OFGEM Targeted Charging Review

Experience in other countries

26 April 2017

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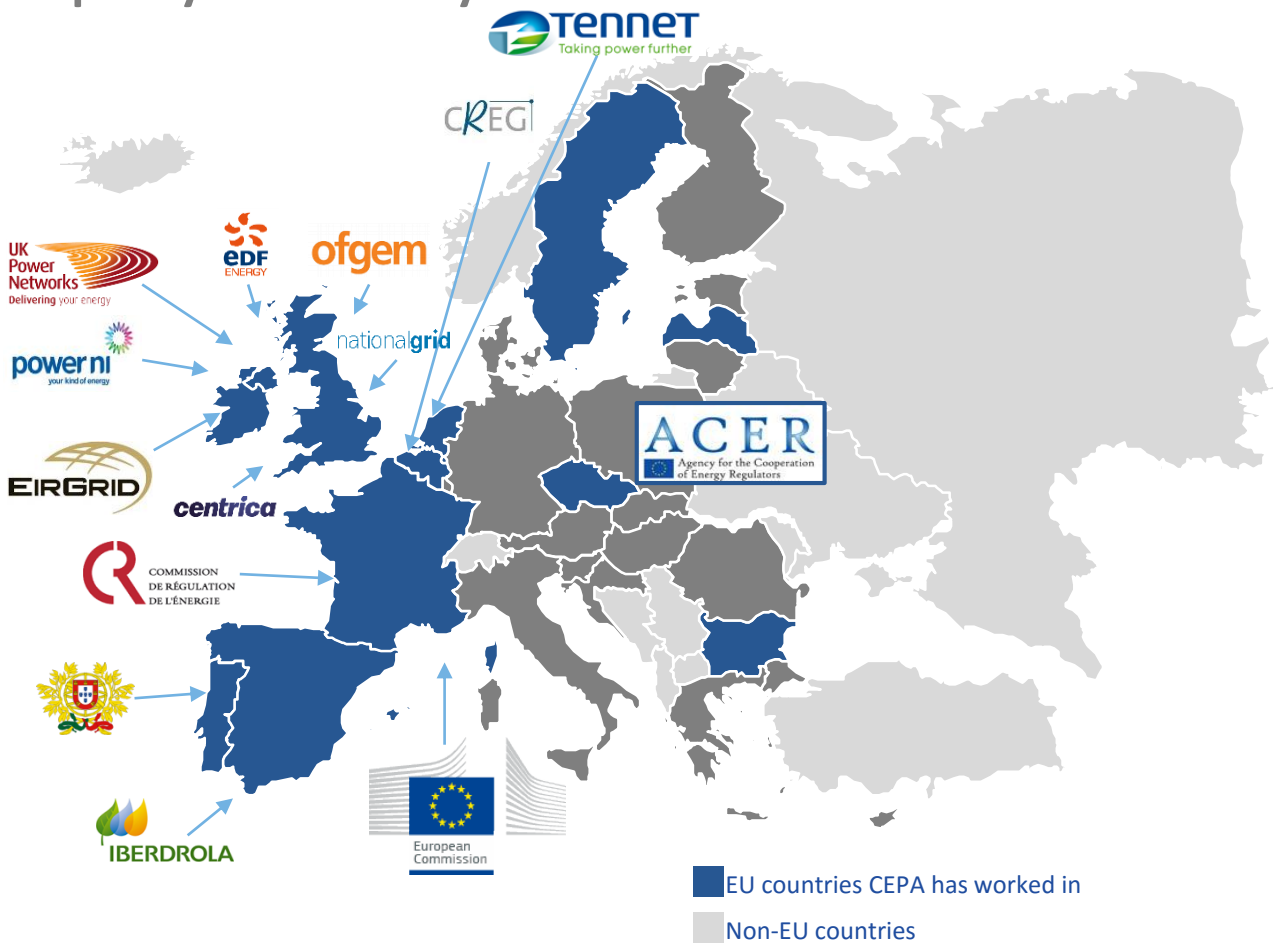


Work undertaken jointly with TNEI – a specialist energy consultancy

Targeted Review of network charging

CEPA & TNEI commissioned by OFGEM to consider lessons from real world experience

How have other jurisdictions evolved electricity tariffs to address some of the residual charging issues identified in OFGEM's Targeted Review consultation?

Investment in electricity system to deliver services	Historic charging frameworks	Take-up of new DER technologies
High fixed / sunk costs for recovery	Developed based on historic network user behaviour	Drive new network user behaviour

Targeted Review of network charging

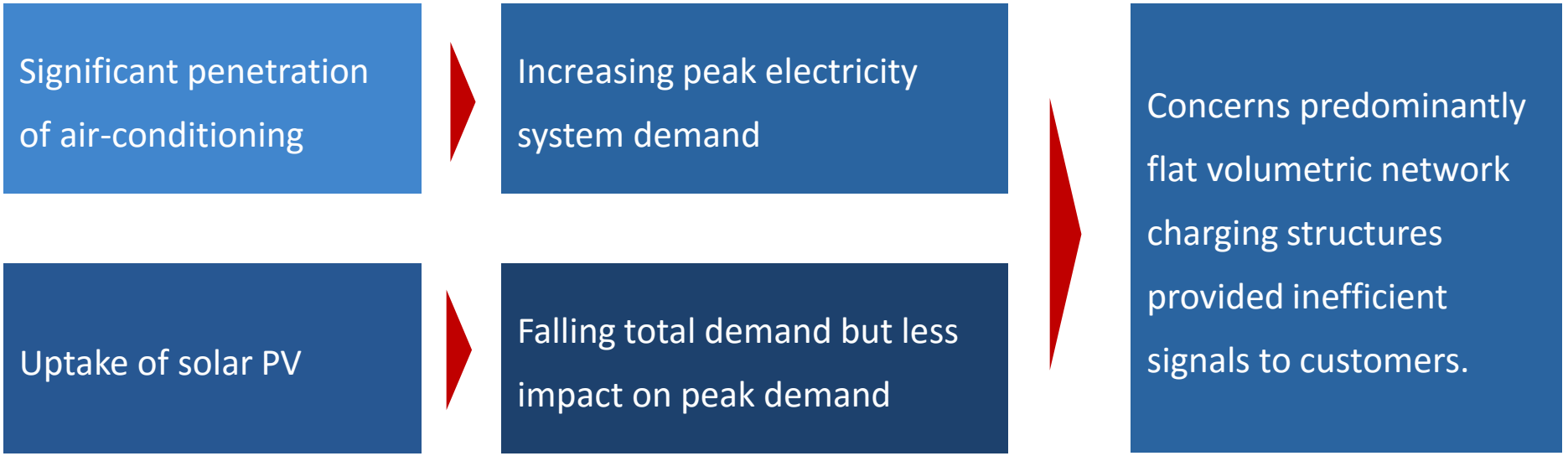
We reviewed a short-list of international case studies…

1. **Australia**
   New AEMC led NWO pricing principles
2. **United States**
   Reforms related to net metering policies
3. **Netherlands**
   Introduction of capacity charges
4. **Spain**
   Examples of new “prosumer” charges
5. **Italy**
   Reforms to network tariff structures

1. Victoria, Australia – Context

Changes in technology and network tariff reform

- Changes in technology have been a key driver of changing electricity consumption patterns in Australia. The National Electricity Market has seen:



- Australian Energy Market Commission (AEMC) carried out a detailed review in 2014 with a view to making charges more cost reflective

1. Victoria, Australia – Changes introduced

Greater Cost Reflectivity, Efficient Cost Recovery, and Protection for Consumers

New rules introduced in 2014 by AEMC:

- Network prices to be based on long run marginal cost
- Total efficient costs to be recovered in ways which do not distort pricing signals
- A new consumer impact principle to be introduced
  - Distributed network service providers must consider impacts of changes on consumers
  - Prices must be understandable for consumers so that they can respond to signals

AEMC not prescriptive on approach to residual cost recovery:

- Distribution Network Service Providers (DNSPs) discretion to choose how they allocate efficient costs. "*DNSPs will have the flexibility to choose the appropriate method, taking into account their own network and consumer characteristics.*"
- AEMC said there was not one specific approach that should be applied in all circumstances and the new rule did not necessarily require that residual costs be recovered through increases to fixed charges.

1. Victoria, Australia – Changes introduced

Specific measures adopted in Victoria

Australian Energy Regulator (AER) Final Decision on the tariff structures of the Victorian DNSPs[1] demonstrates how the AEMC rules have been implemented:

- **Demand (£/kW) tariffs** – now offered to all customers, although on an opt-in basis
  - **Peak demand** – targeting periods of highest consumption
- **Transition** – small consumers (<40-60MWh/annum) can opt-in to tariffs
  - Others will have their demand tariff increase between 2017 and 2020
- **Forward looking** – average incremental cost approach used
  - Long run marginal costs assigned to demand tariff (£/kW)
- **Recovery of residual costs**
  - Generally, fixed supply (£) and volumetric charges (£/kWh) used to recover residual costs

For residual charging the trend is for increasing fixed charges and variable charges decreasing "*signalling the value of being connected to the network*".

Note 1- AER (2016): 'Final Decision – Tariff Structure Statement proposals'

2. United States

Focus on retail tariff structure issues as a consequence of pressures DERs may put on utilities and non-DER customers

The increasing uptake of DERs have raised potential for revenue erosion and consequently **inter-customer class cost shifting** issues due to traditional utility rate design and NEM policies.

Need for regulators and utilities to consider:

- Changes in rate design
- "Equity" considerations
- Transitioning policies

Also recognition of the benefits that DER can provide to utilities and customers and the appropriate compensation methodologies (including NEM policies).

2. United States

Many US states and utilities have explored changes to rate structures to address issues raised by DERs and Net Energy Metering (NEM) policies

For example, some commentators[1] have noted that in 2014-15:

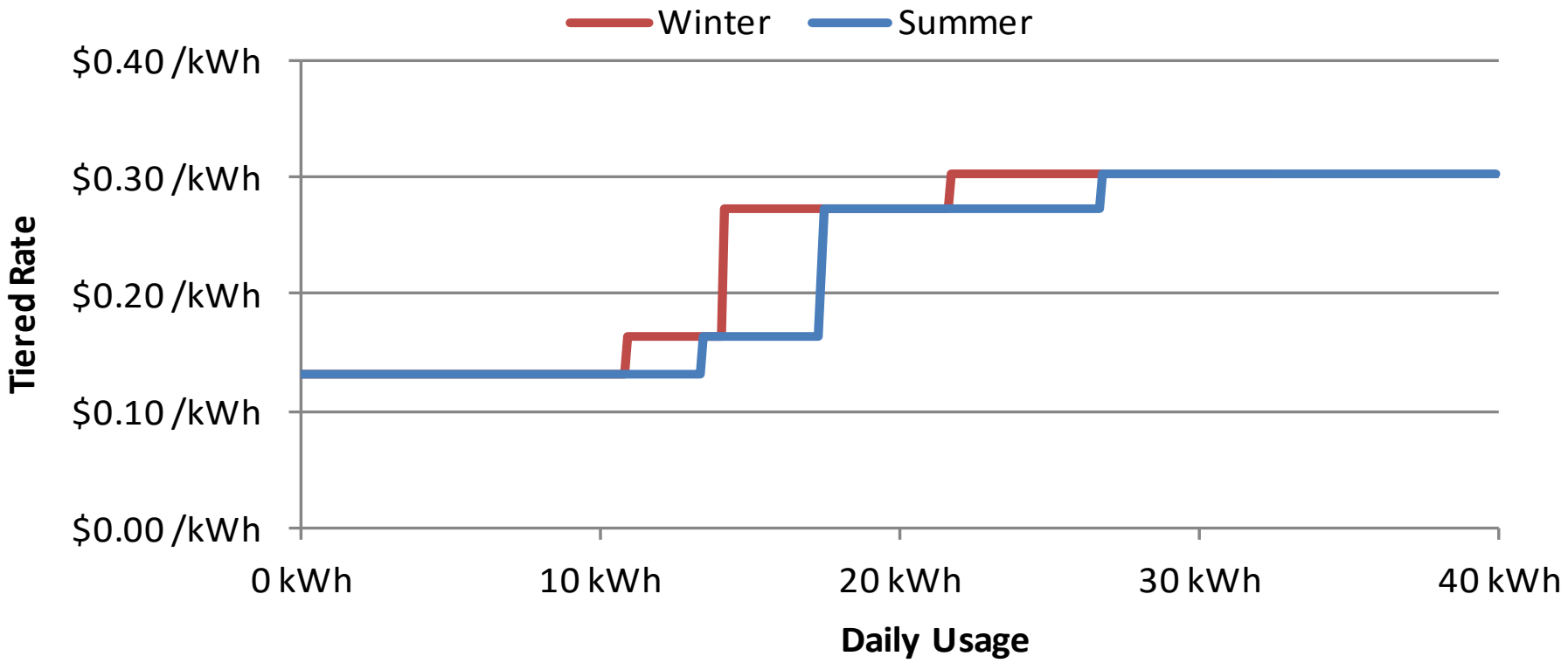
- 48 utilities across 24 states proposed and/or adopted increased fixed charges for residential customers.
- 17 utilities across 12 states proposed extra monthly charges for customers with residential PV.
- Some states have also considered charges that apply to instantaneous peak demand.
- Utilities / regulators have also reconsidered the details of net metering, such as system size limits, compensation for excess generation, and aggregate caps.

Nevada and California considered as specific examples

Note 1- See for example NC Clean Energy (2016): '50 States of Solar – Q3 2016 Quarterly report'

2. California USA

Historic charging structure



Tiered volumetric tariffs, so consumers of more net energy pay more per kWh

Source: Edison Foundation (2014)

2. California USA – Changes Introduced

A compromise between various interests

- Legislation passed in October 2013, directing the regulator to reform residential tariffs by Dec 2015.
- In Jan 2016, the regulator voted for the following changes:
  - gradual move to two-tier rather than four-tier system
  - add a super-user surcharge (affects <10% of customers)
  - move towards mandatory Time of Use tariffs for DG by 2019
  - minimum charge of $10 monthly, even if net consumption is zero
  - “non-bypassable” charges not charged on net consumption

As part of 2016 decision CPUC[1] rejected calls for fixed charges, access charges, installed capacity fees etc. stating further work was needed.

Balance of signalling benefits from DERs and issue of customer class cost shifting

Source: California Public Utility Commission (CPUC)

3. The Netherlands – Capacity charges

Dutch Government reviewed tariffs in 2008

Two main reasons capacity based tariffs introduced:

1. Simplify billing process between DSOs and retailers and no volume data required (so billing in general simplified)
2. Network costs considered by ACM as capacity driven and determined by peak demand rather than kWh.

Flat capacity distribution tariffs introduced for small industrial and household customers – based on proxy (e.g. fuse size) where needed.

Consequences for consumers:

- Consumers with relatively high consumer in kWh compared to capacity would benefit from new tariffs
- Consumers with relatively low consumption would face higher costs, reducing incentives for energy efficiency.

3. The Netherlands – Capacity charges

Dutch Government reviewed tariffs in 2008

Transition:

- Widely publicised government and DSO programme to encourage consumers to think about reducing connection level and make savings on bill
  - Consumers could reduce the capacity of their connection against a reduced fee (50 euros) instead of normal higher fee
- Consumers who could not reduce the capacity of their connection could receive compensation through arrangement called “Tegemoetkomings-regeling”
  - Compensation of those customers added up to 30 million euros in 2009 and 15 million euros in 2010 [1]

ACM sought evidence of realised cost reductions from reduced connection capacities

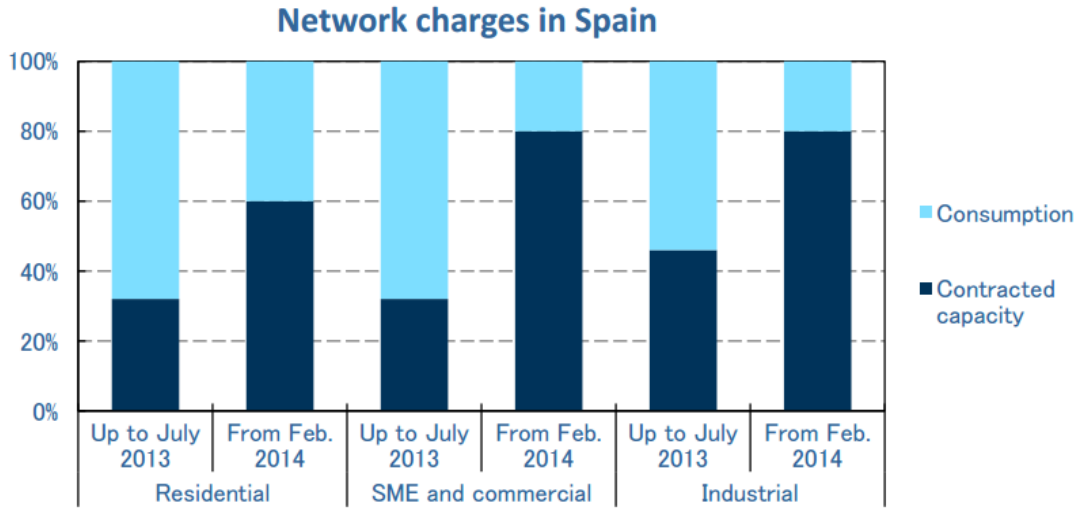
Source: CEER (2017): ‘Guidelines of Good Practice for Distribution Network Tariffs’

4. Spain

New network and ‘prosumer’ charging arrangements

New rules introduced in 2013/14:

- Greater proportion of costs now recovered through capacity charges
- Lowest share of capacity charges for residential consumers (around 60%)



Source: IEA

New self-consumption charges on electricity consumed and produced related to electricity system costs and benefits of connection to the network

Targeted Review of network charging

Charging options

Fixed per customer charging

Peak capacity (per kW) based charging

Gross rather than net meter based charging

Targeted prosumer based charging

Multi-part tariff based charging

Targeted Review of network charging

Some lessons learned

- Changes introduced to network/retail charging arrangements have been specific to country / state
- Charging basis has been guided by economics but also other public policy principles to guide distribution of charge decisions
- Approach to cost recovery / residual charging likely to create a starker focus on how net benefits DERs can contribute to the system should be valued and reflected in the network tariff structure
- All the international case studies highlight the importance of the regulator managing the trade-offs between more “efficient” pricing structures and their distributional impacts

What lessons should be drawn from international experience for GB? Are there other approaches that you know about that offer relevant lessons?

Contact us

CAMBRIDGE ECONOMIC POLICY ASSOCIATES

Queens House, 55-56 Lincoln's Inn Fields
London WC2A 3LJ

Tel: 020 7269 0210
Fax: 020 7405 4699
info@cepa.co.uk
www.cepa.co.uk