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Cost-Reflective Pricing and its Impact on Storage

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APVI Storage Workshop "Solar, Storage, and New Energy Business Models"

Sydney, **4th June 2015**

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CRP is very complicated

- Tariffs divided into: transmission, distribution, retail/wholesale
- Distribution:
  1. Sunk/residual costs – fixed charge? historical responsibility?
  2. Augmentation costs – SRMC and LRMC? decreasing demand peak?
  3. O&M costs – just a per kWh charge?
- How to:
  1. Calculate each of these
  2. Allocate proportion of costs between them
- Here focus on
  - Assessing how well proposed CRTs result in a household's bill correlating with their contribution to the demand peak and augmentation costs – most relevant for storage

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What is Network Cost-Reflective Pricing?

- AEMC "Network prices to reflect the efficient cost of providing network services to individual consumers so that they can make more informed decisions about their electricity use"
- End-users pay the full costs of their use of the network
  - Corollary is ….
- DG and EE are rewarded to the extent that they provide network support

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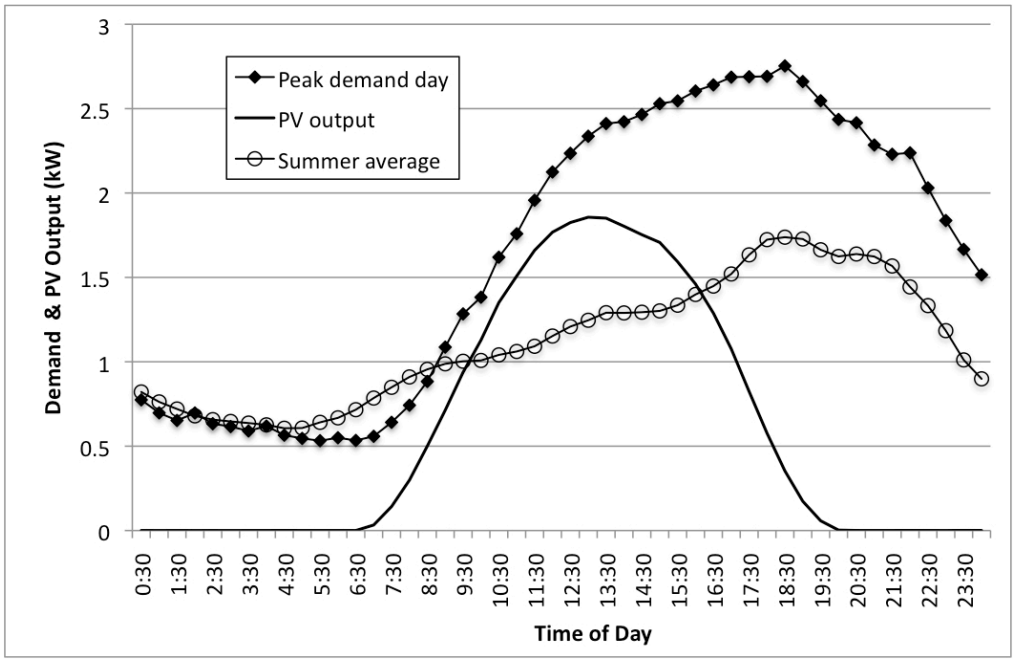
Annual Peak – weekend (Dataset A)



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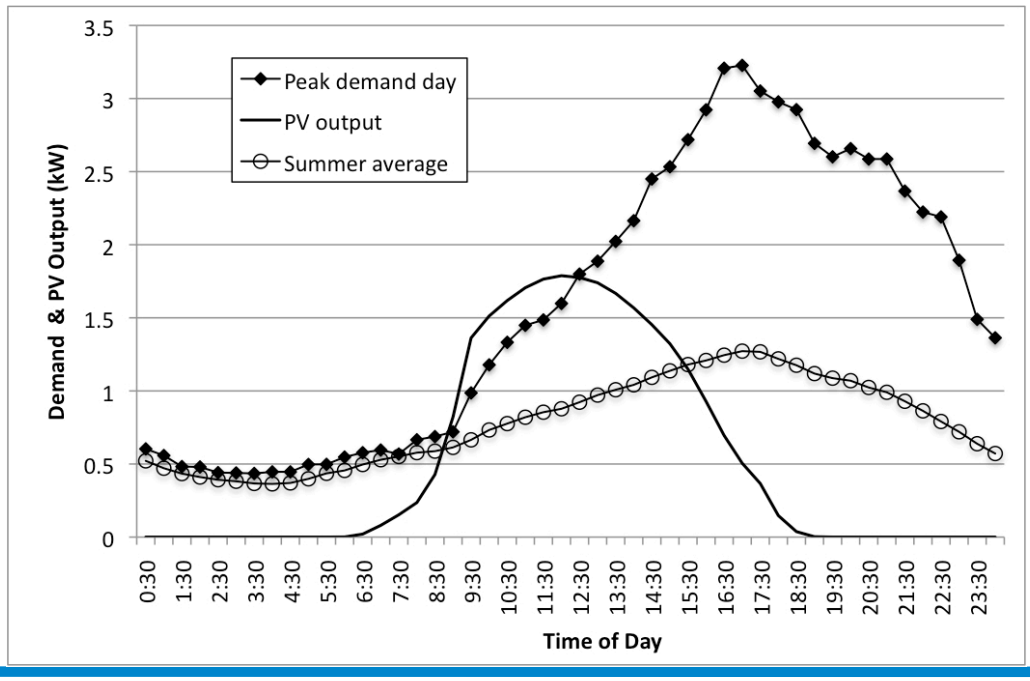
Annual Peak – weekday (Dataset B)



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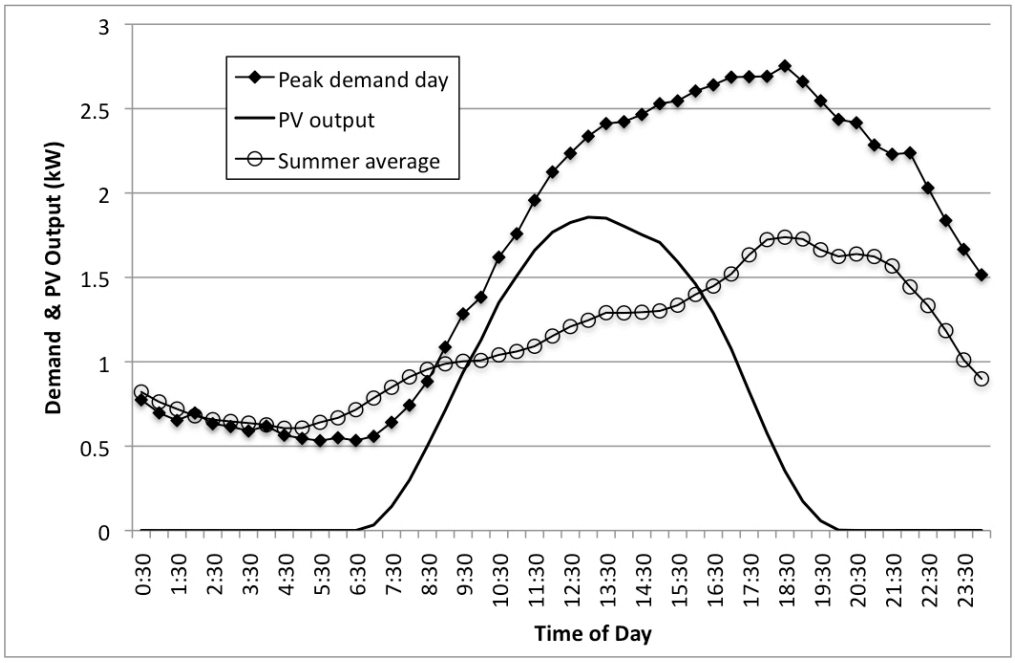
Annual Peak – weekend (Dataset A)



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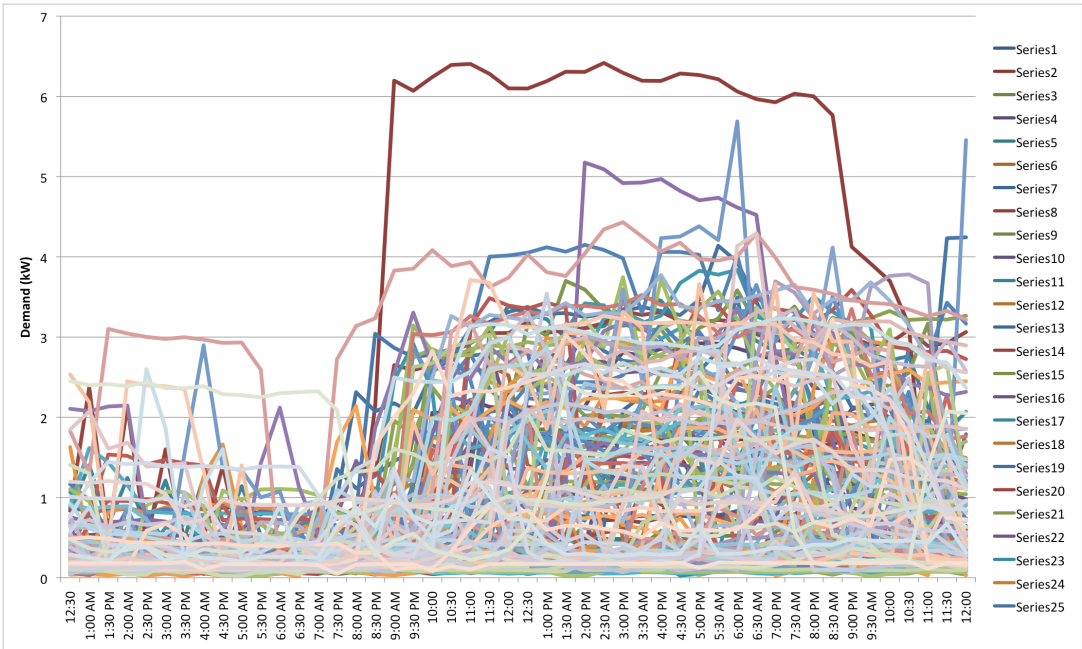
Annual Peak – Separate loads



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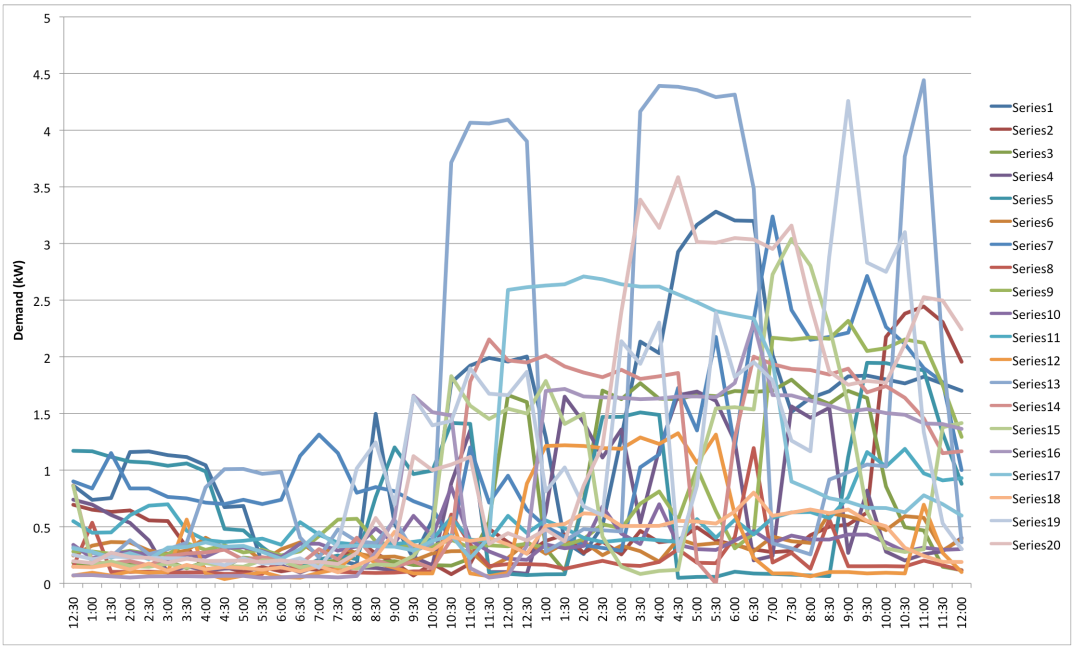
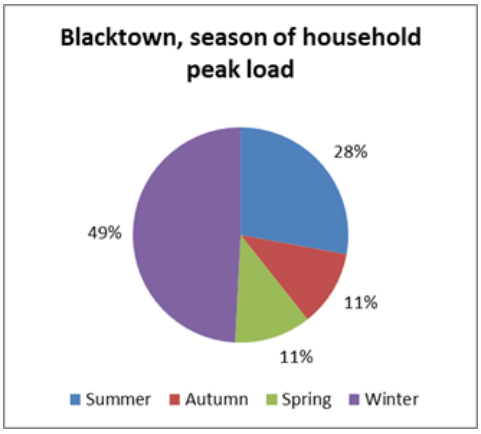
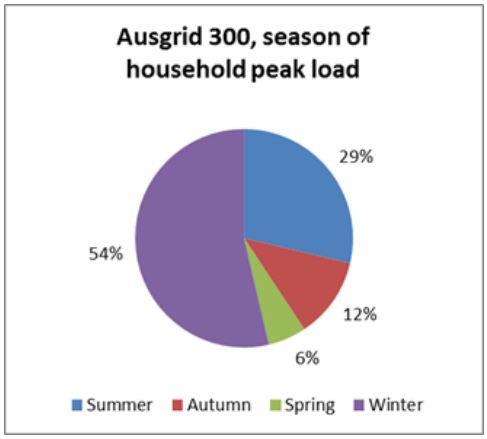
Annual Peak – 20 houses



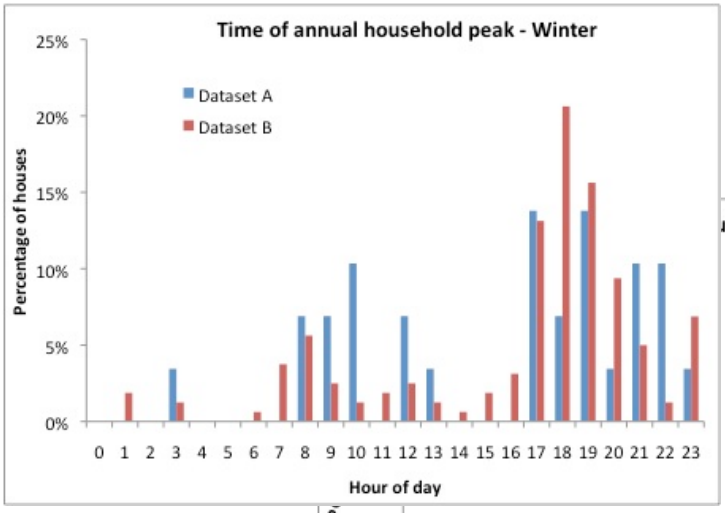
Summer peak?

- Aggregated (network) peak is in summer, but ….

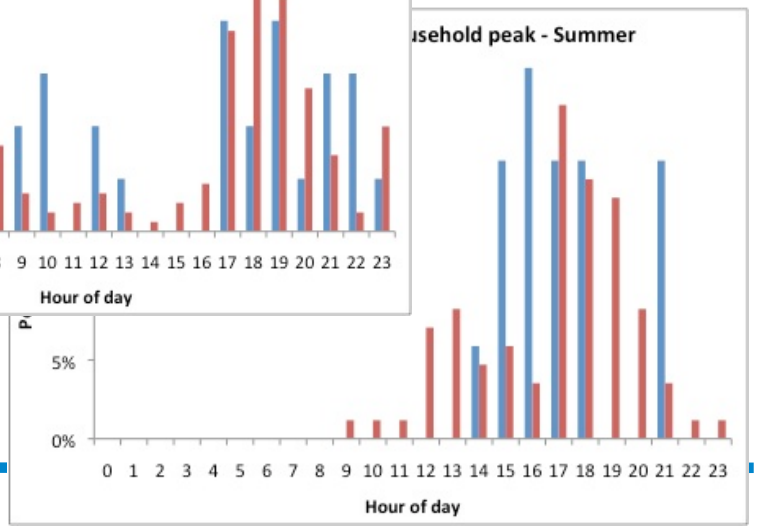




Summer peaks are more aggregated



Both same time and same day



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When to Apply Demand Charge?

- Network Determinations: Networks are sized to be able to meet the projected annual demand peak
- Cost-reflective charges should be applied to customers based on **their demand at the time of the annual network peak** (Ergon, 2015)
- Instead, current CRTs base it on **the customer's demand peak over a broad period each day and over the full year**

Ergon, 2015, 'Supporting Document: Long Run Marginal Cost Considerations in Developing Network Tariffs, March 2015, Ergon Energy.

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Proposed cost-reflective tariffs

- Looked at 9 DNSPs => 6 TOU, 3 with demand charges
- SA Power Network's Residential Actual Demand Tariff – DUOS only (incl. GST)

Component	Residential Actual Demand Tariff	Residential Single Rate Tariff
Capacity - peak	4 – 9pm (Nov – March) **Rate:** $9.966/kW/month	NA
Capacity – off peak	4 – 9pm (April – Oct) **Rate:** $4.983/kW/month	NA
Energy	5.313c/kWh any time	8.195c/kWh, up to 333.3kWh/month 10.89c/kWh over 333.3 kWh/month
Fixed	None, but minimum 1.5kW monthly capacity charge	$103.19/year

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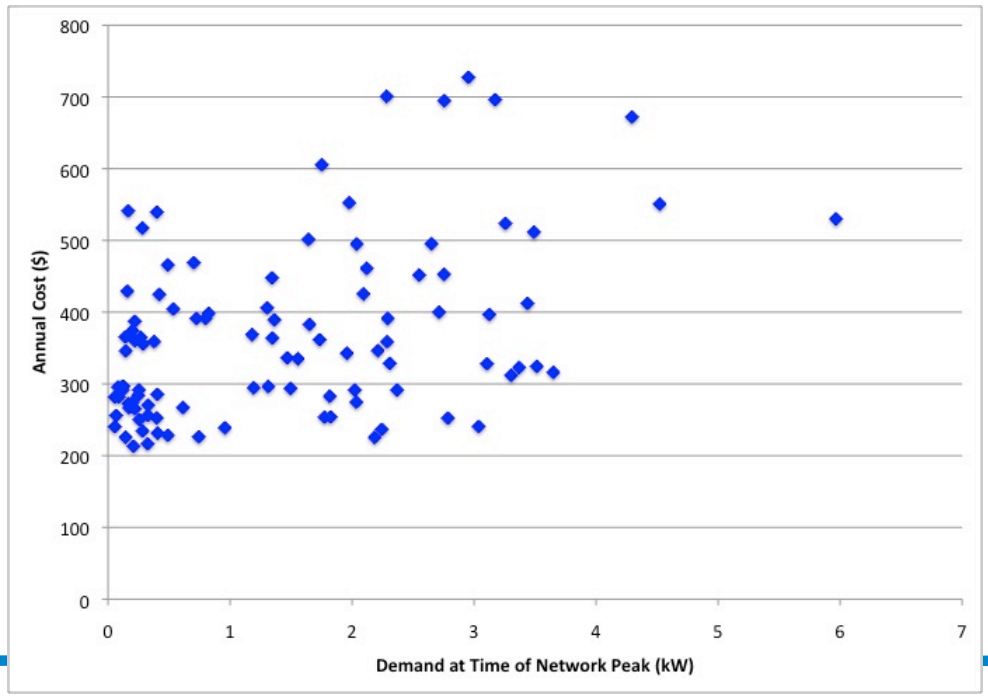
SAPN Flat Tariff – DUOS only



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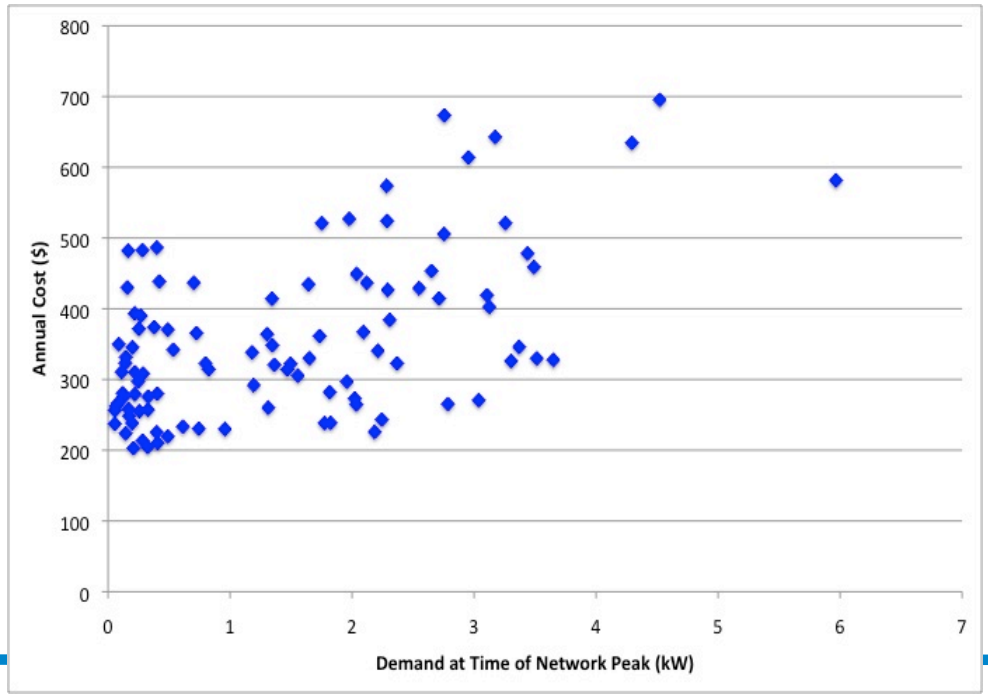
SAPN Demand Tariff – DUOS only



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SAPN's cost-reflective and flat tariffs

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What Does All This Mean For Storage???

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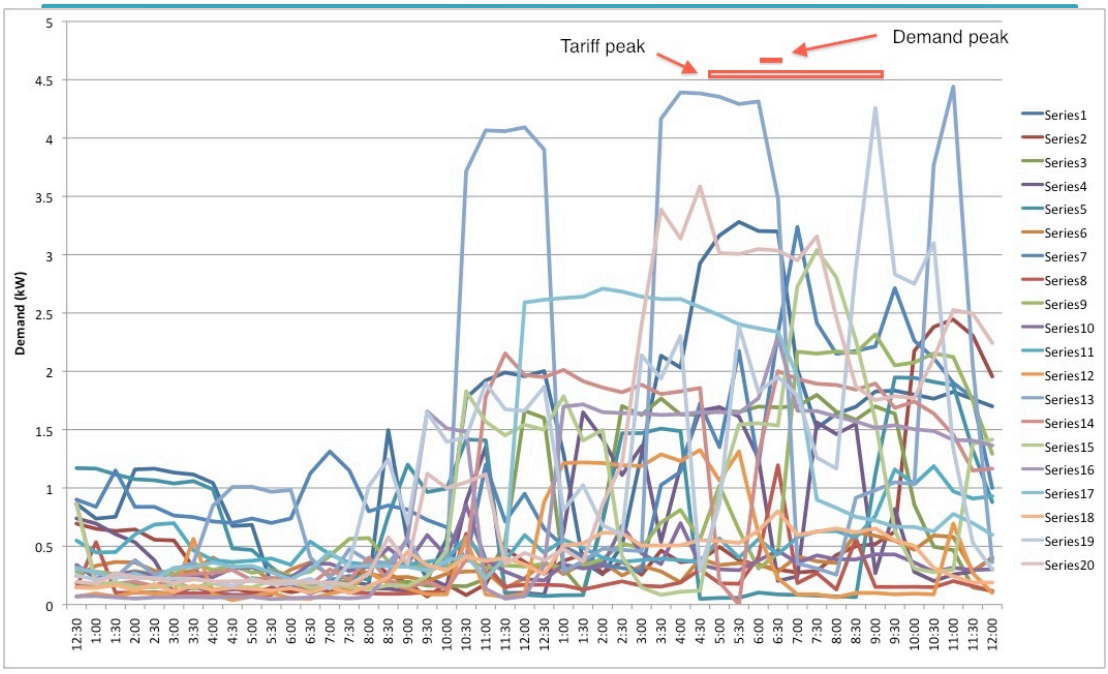
Non-CRP Drives Storage Uptake



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If You Want to Drive Uptake of Storage …

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If You Want to Drive Uptake of Storage …

Use cost-reflective tariffs that aren't

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Proposed demand charge tariff

DNSP	Proposed
Charged on peak demand	Charged on demand during network peak
Every month of year	Selected months (eg. summer)
3-9pm, 6 hr period	4.30-7.30pm, 3 hr period
$/kW charge lower	$/kW charge higher
Billed each quarter based on 3 monthly demand peaks in that quarter	Billed each quarter based on default demand charge
	True-up period after eg. summer
	Use actual demand for new default demand charge

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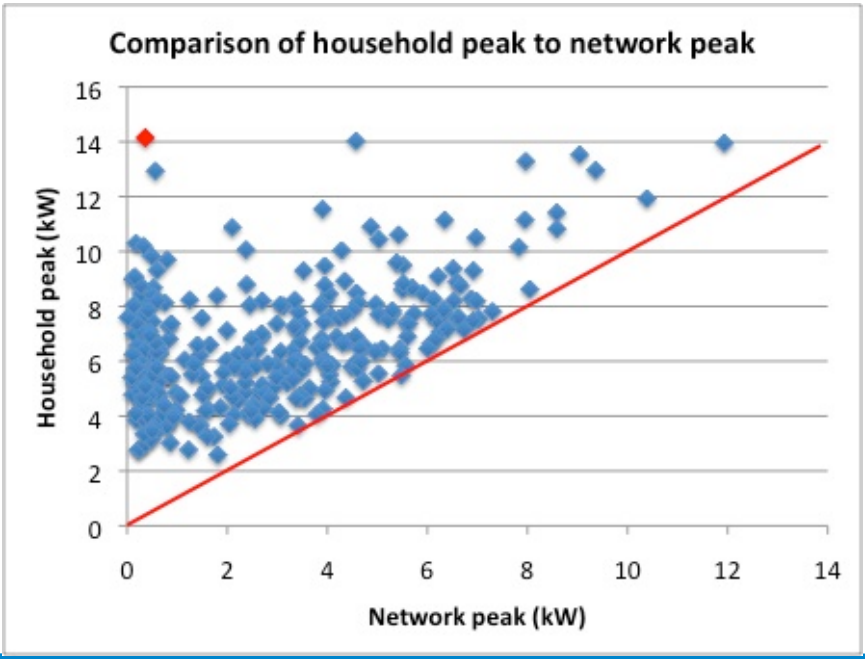
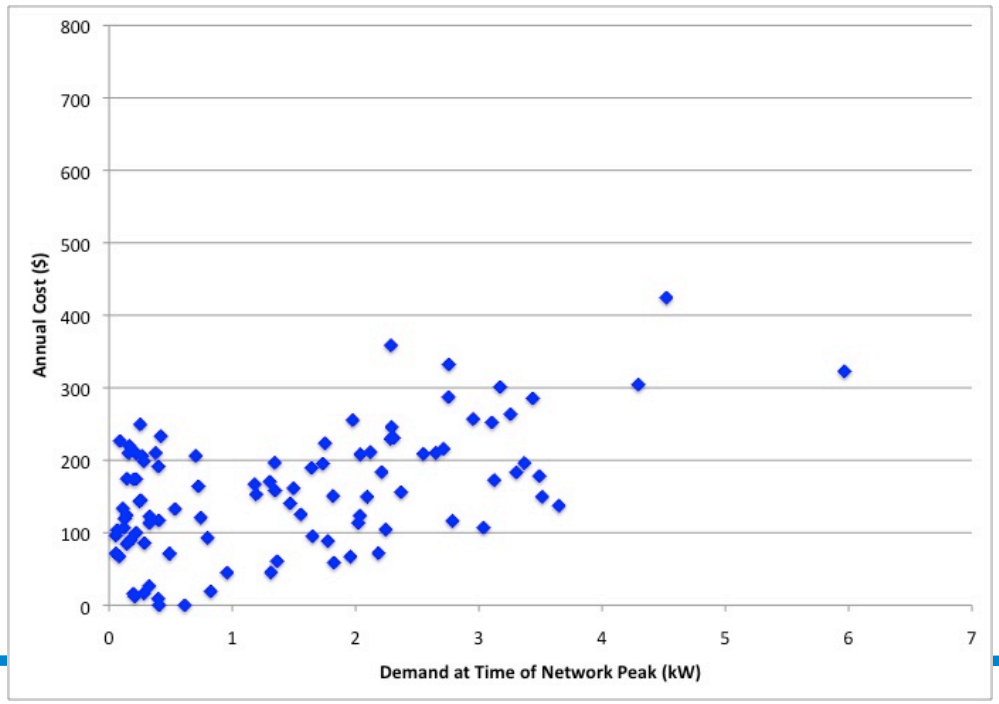
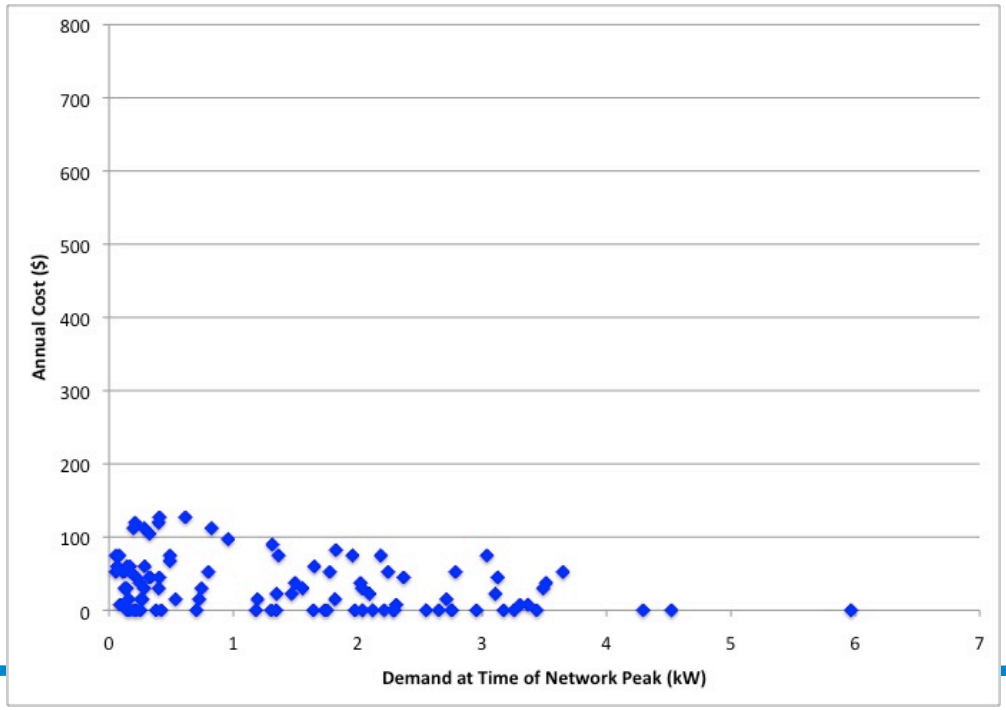
Household peak vs network peak



SAPN Demand Tariff – Demand charge only



SAPN Demand Tariff – Fixed component



SAPN Demand Tariff – energy component