 - *Funding, other potential collaboration contributions sought....*
-



APVI/UNSW participation in IEA PVPS Task 14

Iain MacGill, Anna Bruce, Glenn Platt (CSIRO), Muriel Watt, Ben Noone

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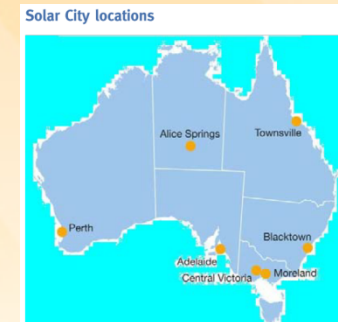
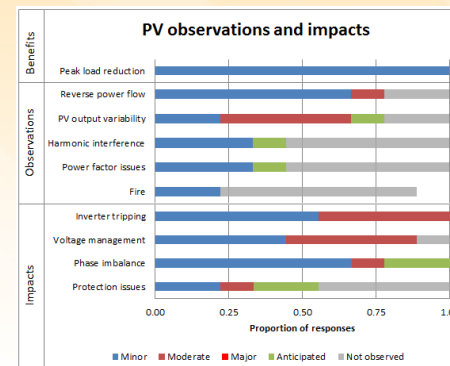
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