Wind farms – the current and future development challenges

David Hÿtch, Senior Associate

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Introduction

- BVG Associates
- What are the development challenges for onshore wind developments?
- Focus on differences between typical large scale and medium scale wind projects
- What are the current development challenges?
- What are the likely challenges of the future?

- East Ash Farm, Devon; turbine collapsed on 27th January
- Winsdon Farm, Cornwall; turbine collapsed on 31st January
- Is medium scale wind development worth it?

BVG Associates

Project implementation

- FIT project development
  - Site selection
  - Feasibility studies
  - Wind speed and energy yield assessments
  - Project costing and returns
  - Development and consenting project management
- SCADA & condition monitoring
- O&M technical support
  - Turbine performance reviews

Market analysis & business development

- Supply chain development
- Economic impact assessment
- Support to industrialisation

Technical innovation & engineering analysis

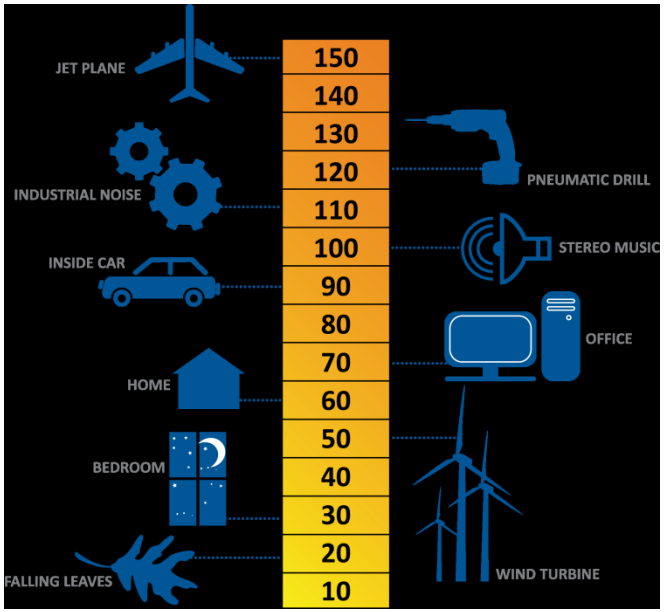
- Support to investment in technology
- R&D programme management
- Design and engineering services

Planning considerations

- **Aviation**

Planning considerations

- **Aviation**
- **Noise**



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- Transport

Photograph courtesy of EWT

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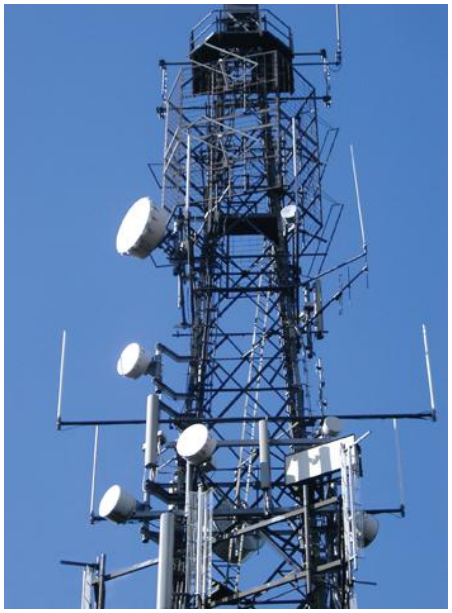
- Telecoms



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- Public safety

Site feasibility considerations

- **Wind monitoring**

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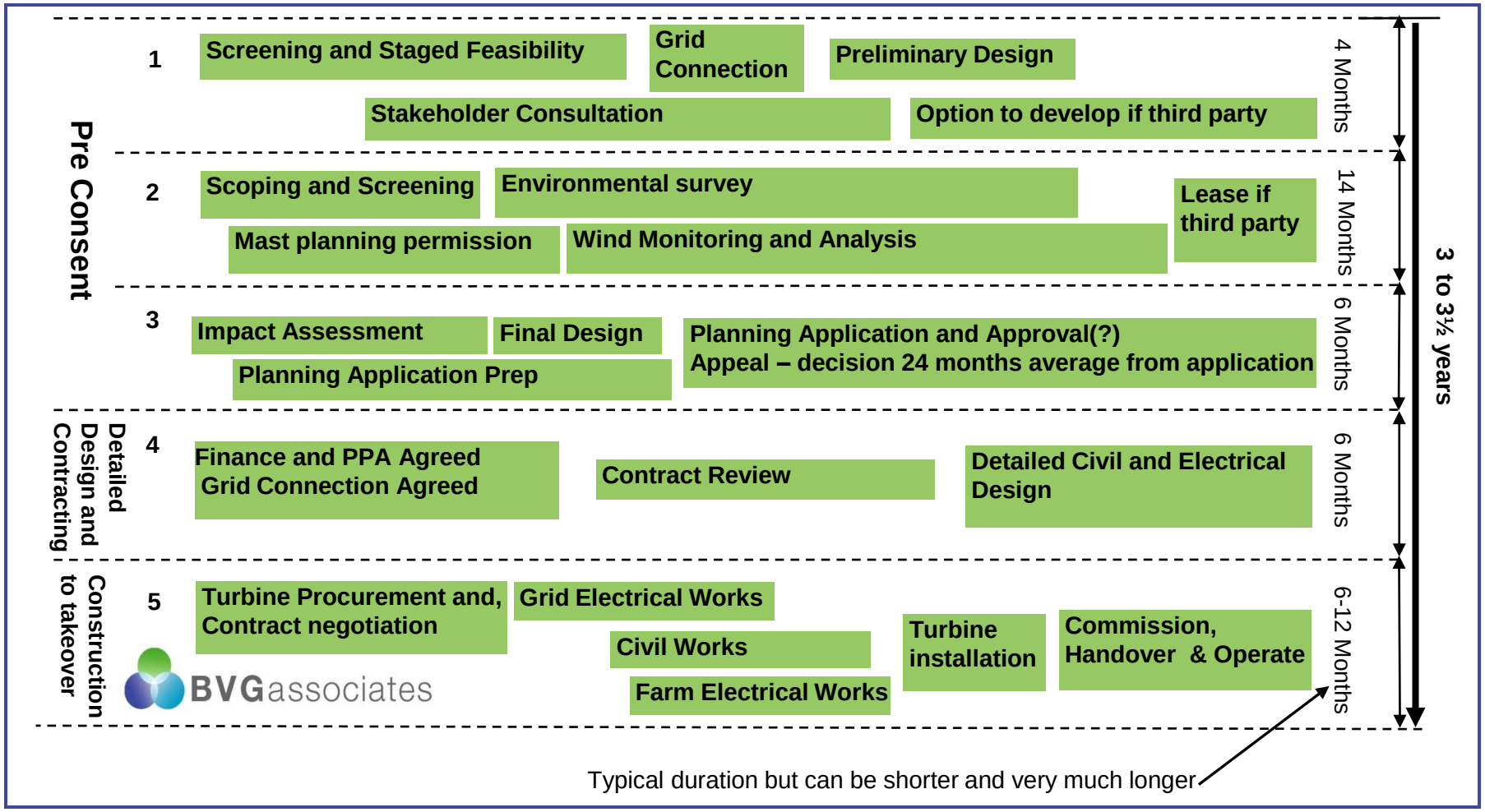
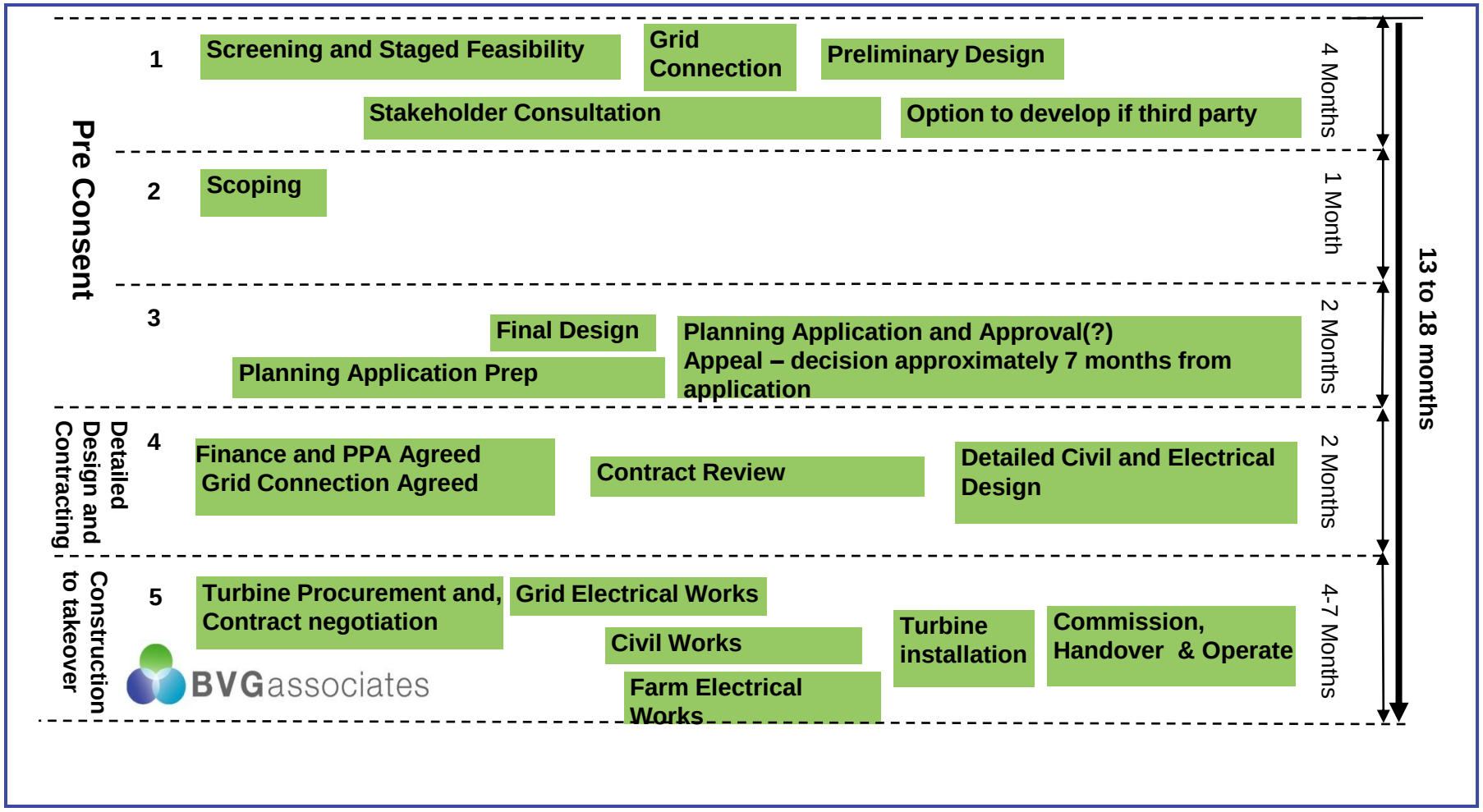
- Finance and support mechanisms

- Unlikely that most of this will be required for medium scale developments

Typical large scale project timeline



Typical medium scale project timeline



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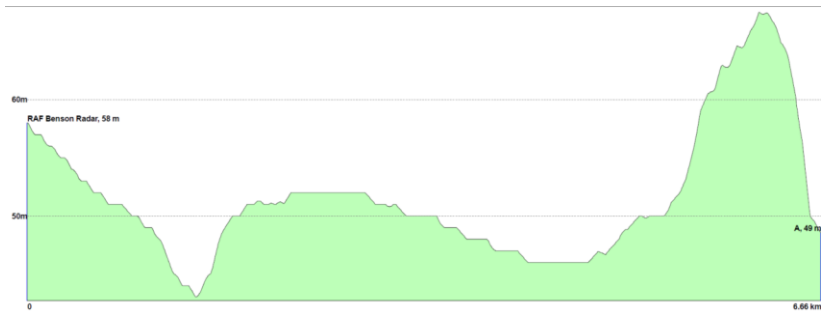
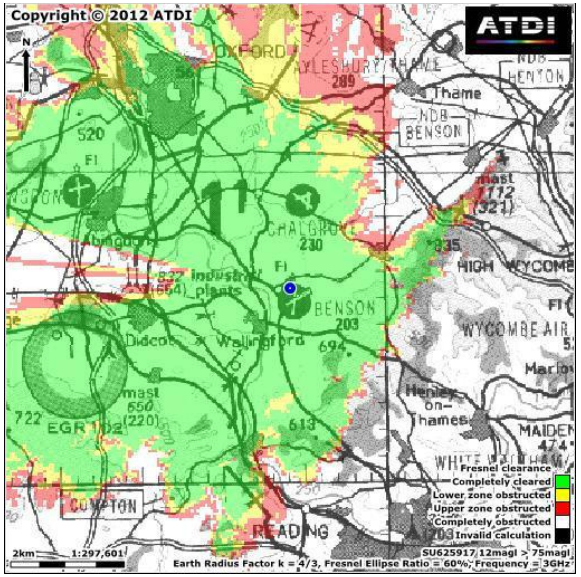
  - Ministry of Defence
  - Air Traffic Control
  - Mitigation possible but not usually financially feasible within budgets of medium scale wind projects





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- Environmental designations

Future challenges

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- **Increasing planning requirements**

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- Public acceptance

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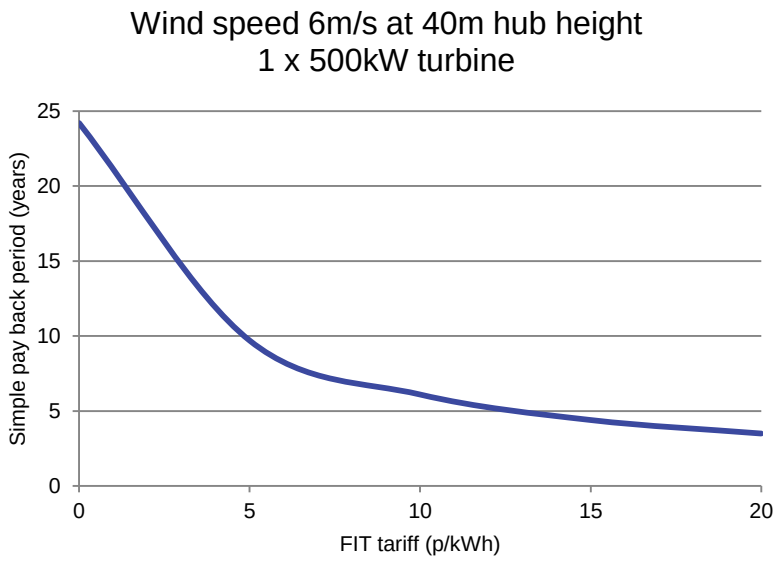
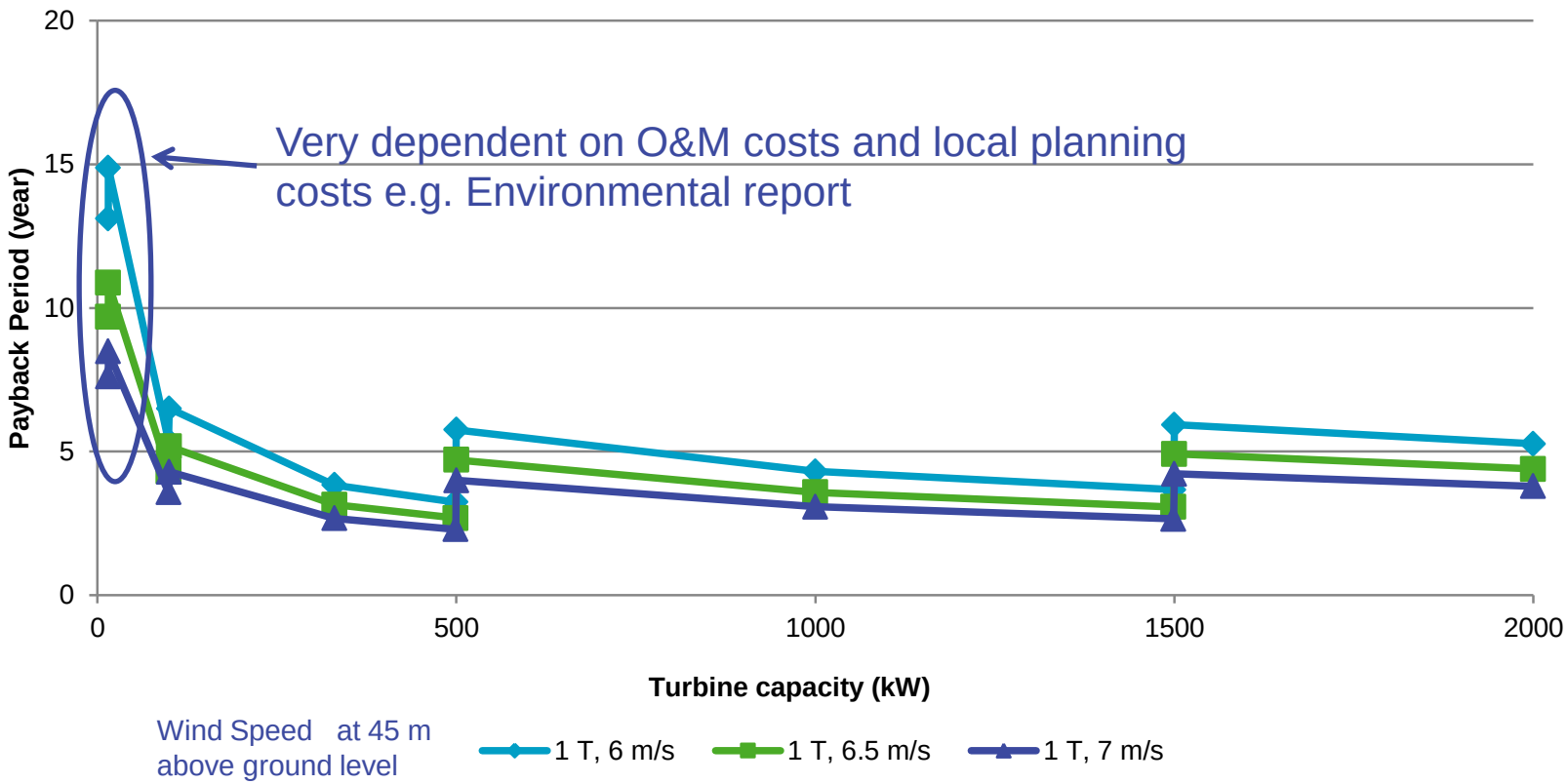
- FIT tariffs



Project returns – impact of scale



Project returns with FIT support

- Assumes FIT tariffs as off April 2012 and 10% losses
- Wind speed makes a lot of difference
- FIT makes 500 kW give a good return but ...
- 10 MW project with large turbines generates about just under 20 times more energy than the 500kW project
- Two 500kW turbines will give a worse return as it has a lower FIT tariff

Wind project		Wind speed at 45m (m/s)			
		5.5	6.0	6.5	7.0
1 x 500kW (FIT) 40m hub height	SPBP (yrs)	4.5	3.7	3.2	2.8
	IRR (10 yrs)	18%	24%	29%	34%
5 x 2MW (RO) 80m hub height	SPBP (yrs)	7.7	6.3	5.3	4.6
	IRR (10 yrs)	5.0%	9.6%	14%	17%

- SPBP = simple pay back period
- IRR = internal rate of return

Is medium scale wind development worth it?

We can help you decide…

David Hÿtch

dph@bvgassociates.co.uk

01793 752 308

The Blackthorn Centre
Purton Road
Cricklade
Swindon
SN6 6HY