

Recovering network costs from customers with peak demand charges:

balancing certainty for networks with
fairness for customers

Craig Memery

Alternative Technology Association

DNSP costs

Some costs aren't sensitive to peak demand, EG

- Replacement of aging assets
- Capital programs such as metering
- Most Opex

Some costs are sensitive to peak demand, EG

- Capex replacing constrained assets
- Transmission network charges
- Some opex

DNISP cost recovery

Some costs recovered from households by fixed charges (per day, per meter/home)

Most costs are recovered from households by volume based charges (per kWh)

None are recovered cost reflectively from households by maximum peak demand charges (per kW) Even Time of Use volume-based charges are far from fully cost reflective)

The problem

Due to the way network costs are passed through to consumers, energy users with AC or onsite generation generally avoid paying a portion of their network costs.

Network businesses need to be able to recover these costs from PV (and all) customers and this can't be done without a change to the way consumer pay for energy.

This change presents risk for consumers.

Fixed pricing - a blunt instrument?

There is a push to increase inflexible fixed charges (charges that do not vary according to use) to recover these avoided costs.

This would undermine energy users' investments and actions to reduce their peak demand and improve their energy efficiency, and introduce new cross subsidies (of high energy users, by low energy users).

Peak demand pricing - a fairer solution

There are more cost-reflective alternatives to fixed charges that could be applied to customers that remove cross subsidies.

Peak demand (kW) based pricing is one option.

There are also tools such as Direct Load Control to allow consumers who adopt these options to reduce their impact on the system and limit consumer's exposure to higher prices.

PV and distribution networks

Cost recovery aside, PV creates

- Some benefit at a local (street) level, but negated by costs to manage voltage and fault current issues
- Material benefit at subtransmission (feeder, zone substation) level in many networks
- On balance, some network wide net benefit for most or all NEM distribution networks

PV and the transmission system

PV provides about a third of its nameplate capacity during MD (Maximum Demand) system peaks

Charges from TNSPs to DNSPs, which are smeared across all consumers, are contingent on the demand on these MD days.

So PV actually avoids a material cost to the DNSP for accessing the transmission system.

PV and network charges

Solar PV customers should pay the same amount to access the distribution network as anyone else with the same peak demand.

If PV customers have cost-reflective charges to recover distribution costs they should also receive benefit-reflective payment for the saving, to the DNSP and/or other consumers, of reduced transmission charges.

Both of these aspects can be achieved through distribution pricing

Peak demand charges – Peaks ain't peaks

Which peak?

- Maximum Demand – highest demand days, 50% or 10% POE
- Average peak by week/season/year

Peak where?

- Transmission peak (afternoon)
- Distribution peak (evening, usually)
- Home undiversified/self peak

Impact of cost reflective peak kW charges different consumers

ATA undertook a high level cost modelling exercise to start to understand the impact of kW charges compared to fixed charges. Key findings include

- With kW based charges, costs will be recovered from PV customers and other consumers
- Fixed pricing introduces massive cross subsidies from low-use (and low-income) households to high consumption homes

Household type	Impact of fixed charges	Impact of kW peak charges
Low consumption pensioner, dual fuel.	\$ 599	\$ 0
Low consumption pensioner, single fuel	\$ 325	-\$ 79
High-consumption working family with pool. dual fuel.	-\$ 770	-\$ 5
High-consumption working family with pool. Single fuel.	-\$ 1,318	\$ 129
Stay-at-home moderate consumption family, no solar.	\$ 51	-\$ 12
Stay-at-home moderate consumption family, solar.	\$ 609	\$ 301
Low-consumption working couple, no solar.	\$ 434	\$ 70
Low-consumption working couple, solar.	\$ 743	\$ 273

A fairer solution

Implementing peak demand based pricing will afford networks the certainty of full cost recovery from all customers while allowing them to share the benefit of reducing their impact on the grid.

Cross subsidies are thereby reduced or removed, and consumers have a choice about whether they actively or passively participate.

Thankyou. Questions?

craig@ata.org.au

Further considerations for peak demand pricing:

Calculating the value of avoided transmission

Consumer protections

Technical and metering requirements

Changes to customer classes for cost allocation

Voluntary or compulsory

Customers on premium feed in tariffs

Existing v. new PV customers

Impact on other customers, especially with AC