



The Low Carbon Transition in Europe:
Perspectives from an Infrastructure
Investor



Meridiam at a glance

A leading developer, investor and asset manager specializing in greenfield infrastructure with a core focus on ESG and Sustainability

- Founded in 2005 by current CEO Thierry Déau, Meridiam is an independently owned and managed investment firm
- The firm adopts a whole-of-life approach to the design, structuring, financing, building and long-term operation of greenfield infrastructure projects
- Meridiam invests in projects at the “greenfield” stage i.e. before construction start, typically at an advanced development stage
- Meridiam comprises a specialist management team of over **150 professionals** with a deep understanding of public and private sectors and an ability to understand and manage technical risks
- With assets under management of **€6bn**, Meridiam has built globally a portfolio of **60+ projects**
- Sustainability (with a focus on carbon reduction and climate change) and ESG (Environmental, Social and Governance) is at the core of the firm’s approach to investment

A deep attention to **public sector and local community** sensitivities

Established network of relationships with partners to co-develop projects

25-year fund life enabling **alignment of interests** with public sector counterparties creating genuine long-term partnerships

Proven track record of **managing greenfield/ construction risk** with all projects on time and on budget

Extensive greenfield & **project development expertise**

Consistent record of delivering on both financial and sustainability & ESG targets

Greenfield strategies applying high ESG and sustainability standards

Meridiam Infrastructure
Meridiam Infrastructure Europe II & III
Meridiam Infrastructure North America II & III

Impact oriented strategies

Meridiam Transition
(a COP-21 focused on energy transition projects in France and Europe)
Meridiam Infrastructure Africa Fund



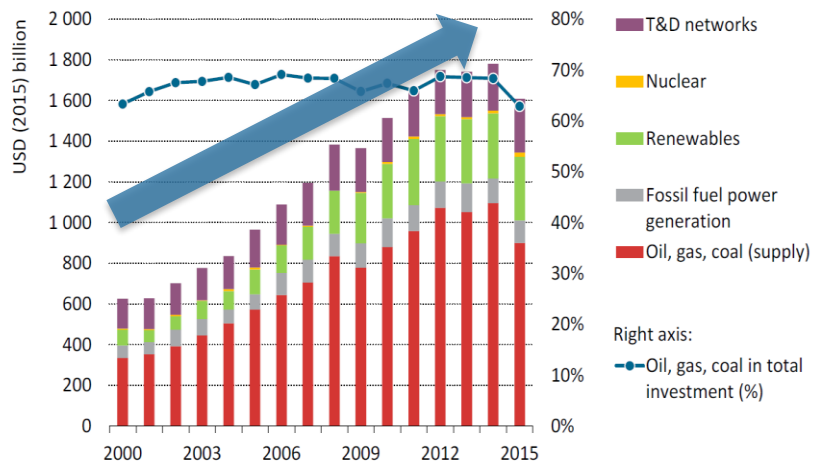
The Global and European Low Carbon Transition: a Financing Perspective



A New World for Energy Investment

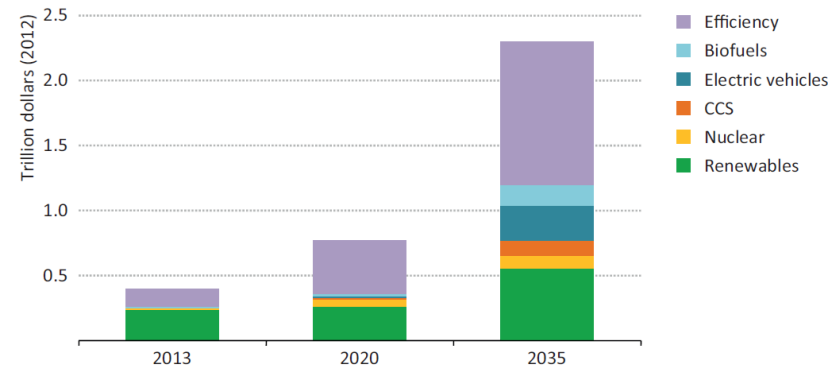
The global low carbon transition is about replacing carbon by long term capital

Global Investment in Energy Supply



Source: International Energy Agency, *World Energy Investment*, 2016

Global Low Carbon Investments 2013 - 2035



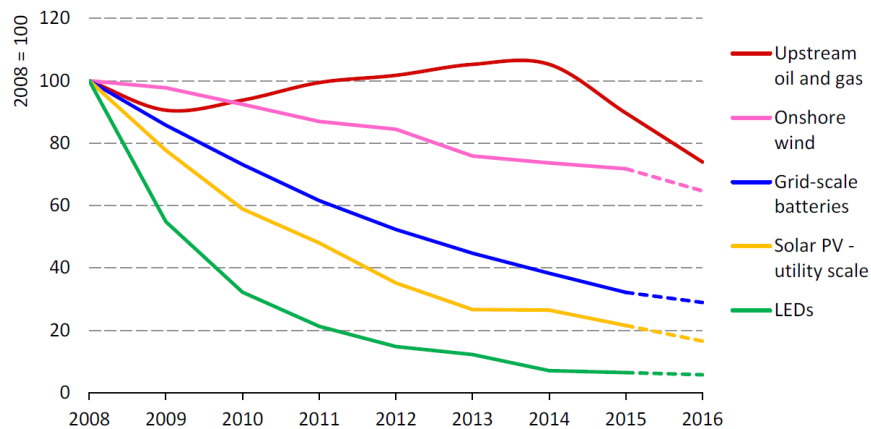
Source: 450ppm scenario, International Energy Agency, *World Energy Investment Outlook*, 2014



A New World for Energy Investment

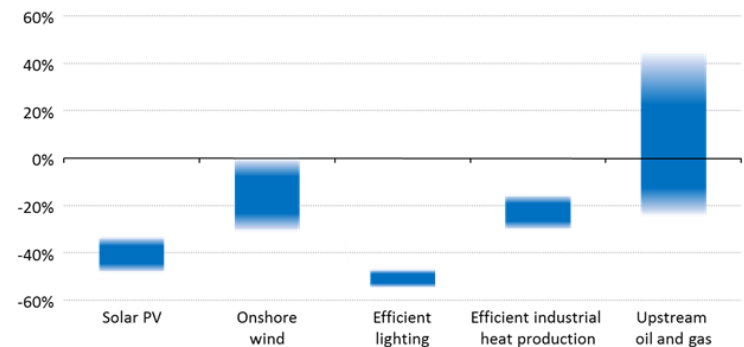
The global low carbon transition happens in a disruptive environment (1)

Cost developments across the energy spectrum



Source: International Energy Agency, *World Energy Investment*, 2016

Costs in 2040 relative to 2014



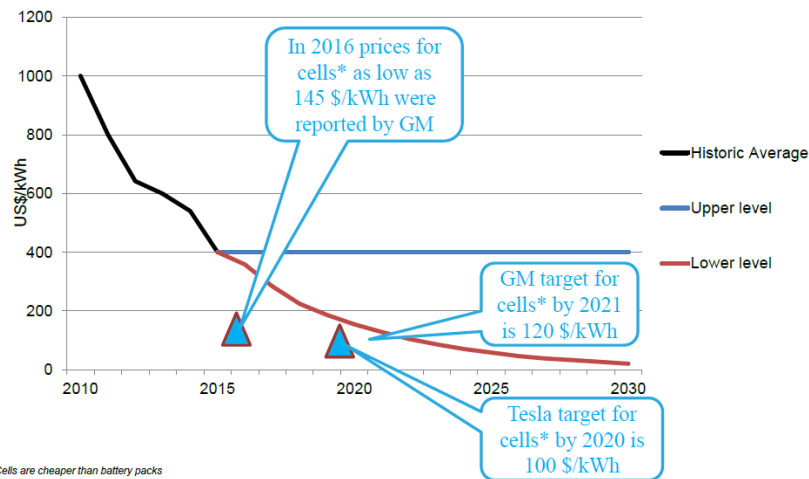
Source: International Energy Agency, *World Energy Outlook*, 2015



A New World for Energy Investment

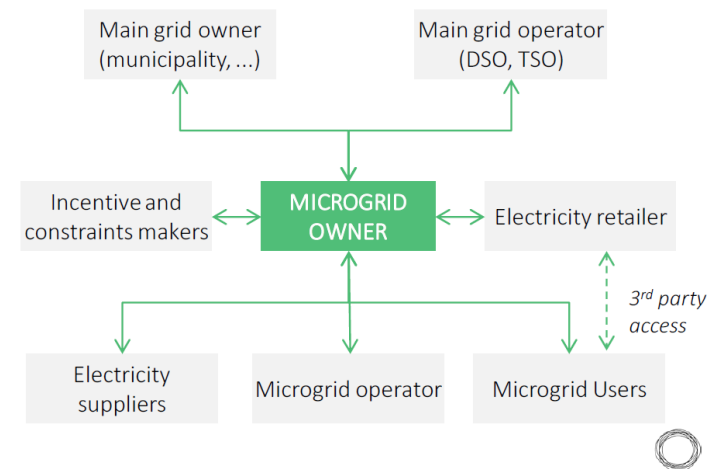
The global low carbon transition happens in a disruptive environment (2)

Lithium-ions battery prices



Source: ARUP, 2017

Microgrids: small is complex?

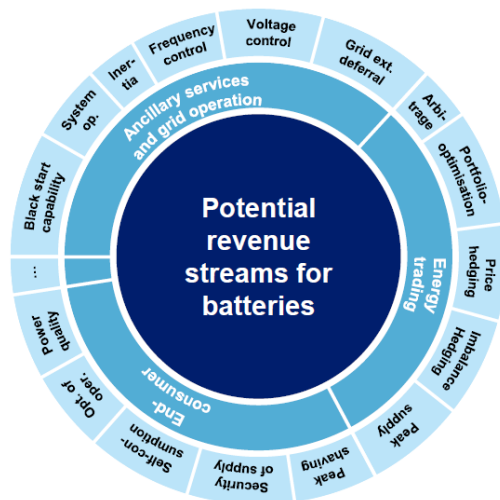


Source ENEA, 2017

A New World for Energy Investment

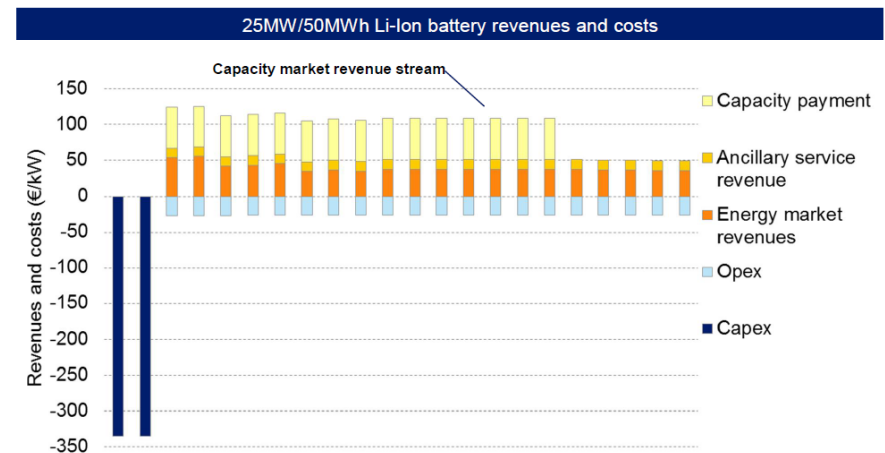
The global low carbon transition happens in a disruptive environment (3)

Utility-scale battery typical sources of revenues



Source: Poyry, 2017

An “easy to read” business model?



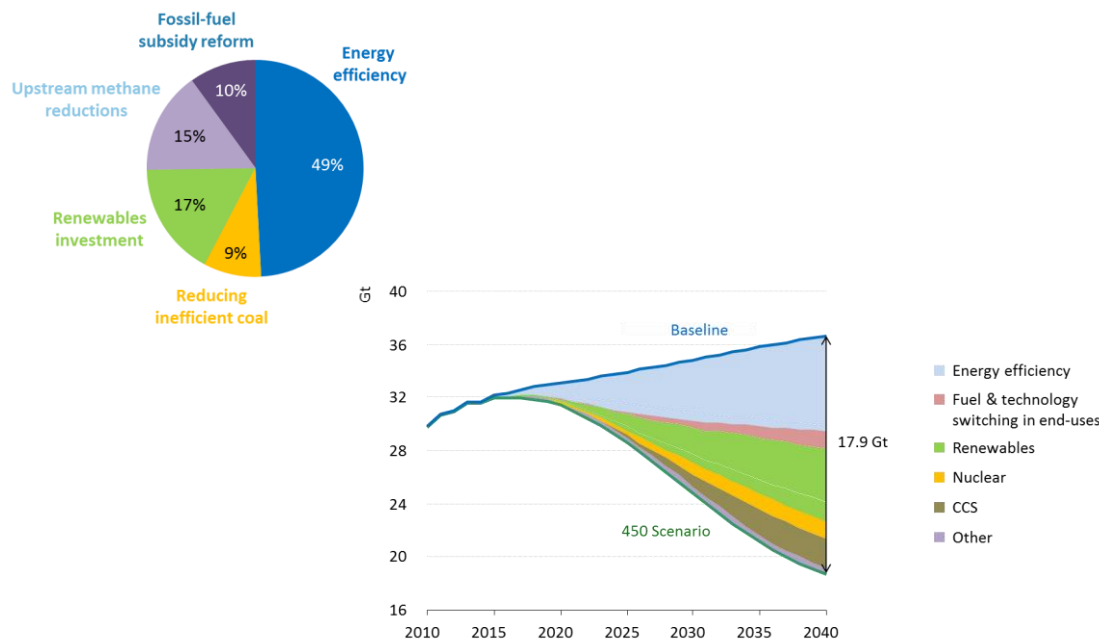
Source Poyry, 2017

➔ As an anecdote, Meridiam first investment in storage will be in Africa, not in Europe, under a long term contractual framework

Energy Efficiency Investment, the Must Needed Invisible Man?

Energy Efficiency Investments will drive the world capacity to meet the Paris objectives

GHG Savings are all about Energy Efficiency (including in dirty places)



Source: International Energy Agency, *World Energy Outlook*, 2016

Focus on Europe

- According to the European Commission, €200bn of investment are necessary every year until 2030 at the EU level:
 - 40% in buildings
 - 23% in clean power generation
 - 23% in grids
 - 15% in industrial energy efficiency projects
- The November 2016 “Winter Package” includes energy efficiency considerations with a 30% Energy Efficiency target



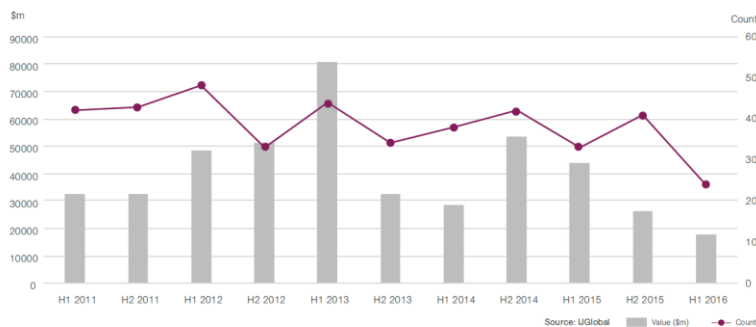
How to Access Energy Transition Investment Opportunities in Europe?



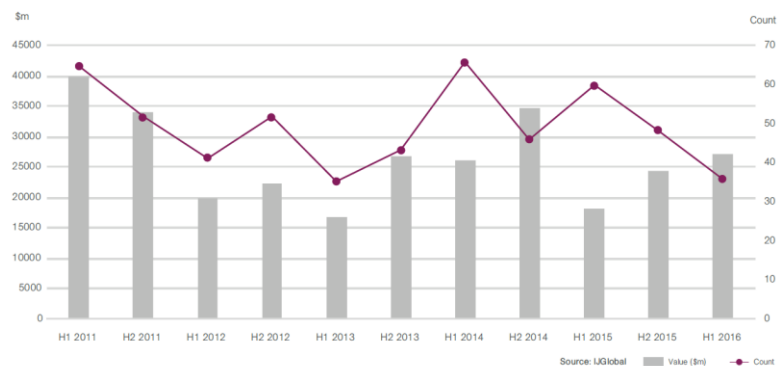
Energy Transition Funding Challenge: An Opportunity for Infrastructure Investors?

Project finance investors and lenders are already active in the energy space

OIL & GAS PROJECT FINANCE TRANSACTION VOLUME

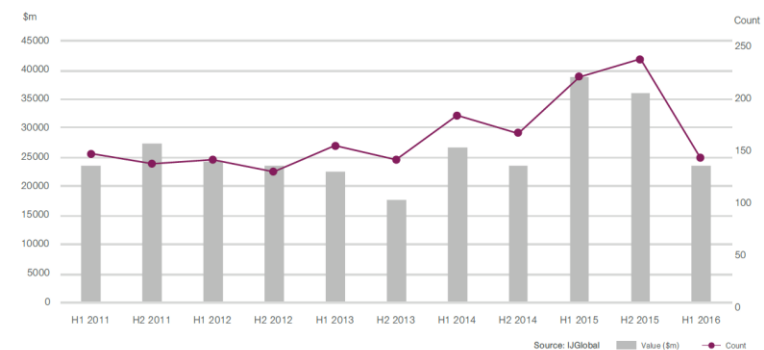


POWER PROJECT FINANCE TRANSACTION VOLUME



Source: IJ Global

RENEWABLES PROJECT FINANCE TRANSACTION VOLUME



New frontier for project finance players is access to:

- Small / decentralized projects (bundling challenge)
- Technology projects
- New segments: energy efficiency, electromobility, etc.

Whilst securing an infra-like risk profile



Structure & Strategy Overview

Targeting unaddressed energy transition market opportunities by leveraging Meridiam project development expertise

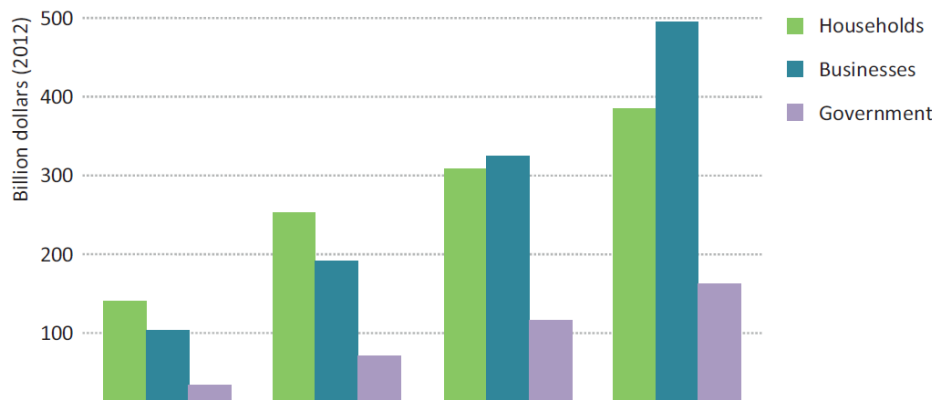
Main Terms	
Background	In 2015, Meridiam launched Meridiam Transition FIPS (“Meridiam Transition”) together with French insurer CNP. Support French insurers and long term institutional investors seeking to invest in projects designed to help Europe transition to a low carbon economy
Aim	Target relatively small projects, which may be financed on a 100% equity basis, in the energy efficiency, district heating, smart grids or renewable sectors
Geography	Europe (50% min in France and 80% min across the Eurozone)
Instruments	Equity and quasi-equity with potential financing up to 100% of projects.
Current fund size	€485m

Segments	Target indicative allocation	Type of assets
Energy Efficiency / Natural resources management	25-40%	Energy efficient solutions, water management solutions for public (local authorities) and private (large industrial corporates) counterparties
Local energy supply services	25-40%	District energy (cooling & heating), innovative waste to energy solutions
Smart city	10-25%	Eco-district “smart” infrastructure, electric cars AC (home / work) and DC (motorways) charging infrastructure, demand side management infrastructure
Alternative Renewables	10-25%	Non-mainstream renewables with barriers to entry

Energy Efficiency and Environmental Services

This sector offers many opportunities for investors who are able to manage the complexity and develop tailored solutions

Increasing demand, especially from industrials and services



Source : 450ppm Scenario, International Energy Agency, *World Energy Investment Outlook*, 2014

“Third-party” investor model

- €100bn still missing by 2020 at the EU level to reach the 20% EE amelioration target, which is fixed at 27% to 2030 and will be increased to 40% if the Winter Package is passed.
- In France, €30bn is required to improve energy efficiency of public buildings, with a major “bundling” challenge (average individual project size of €1m).
- More traditional process efficiency-driven opportunities on the corporate segment (industrials and services)

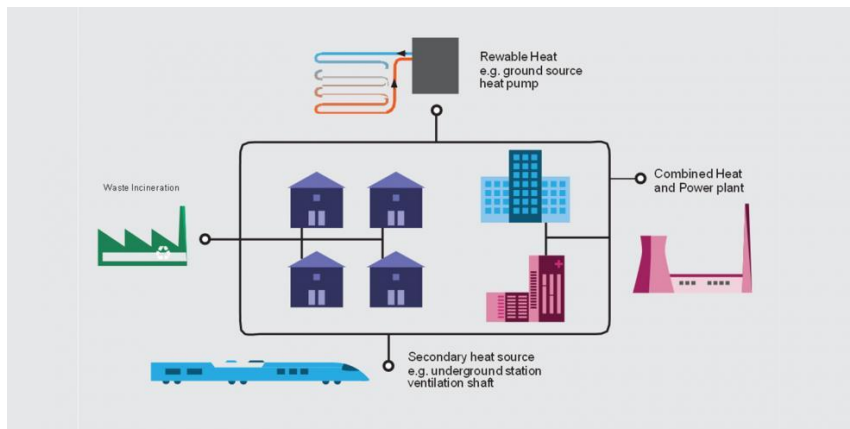
Examples of Meridiam active projects

- Energy Performance Contracts for 20 public buildings in a French Region - €150m CAPEX
- Industrial CHP project in the Rhone-Alpes Region - €80m CAPEX
- University building refurbishment - €200m CAPEX

Energy Local Public Services

District heating “greening” and development is a major target

Urban projects led by public authorities or by private undertakings



Source : Mayor of London / London Assembly

A growing market in France and Europe

- In France, 5-6% of the consumed heat comes from district heating compared to 50% in Sweden or Poland
- The French market is dominated by large players but an estimated investment need of €2bn over the next 10 years.
- Investment opportunities correspond to bundling of “small” concession expansions & greening / developments or acquisition of existing portfolios.
- Growing opportunities in medium size waste to energy projects (e.g. waste to biogas projects)

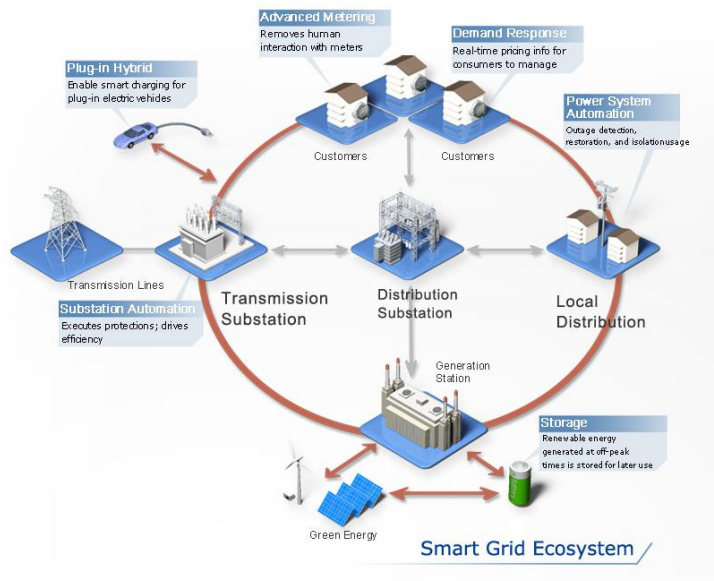
Examples of Meridiam active projects

- Sarreguemines new district heating network in partnership with Veolia (ongoing tender)
- Grenoble district heating network “greening” and expansion in partnership with Engie and Egis (ongoing tender)
- Portfolio of greenfield biogas from waste treatment facilities across France - €100m total CAPEX
- Pessin and Dessau (German biomethane facilities), closed in February 2017 - €30m total CAPEX

Smart Cities

Decentralization of energy means new investment needs

Electricity storage, decentralized renewables, IT integration and grids strengthening



Source: Moxa

Investments requiring new schemes

- An estimated 15.8 billion euros will be invested to install 110 million smart meters in Europe.
- In France, the national electricity distribution utility, Enedis, has to deploy smart electric metering systems (Linky, €5bn by 2020) and strengthen its network. Other demand size management initiatives
- Electric vehicles development requires new investment needs (charging infrastructure, with 7 million charging spots targeted by 2030 in France representing a cumulated investment in excess of €35bn mainly on the AC low capacity segment).

Examples of Meridiam active projects

- “Smart” infrastructure of Ile de France eco-districts - €30m cumulative CAPEX
- AC Charging infrastructure for electric vehicles across Europe (France, Germany and the UK) - €500m total CAPEX
- Fast charge infrastructure on motorways across Europe - €350m total CAPEX

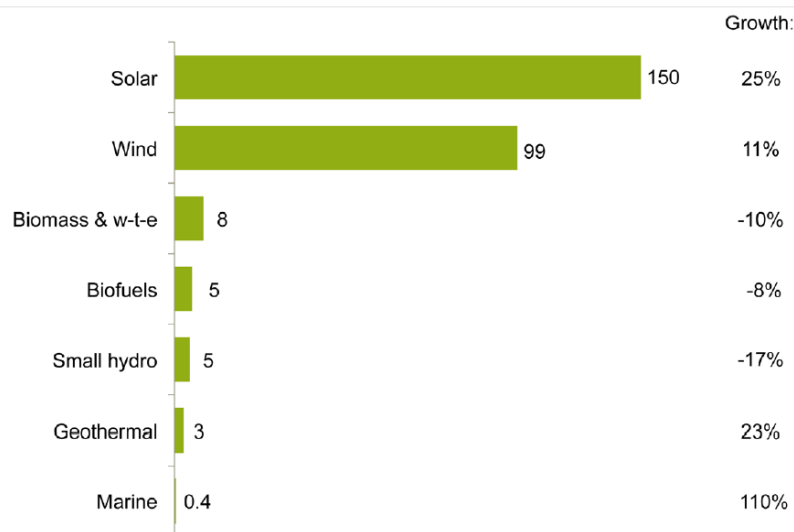


Alternative Renewable Energies

Targeting market niches supported by Meridiam's expertise

Mainstream renewables and “niches”

Financing of renewable projects by sub-sector (Md\$)



Onshore windfarms and solar PV segments are already well covered / overcrowded in developed markets

Some niches offer attractive opportunities

- Several renewable segments are currently not well covered by investors.
- Ability to structure these projects with leading industrial operators to “de-risk” these assets is essential as well as implementing robust offtake contractual structures.
- The main targeted segments are:
 - Biomass,
 - Offshore wind
 - Small to medium size hydroelectricity, and
 - Geothermal.

Examples of active or pipeline projects

- Biogas fired power plant in France – €25m CAPEX
- Greenfield Geothermal projects in France - €40m CAPEX
- Floating offshore wind project of the Isle of Groix - €25m CAPEX
- Run of the river small hydro in Norway - €30m CAPEX