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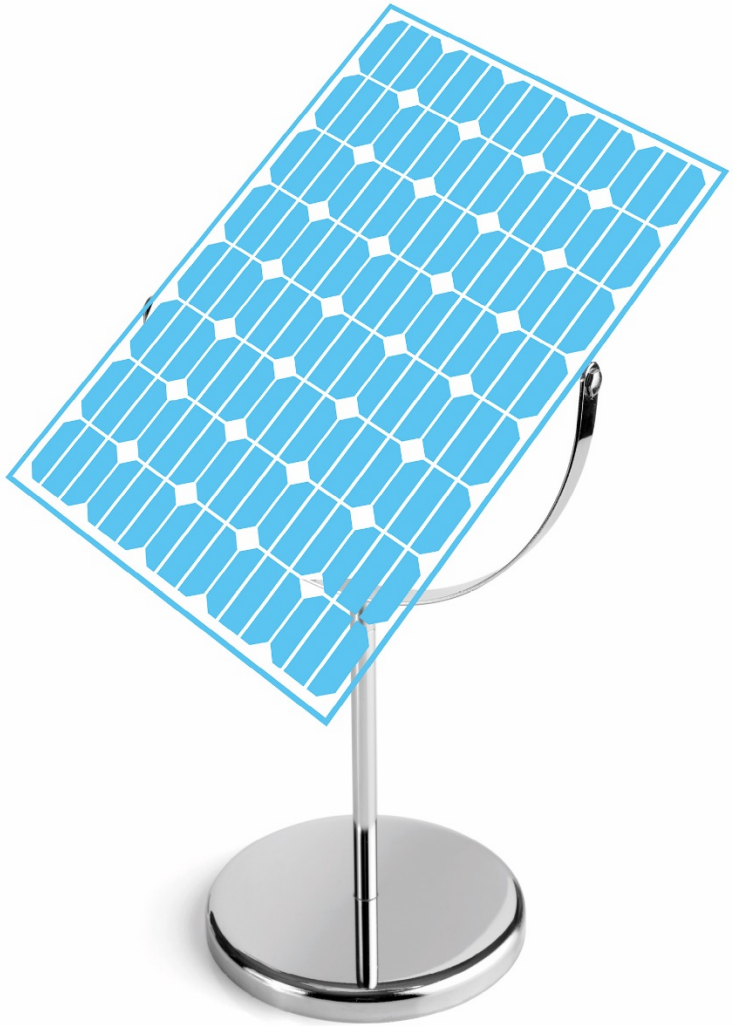
The Role of Battery Storage in Off-Grid Solutions and Likely Timing for its Effective Deployment

16 March 2016

Sacha Bacco
Associate
Eversheds LLP



Introduction

Contents

- Why is storage needed?
- Bankability issues
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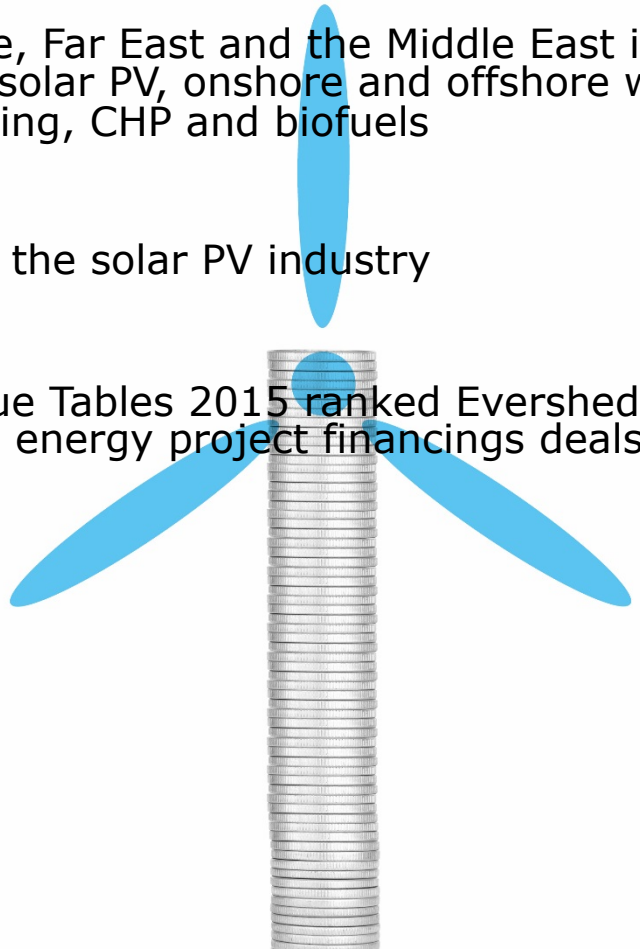
Eversheds Clean Energy Team

- Eversheds is one of the largest law firms in the world with over 1,250 legal advisers and 2,800 staff across all major disciplines and sectors
- Over 90 lawyers specialising across Europe, Far East and the Middle East in clean energy projects including energy storage, solar PV, onshore and offshore wind, biomass and waste to energy, district heating, CHP and biofuels
- Recognised as one of the leading teams in the solar PV industry
- Clean Energy Pipeline's latest Global League Tables 2015 ranked Eversheds as the joint most active legal adviser to clean energy project financings deals in 2014



What is it?


Advancion
04
AES
AES
AES


Advancion
Energy Storage
01
Safety First


TESLA
TESLA

Why Storage?

- increased amounts of renewables meaning generation more intermittent and unpredictable – balancing required
- ensures power networks more resilient, efficient and cleaner
- ability to save or defer network upgrade costs/ reinforcement
- price arbitrage
- very flexible, immediately dispatchable with no emissions

"*one of the eight great technologies, which will propel the UK to future growth*" (David Willetts, former Minister for Universities and Science, 2013)

Bankability

- technological
  - currently high costs but falling
  - technology risk – same bankability tests as initial solar PV?
  - lifecycle and maintenance – different for each storage technology
  - performance guarantee – are warranties available?
  - project economics – driven by technology costs

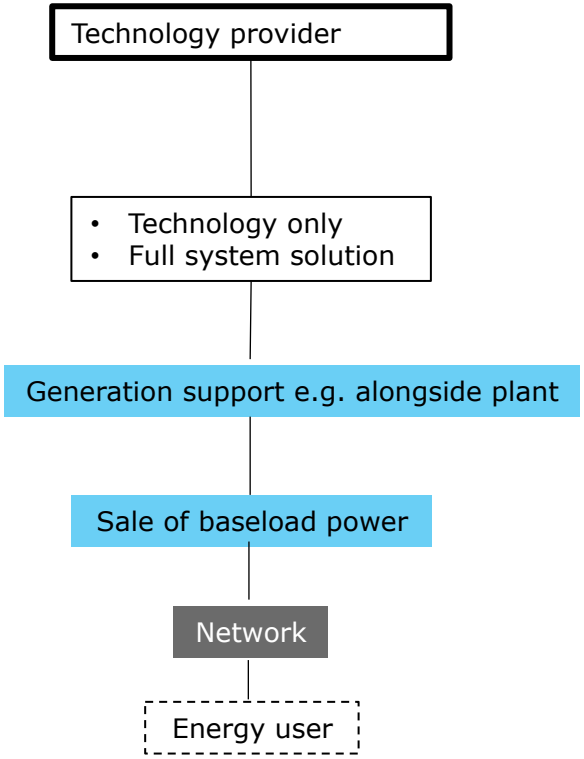
funding

- banks need to get comfortable with financing storage projects
- funding structures not fully developed yet

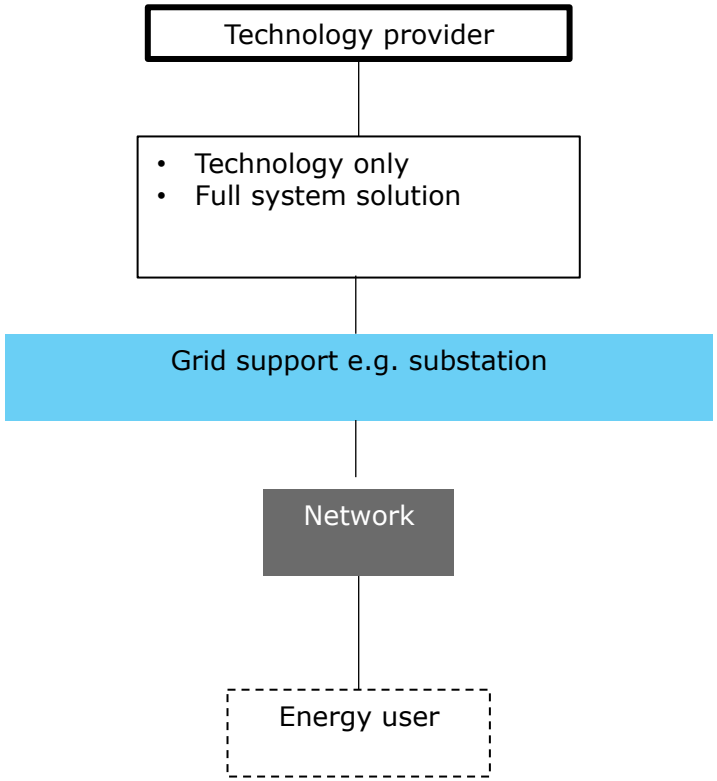
Business models

- The investment opportunity and the resulting revenues will depend on the business model(s) that best reflect the needs of the market and the target customers.
- Three such business models have been identified:
  1. Generation support
  2. Grid support
  3. Consumer support
- Each model seeks to address energy security, energy savings or revenue generation.

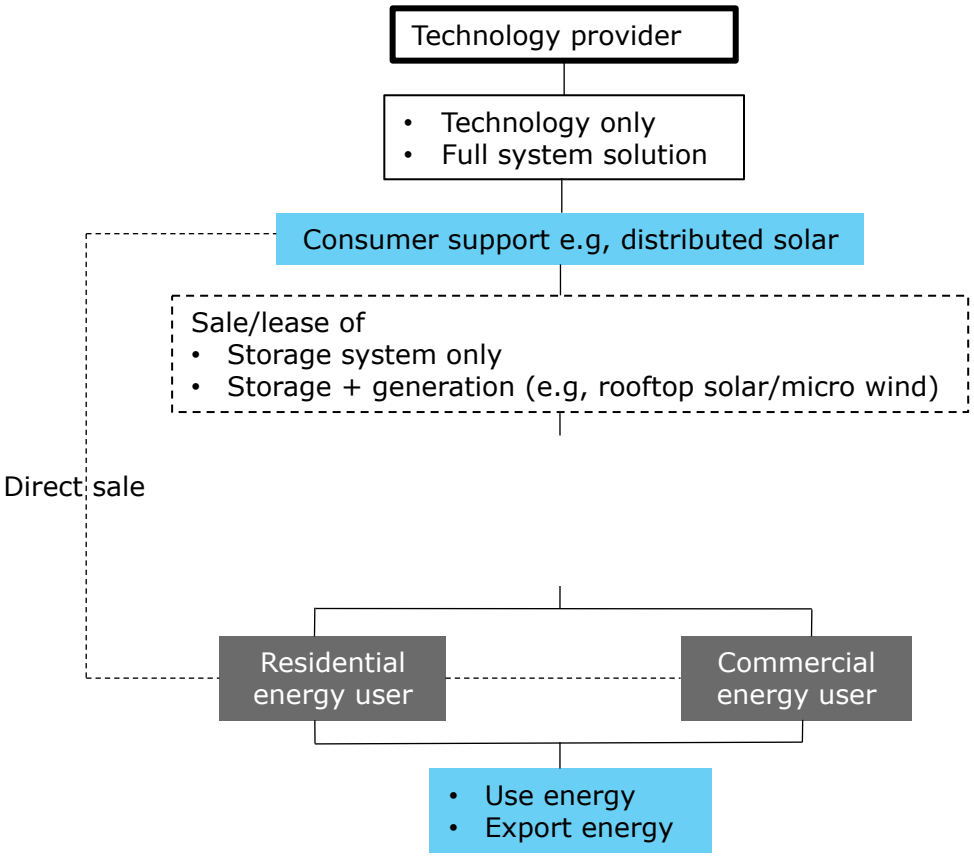
Business Model 1 – Generation Support



Business Model 2 – Grid Support



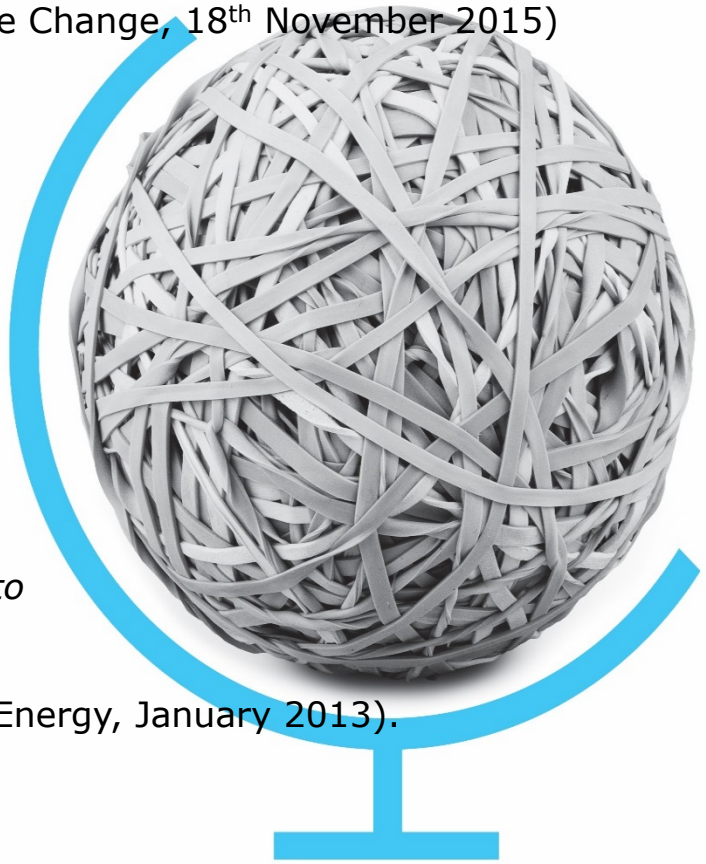
Business Model 3 – Consumer Support



Conclusions

"Locally-generated energy supported by storage…offers the possibility of a radically different model"
(Amber Rudd, Secretary of State for Energy and Climate Change, 18th November 2015)

- huge potential for energy storage
- cost was the main barrier but policy and regulation need to be prepared for new business models as they develop
- Governments need to set out its long term policy for storage



"Energy storage will play a key role in enabling the EU to develop a low-carbon electricity system."

(The future role and challenges of Energy Storage, DG Energy, January 2013).

Questions

Jonathan Cohen

Principal Associate

jonathancohen@eversheds.com

+44 20 7919 4868

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