Innovative Financial Instruments for First-of-a-Kind commercial-scale energy demonstration projects

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ESTELA

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Investment needs for EU FOAK projects: €4bn - €28bn

SET sector	Indicative project sizes (EUR M)		EU SET FOAK project deployment needs to 2020		Indicative investment needs to 2020 (EUR M)	Estimate of current unmet funding needs
	Min size of project	Max size of project	Min no of FOAK projects per sector	Max no of FOAK projects per sector		
Advanced Electricity Networks (Smart Grids)	10	50	14	28	140 - 1,400	Medium
Biomass (2nd gen biofuels)	150	600	5	10	750 - 6,000	High
Biomass (biomass to energy)	8	100	10	20	80 - 2,000	High
Carbon Capture & Storage	500	1400	1	2	500 - 2,800	High
Concentrating Solar Power	185	330	5	10	925 - 3,300	High
Geothermal	75	120	3	6	225 - 720	Low
Large-scale Energy Storage	15	350	5	10	75 - 3,500	Medium
Ocean	20	100	5	10	100 - 1000	High
Photovoltaic (generation)	35	50	5	10	175 - 500	Low
Photovoltaic (manufacturing)	45	250	3	5	135 - 1,250	Low
Wind (offshore fixed)	50	300	5	10	250 - 3,000	Low
Wind (floating array)	125	300	5	10	625 - 3,000	High
Total			**75**	**149**	**3,980 - 28,470**	

Unmet funding needs, i.e. where EC support most required

Around half of SET-Plan need

This range is derived from considering both the minimum and maximum capacity of potential plants as well as the minimum and maximum deployment opportunities. Source: ICF

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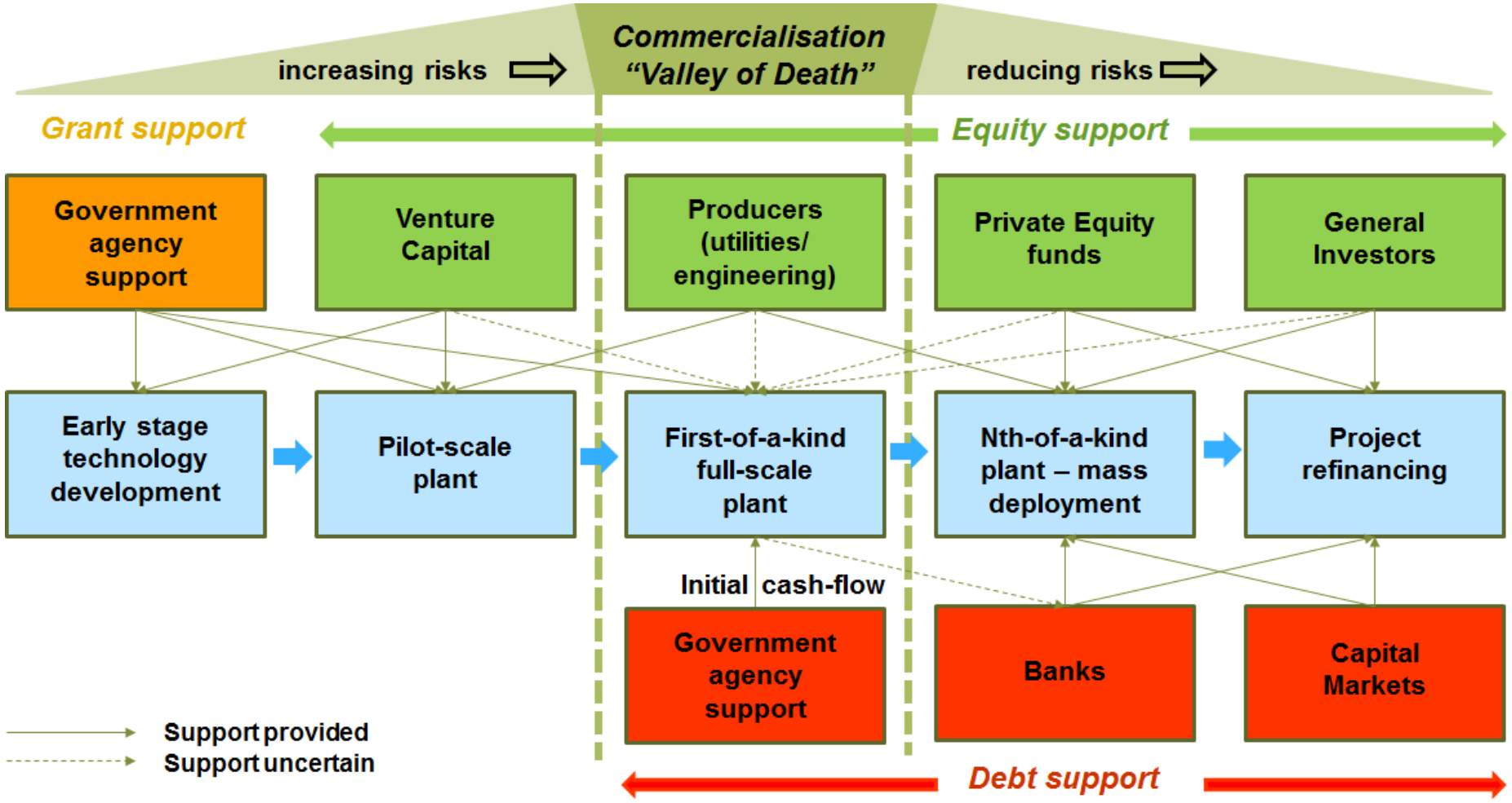
Grant funding is the most common support offered across EU and Member State mechanisms

GRANTS	LOANS	EQUITY
Most common support	Modest funds at MS level	Rarely used mechanism
Funding limits highly variable across schemes	More tailored provision at EC level	Mainly focused on innovative SMEs not projects *per se*
Max grant funding levels 50% of eligible costs	Max loan levels 50%	Good practice to not exceed max equity level (e.g. 33% France)
Key schemes: • Denmark, France, Sweden, UK (& Norway) • EU - NER 300	Key schemes: • Germany, France • EU - InnovFin Large Projects; InnovFin Energy Demo Projects (EDP); EFSI	Key schemes: • France, Sweden, UK • EU - InnovFin Energy Demo Projects (EDP); EFSI

Market participants are mainly concerned with technology, completion & regulatory / revenue risks

- **Technology Risk:**
  - Will the project actually work as expected?
  - Will scale up and integration into existing infrastructure work successfully?
- **Completion Risk:**
  - Will the project be completed to time, cost and specification?
- **Revenue Risk:**
  - Are revenues assured (e.g. offtake agreements, tariffs) and are these enough to service finance, if project completed?
  - Is the business model viable?
- **Legal and Regulatory Risks:**
  - Is the legal and regulatory framework stable?

Market participants have different propensities for risk, which leads to complex financial structures



Source: ICF

Study options are based on sentiments of financial market participants and prevailing EU mechanisms

- **Many market-participant concerns relate to addressing POLICY risks**
- **Addressing the financial-support needs of different types of FOAK projects appears to require a number of approaches**
  - Grants - for project preparation / Front-end Engineering & Design (FEED) studies and construction phase only
  - Equity - alongside other investors, especially to help smaller sponsors to fill gaps
  - Loans - for sponsors who can bring equity and forecast cash flows from a successful operational FOAK project and/or have regulatory commitment for fiscal subsidy linked to a successful FOAK project
- **Different projects will require different "blends" of support**
  - Every project has its own individual set of risks
  - Therefore, the extent of risk support/mitigation of will be different for each project

Key conclusions from the study

- **There has been a failure hitherto to grasp the scale of finance required**
- **Current over-reliance on grants within EU and MS schemes**
- **Corporate sponsors are a key constituent party in the support mix**
  - However - Utilities no longer have finance, and
  - Major engineering companies are highly selective about what they will sponsor
- **Complexity of financing needs**
  - Massive variations in financing structures of FOAK projects, even in same sector
  - Providing an advisory service would help many sponsors and investors or lenders
- **Potential exists for an integrated EU offer to SET FOAK projects in order to satisfy market need**

Thank you for listening!

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