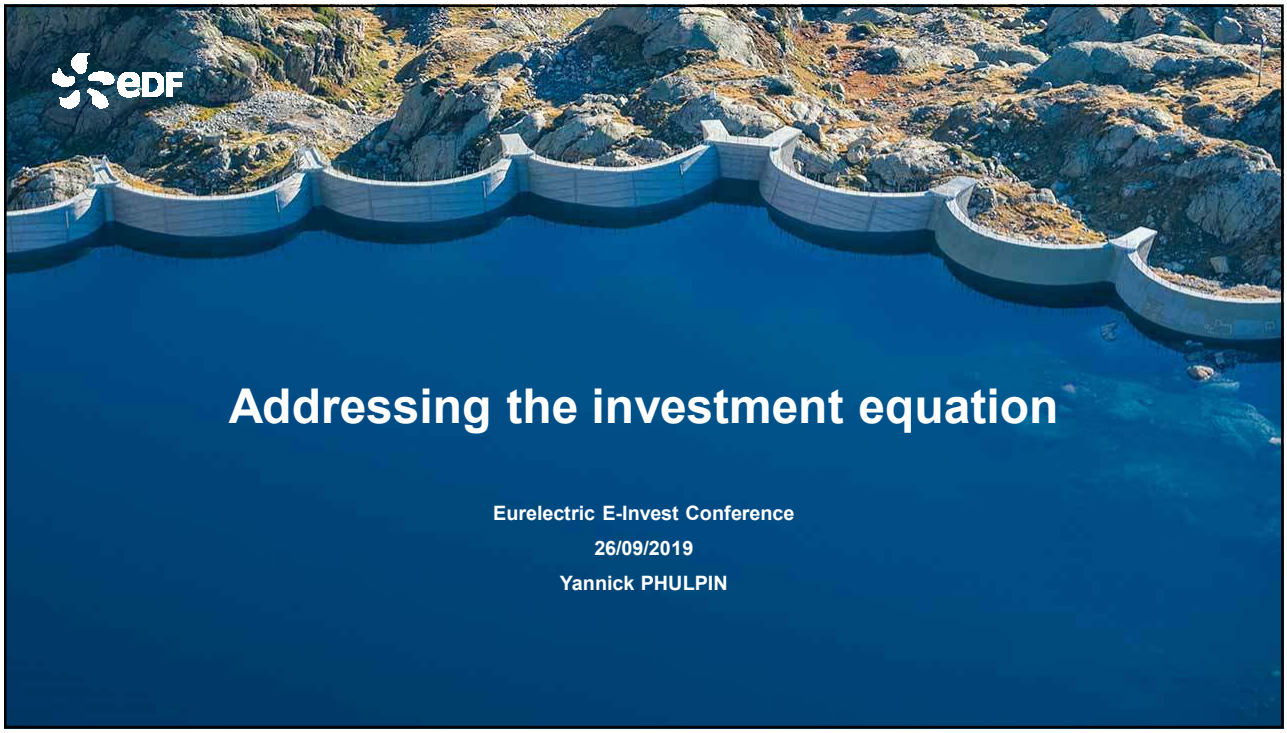


# Addressing the investment equation

**Eurelectric E-Invest Conference**

**26/09/2019**

**Yannick PHULPIN**

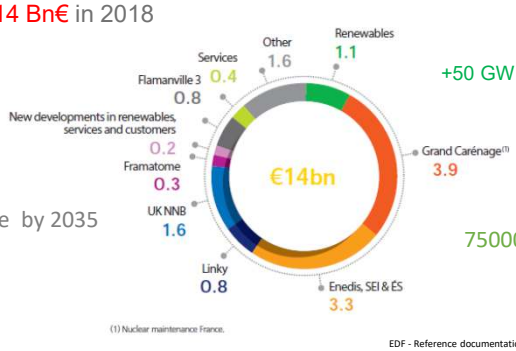
## Massive investments in generation/storage/DR assets

In 2018, the electricity industry invested 50+ B€ in generation, storage, demand response assets in Europe

Eurelectric decarbonization study highlights that more is needed: 100+ Bn€/year until 2045

EDF invested 14 Bn€ in 2018

+10 GW Storage by 2035




+50 GW by 2030

75000 EV charging stations by 2022

EDF - Reference documentation 2018

## The investment equation

expected revenues - opex ≥ capital amortization + capital costs

expected operational margins

uncertainties

risk premium

market risks

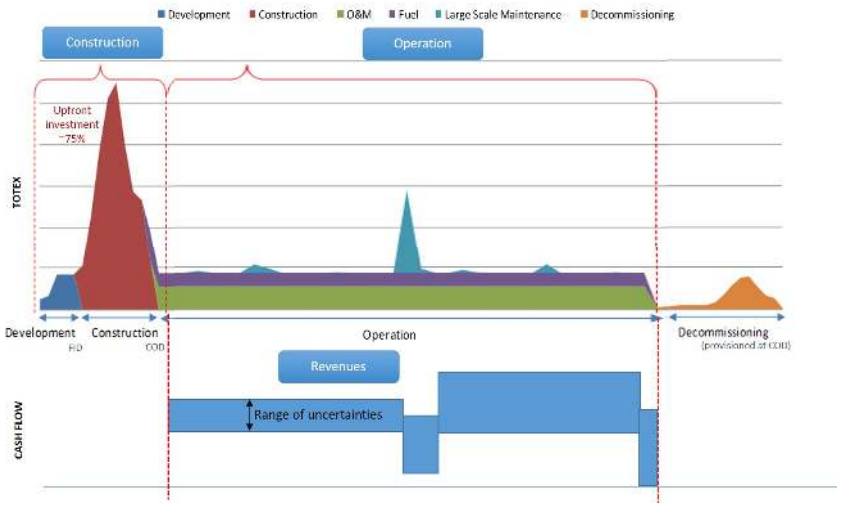
Mitigating investors' risks

=> lower returns required for investment

=> cost-efficient energy transitions & lower electricity bills



## Uncertainties are multi-dimensional



# Some risks can be managed by the investors

Investors should support only the risks they can (partly) manage, e.g.

- Deployment costs / delays related to technical issues
- Technology maturity
- Operational costs & resource intermittency

} generally subject to risk premium based on the developer's experience

Some risks can hardly be managed by investors, e.g.

- Public acceptance issues
- Changes in energy standards / policy targets
- Changes in carbon pricing
- Changes in market price formation (e.g. bidding zone configuration decided at national or EU level)
- Changes in use of network tariffs (e.g. G-charges) & network development (NRA or TSO/DSO decisions)

Complementary mechanisms might be considered to mitigate political and regulatory risks

=> Investors would then compete in auctions to access complementary mechanisms



# Market design is an effective tool : illustrative examples

CfDs on energy price have proven effective for RES support :

- M. Grubb & D. Newbery [1] : WACC drop of 3% when switching from ROC to CfD by the end of 2014 in the GB
- Such scheme consistent with the RES Directive an the EEAG

CfD or RAB are also acknowledged for reducing capital costs for base-load power plants:

- R. Green & I. Staffel [2]: 3% decrease in WACC for projects such as Hinkley Point with CfD of 35 year duration
- UK consultation on the opportunity to fund new nuclear under a regulated asset base model


IEA – World Energy Investment 2019

[1] M. Grubb & D. Newbery, MIT CEEPR Working Paper 2018-004, February 2018
[2] R. Green & I. Staffel, the impact of government decisions on investments in the GB electricity market, November 2013

# Key messages

The energy transition will be expensive if investors bear all risks, including those they cannot manage

- Contracts for difference on energy price have been effective to mitigate political and regulatory risks
- LT contracts securing the capacity remuneration of assets subject to significant investment are a positive dimension of capacity mechanisms

The market design can effectively mitigate investors' risks

Complementary mechanisms must be suited to context and targets