



Workshop on the Economics of the Current Generation of Nuclear Power Plants IAEA EVT1904634 – 1-3 March 2022

Session 6: Financing Issues

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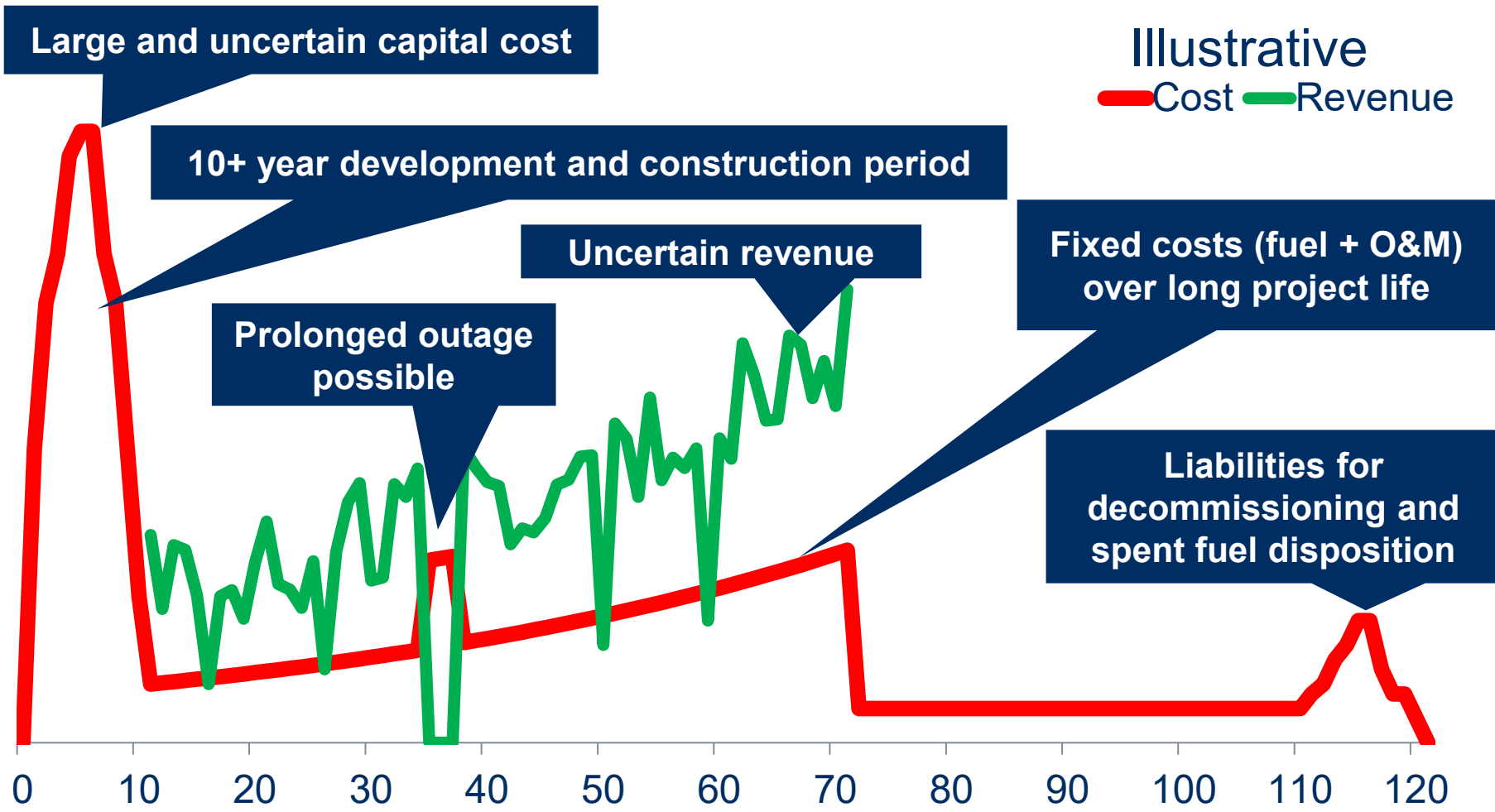
Three parts to this presentation

- Introduction of this Financing Session
- Nuclear Project Structures
- Introduce other experts in this Session

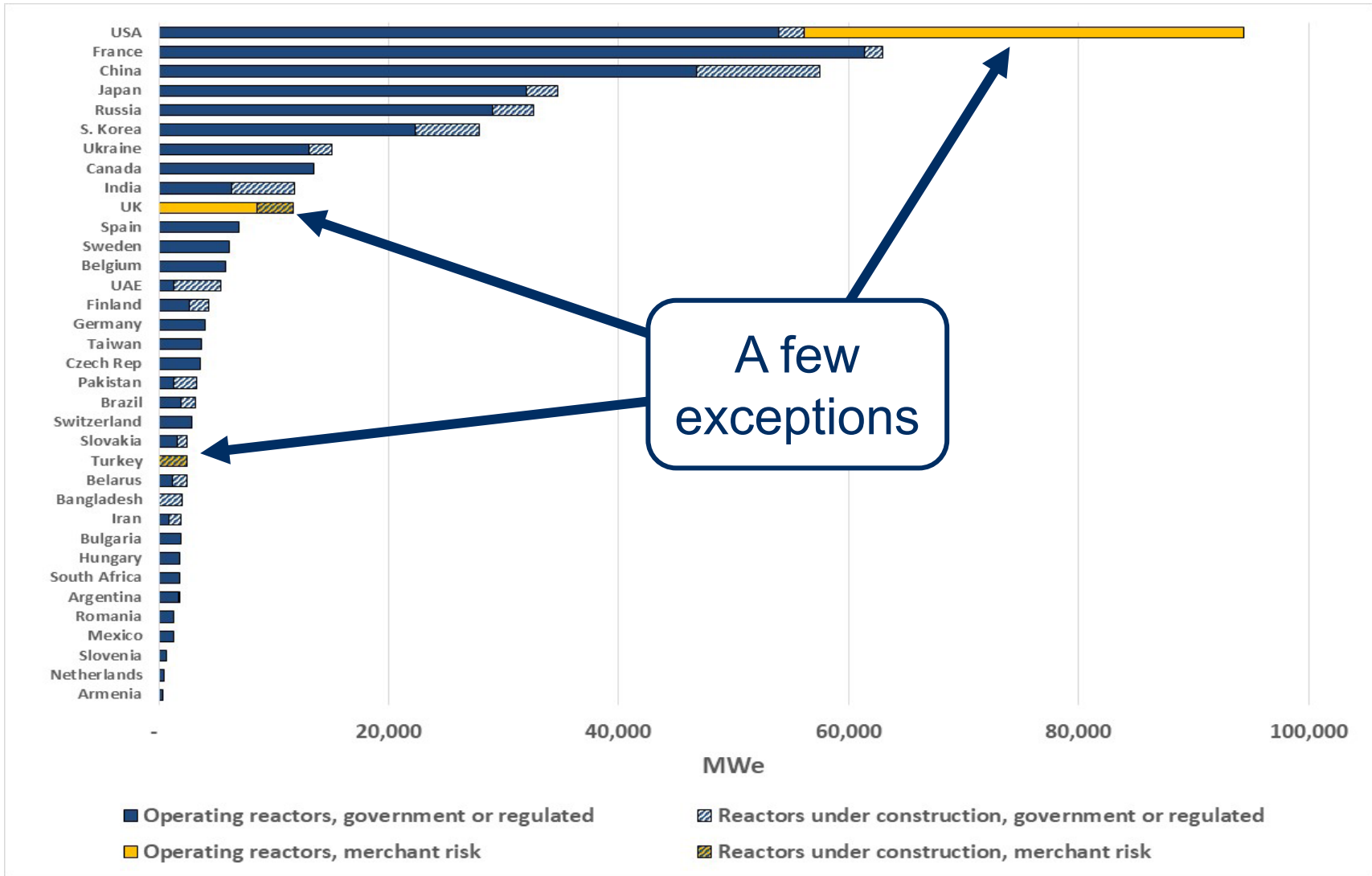
Financing nuclear project cash flow



1 Introduction of Session



Most reactors government / regulated



A few exceptions

Why?



- What works: ***government / regulated reactors***
 - Government ownership or Cost-of-Service regulation
 - Nuclear as part of vertically-integrated electric utility
 - Certain revenue / cost recovery for life of plant
 - Generation investment based on long-term planning

- What does not work: ***merchant reactors***
 - Stand-alone generating companies with financial risk
 - Uncertain revenue / cost recovery
 - Market-based investment decision

Helping nuclear in market economies (without moving to central planning)



- Avoid electricity markets
 - Avoid electricity industry reform and markets or provide revenue security for nuclear projects in these markets
- Make nuclear regulated/government asset
 - Re-regulate or nationalize merchant nuclear
- Provide support for merchant nuclear
 - ZEC payments, power contracts, clean energy mandates
- Monetize valuable nuclear power attributes

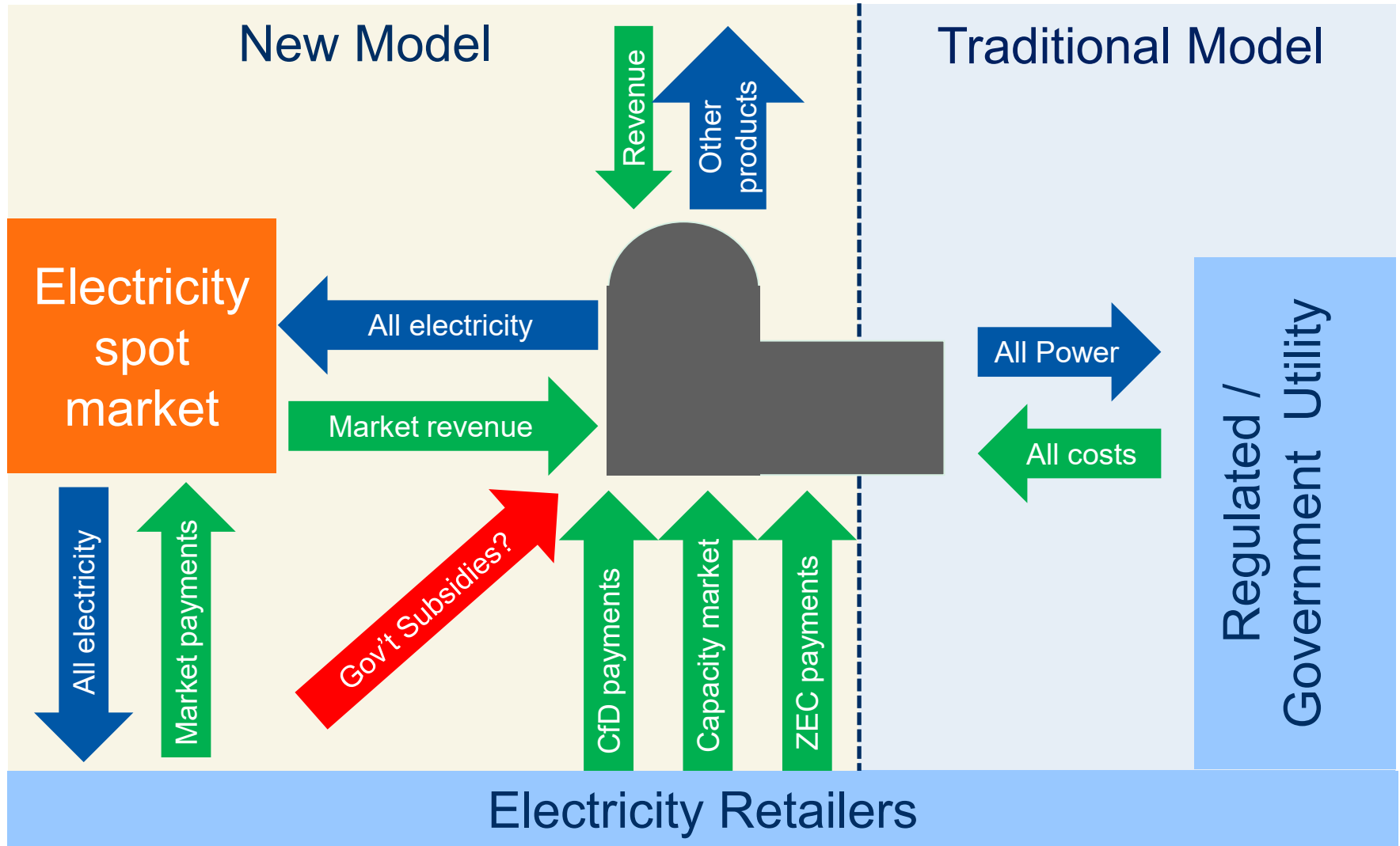
Nuclear Project Structures

- Government-owned projects
- Public Power / Cooperative projects
- Regulated investor-owned utility projects
- PPA-backed IPP / BOO Projects
- Pure Merchant Projects



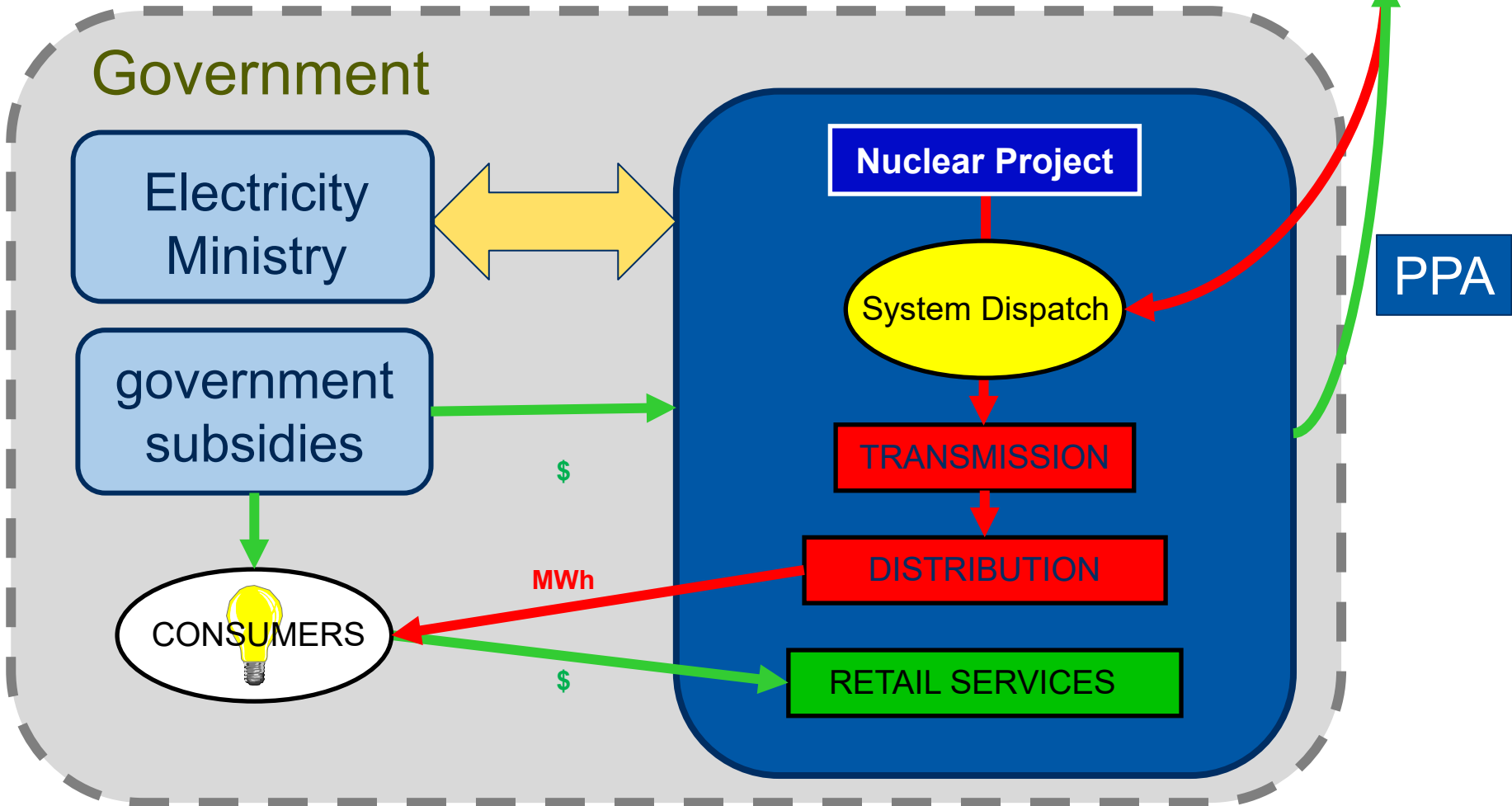
Electricity Deregulation

2 Nuclear Project Structures



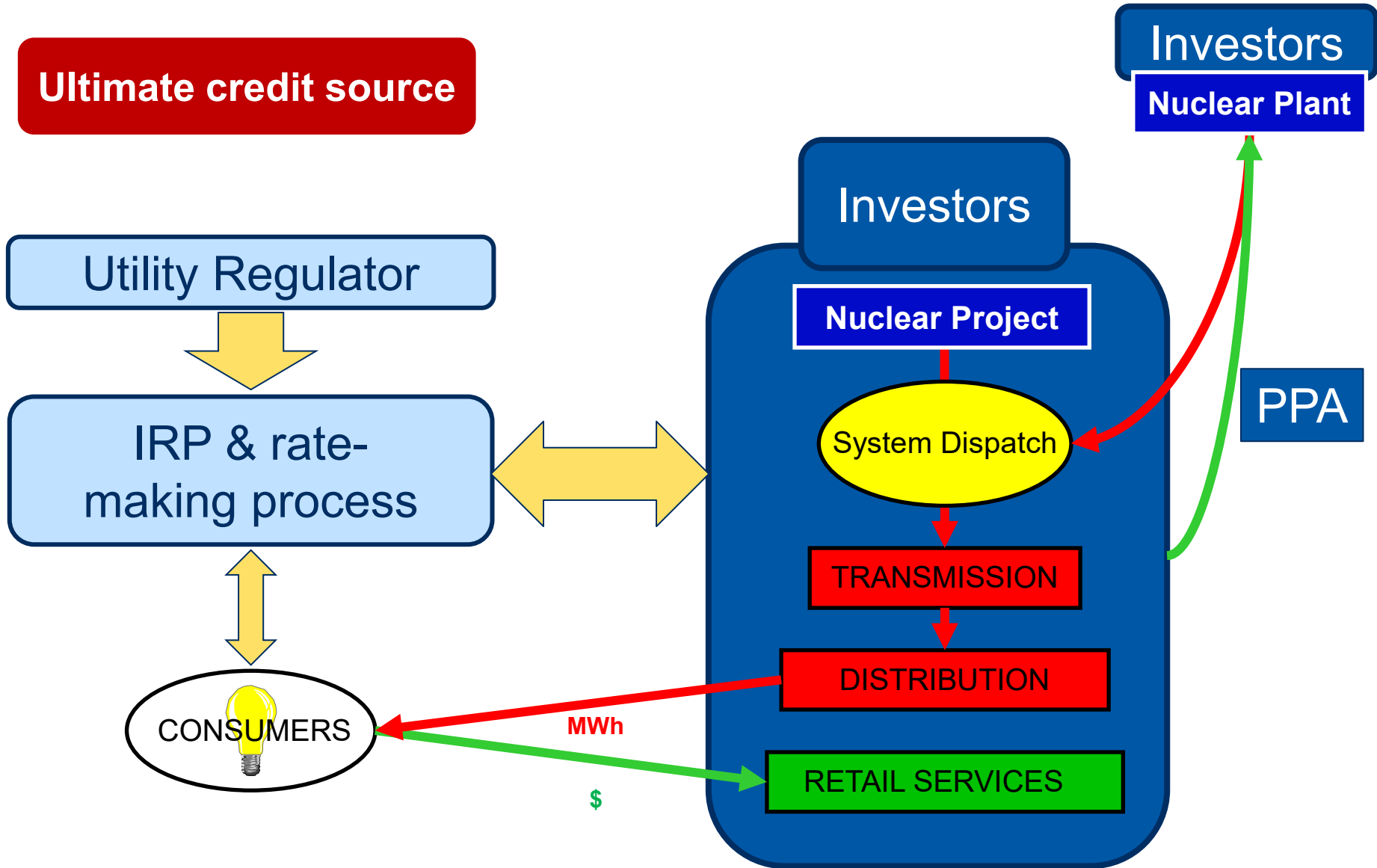
Government utility

Ultimate credit source



Regulated utility

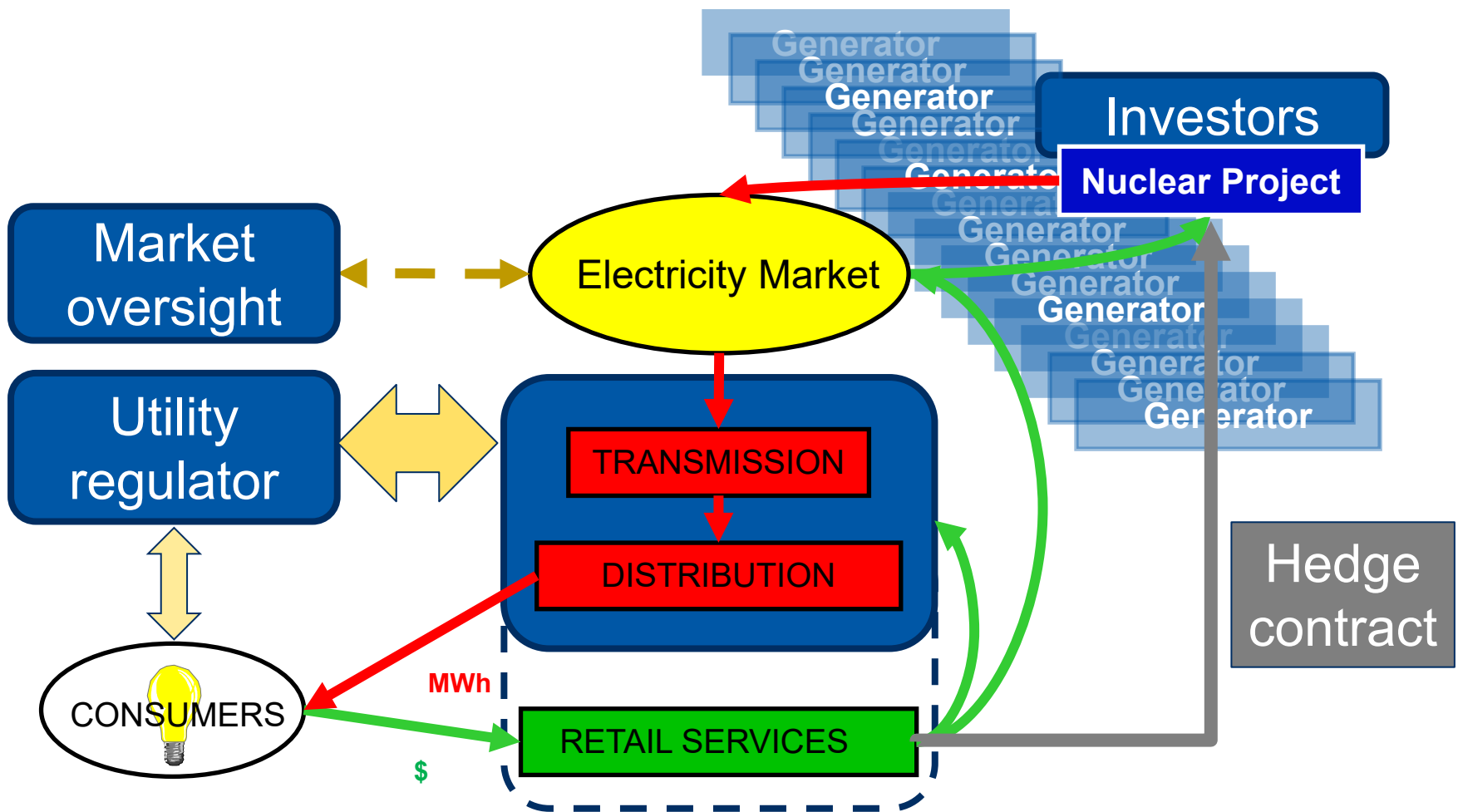
2 Nuclear Project Structures



Electricity markets

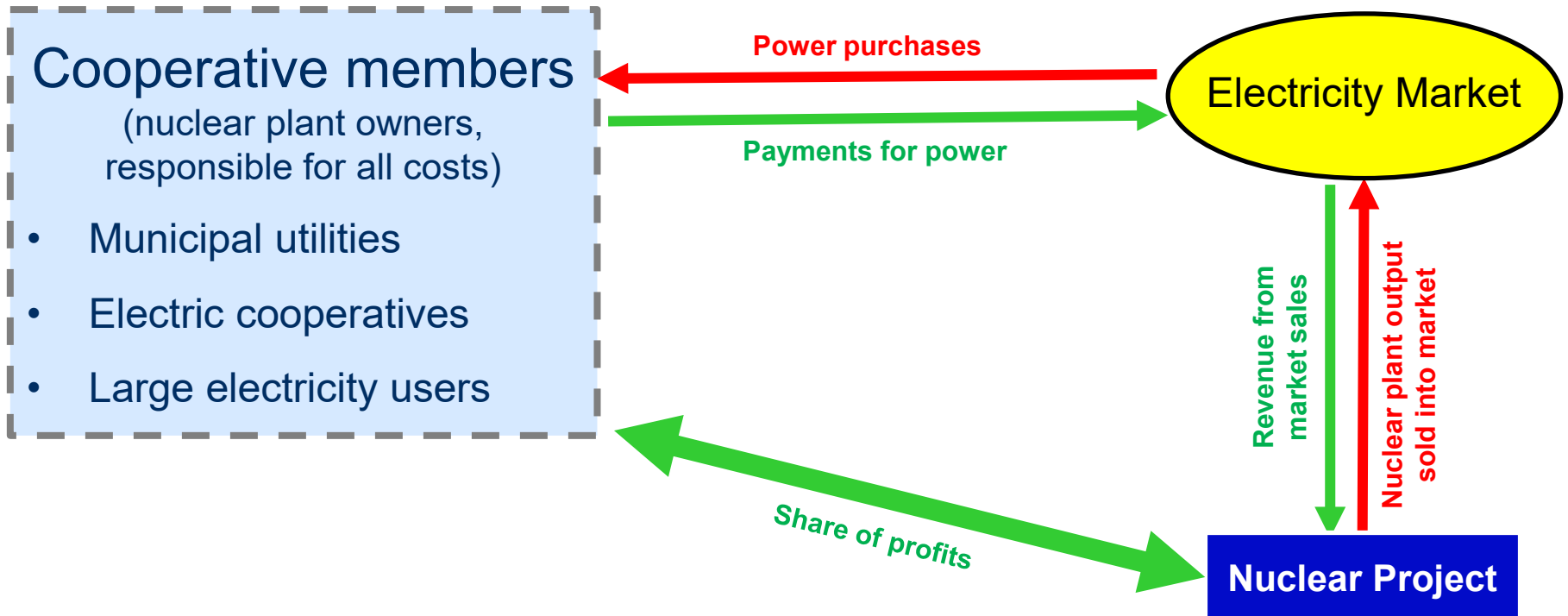
2 Nuclear Project Structures

Ultimate credit source



Cooperative model (in market)

Ultimate credit source



Summary



- Electricity fundamentals set nuclear value
- Electricity industry structure defines options
- Nuclear business models:
 - Proven – government, regulated, cooperative
 - Uncertain – BOO, IPP/PPA/CfD, vendor ownership
 - Unproven – merchant nuclear using project finance

Other experts in this session



- Paul Murphy – De-risking nuclear power projects
- Amjad Ghori – Nuclear power financing models
- David Stearns – Nuclear power revenue models



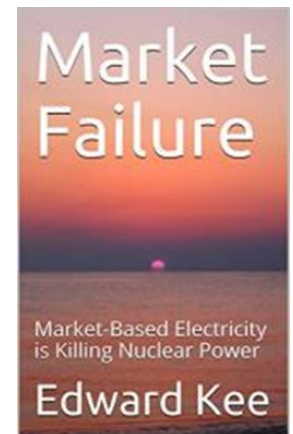
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