

The UK energy system: the challenge of institutional inertia

Solar Trade Association event on
Does the new government mean business for solar?
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New Thinking For Energy



What institutions matter for DNOs?

Economic regulation
(i.e. RPI-X, RIIO)

What DNOs *want to do*

Network codes and
standards (DCUSA, D-
Code, ER P2, SEC)

What DNOs *can do*

Distribution
Network
Operators

Network outcomes

RIIO-ED1

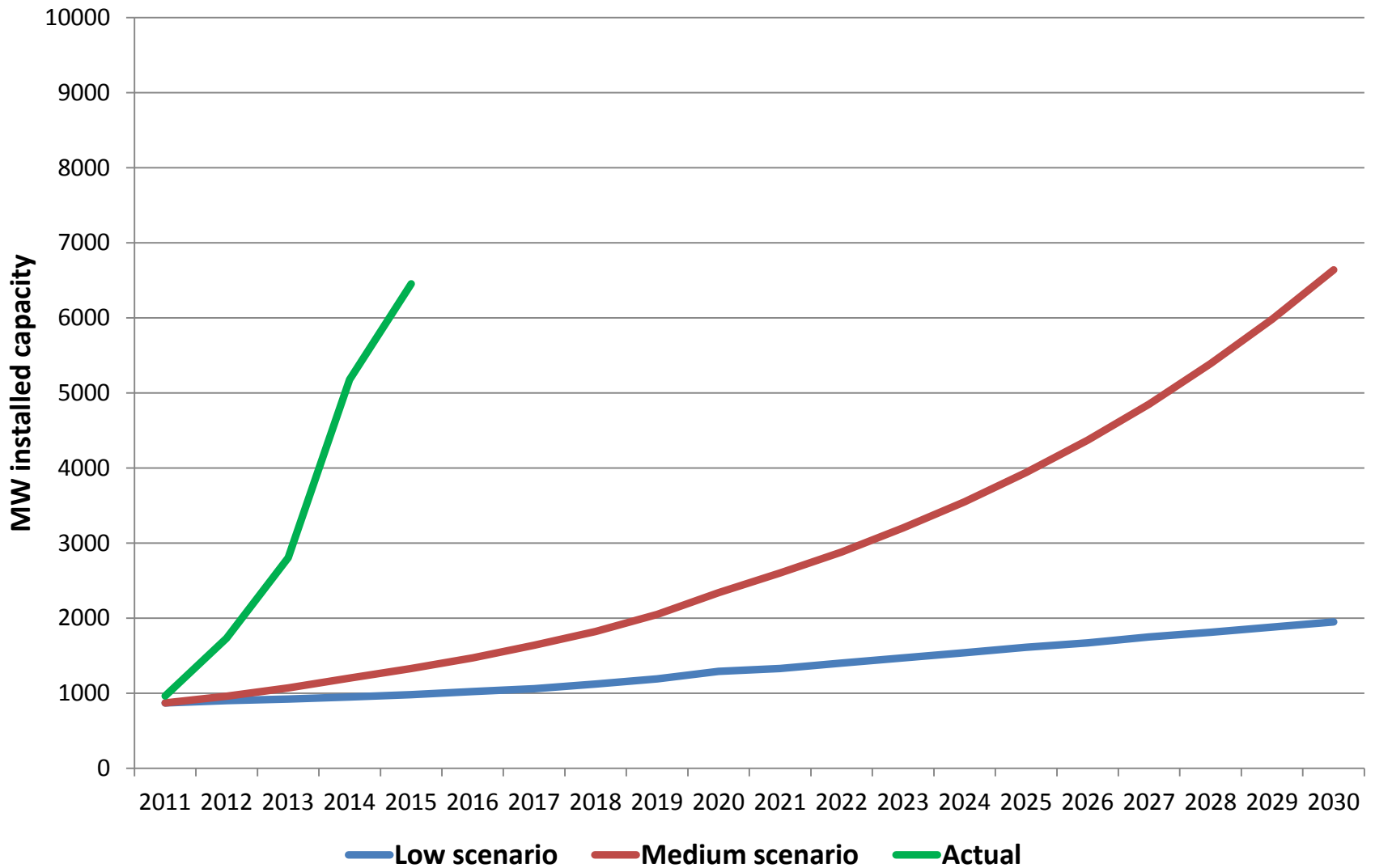
- Intended to incentivise greater innovation
 - LCNF extended + new funding for transferring lessons to BAU investment
 - Innovation strategy required for fast-tracking
 - Longer price control period
 - Capex bias addressed by change in RAV additions
 - Greater engagement with customers
 - More output targets and incentives
- But DNOs still taking a cautious view
- Proposals for savings to 2023 from smart grid solutions = <2% of planned expenditure

RIIO-ED1: 'best views' of LCT growth

- 'Best views' of LCT growth required in RIIO-ED1 business plans
- Based on Transform model scenarios, in turn taken from 2011 Carbon Plan
- Major growth expected only after 2020
- DNO best views mostly based on 'low' scenarios, or in a few cases 'low' to 'medium'

Solar PV

Sources: EA Technology 2012, DECC



Review mechanisms

- Re-openers
 - Load related expenditure reopener
 - Window May 2017 to May 2020
 - High value projects (£25m>) reopener
 - Window May 2019
- Mid-period review of output requirements
 - Aimed at responding to changes in government policy
 - Consultation starts 2018

Codes and standards

- Codes and standards matter
 - Charging methodologies (remain complex, opaque and unpredictable for potential DG investors)
 - Limits on short-term flexibility (e.g. on voltage management)
- Codes and standards for DNs designed for meeting loads
- Code modifications supporting micro-generation, DG, DSR have been difficult
- Engineering Regulations P2 planning standards review
 - Started Dec 2012, but likely to last several years

Code governance issues

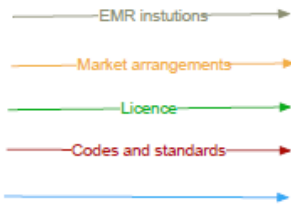
- Initiative lies with industry (although Ofgem has veto)
- Codes and governance processes are highly complex and labour intensive
- Lack of sustainability objective (w. exception of Smart Energy Code)
- Large established actors predominate on modification panels; new actors not within codes

Explaining inertia

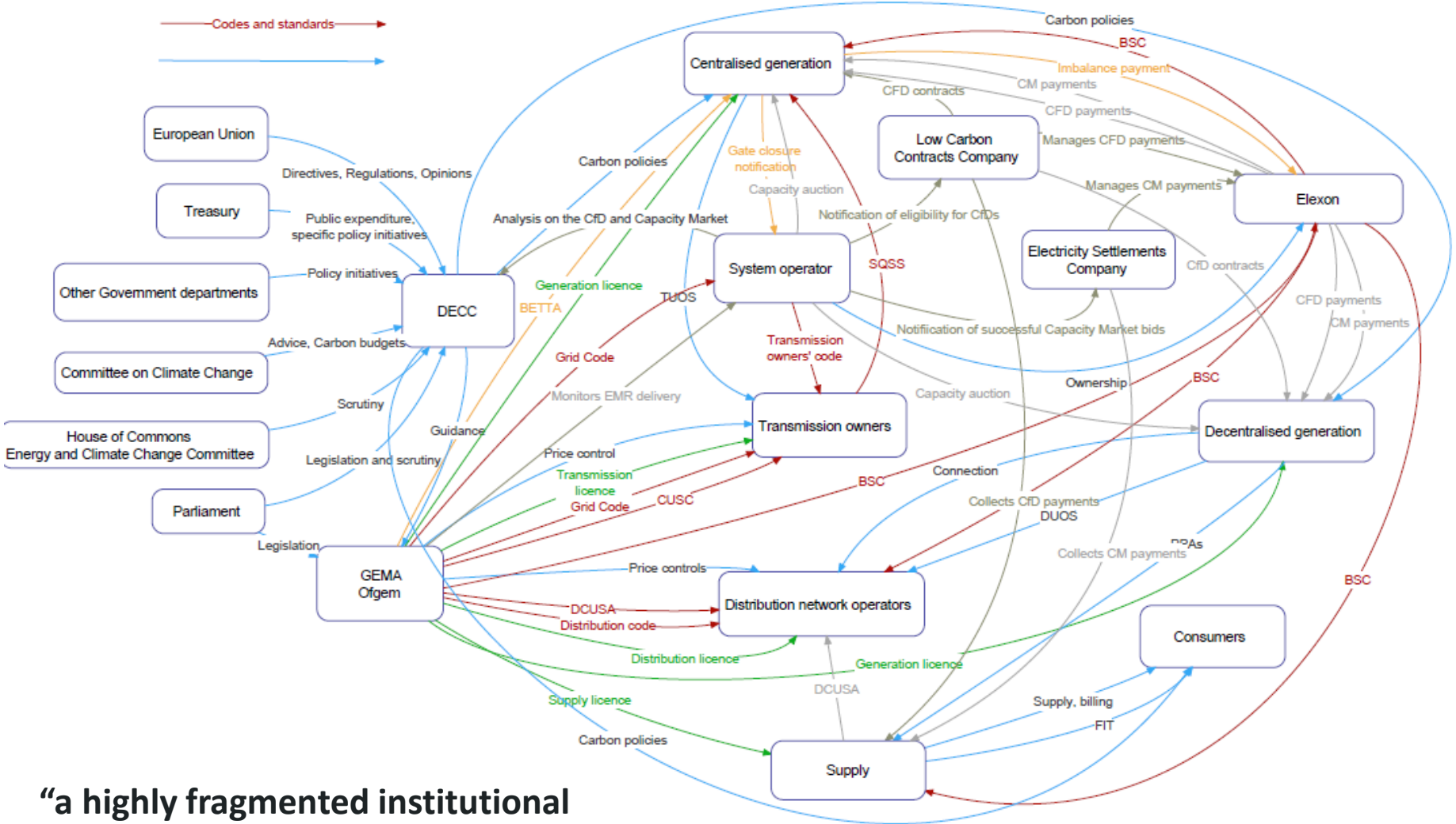
- Institutional design
 - Delegation of decision-making (once for economic regulation, twice for codes)
- Ideas
 - Economic efficiency
- Interests
 - Bulk of opportunities for RoR still (expected to be?) in meeting loads through conventional investment and operation

What to do?

- Short term challenge
 - Mechanisms for greater operational flexibility



Institutional relationships in the electricity system



“a highly fragmented institutional landscape” (IET 2013)

Source: Woodman 2014

What to do?

- Short term challenge
 - Mechanisms for greater operational flexibility
- Long-term
 - Mechanisms for greater coordination at a system level, e.g. IET 'system architect'
 - Political consensus needed for stability of policy direction and pace (hard in UK?)

References

- DECC solar deployment - <https://www.gov.uk/government/statistics/solar-photovoltaics-deployment>
- EA Technology (2012) *Assessing the impact of low carbon technologies on Great Britain's power distribution networks* Report prepared for the Energy Networks Association on behalf of the Smart Grids Forum, Workstream 3, Available at: <https://www.ofgem.gov.uk/ofgem-publications/56824/ws3-ph2-report.pdf>
- Institute of Engineering and Technology (2013) *Electricity Networks: Handling a shock to the system – IET position statement on the whole system challenges facing Britain's electricity network* IET: London
- Woodman, B. (2014) 'Mapping the power in the electricity system' Exeter Energy Blog, 12 November 2014, <http://blogs.exeter.ac.uk/energy/2014/11/12/mapping-the-power-in-the-electricity-system/>