Facilitating Private Sector Investment in Commercial-Scale CCS Demonstration Projects

IEA-CERT Workshop
February 2012

Clinton Climate Initiative

MAKE A DIFFERENCE IN THE FIGHT AGAINST CLIMATE CHANGE IN PRACTICAL, MEASURABLE, AND SIGNIFICANT WAYS

Solutions that Work

- Projects not Targets
- Reduce Emissions
- High Impact
- Large Scale
- Global

Support Structure

- Technical Assistance
- Project Assistance
- Purchasing Assistance
- Network Access
- Measurement Tools
- Financing

Introduction – The Clinton Climate Initiative

- The Clinton Climate Initiative (CCI) works under the leadership of government partners, and in collaboration with private sector sponsors, to develop and implement large-scale projects that directly reduce greenhouse gas emissions and serve as replicable and scalable models for others to follow

- CCI's three main focus areas are: cities, clean energy, and forestry in tropical and subtropical developing countries

- CCI staff backgrounds in finance, consulting, industry, engineering, policy development and politics

- CCI is completely independent and has no financial ties to any particular company, technology, or project

- CCI is currently advising governments on utility scale CCS programs in Australia, Malaysia, the Netherlands and the USA. Also participating in for a such as CCUS Action Group and CSLF Finance Taskforce
  - Focus on removing near term commercial/financial barriers to enable the development of commercial-scale CCS projects

Background

- Scale of CCS demonstration projects means a sizeable element of private sector capital will be required, with significant government support
  - Even when cost penalties are addressed, perceived and real risks inhibit CCS's ability to attract private sector investment

- Lack of commercial and strategic incentives for private sector to underwrite demonstration projects
  - Bridging the needs of the private sector and the practical limits of government support is critical to ensure commercial-scale deployment progresses

- Economics of stationary power generation makes early-stage deployment particularly challenging in that sector

Financability Considerations

- Various real and perceived risk issues are hampering private sector investment in CCS projects
  - Government involvement is necessary to overcome some of these barriers

Concern	Comment
Lack of Commerciality	■ Current carbon price insufficient to overcome capital and operating cost hurdles ■ Significant parasitic load for power applications
Revenue Risk	■ Private sector unwilling/unable to underwrite forward carbon price

Technical Risk	■ Technologies often unproven at scale or still immature
	■ Differing risk perceptions along CCS chain
	  ■ Capture – generally unproven at commercial scale in CCS context
	  ■ Pipeline transportation – well established
	  ■ Storage – site-by-site evaluation required

Regulatory Risk	■ Regulatory regimes immature/under development
Counterparty Risk	■ Occurs in cases where EmitterCo, CaptureCo, TransportCo and StorageCo are not the same entity/consortium ■ Includes volume/deliverability and credit risks

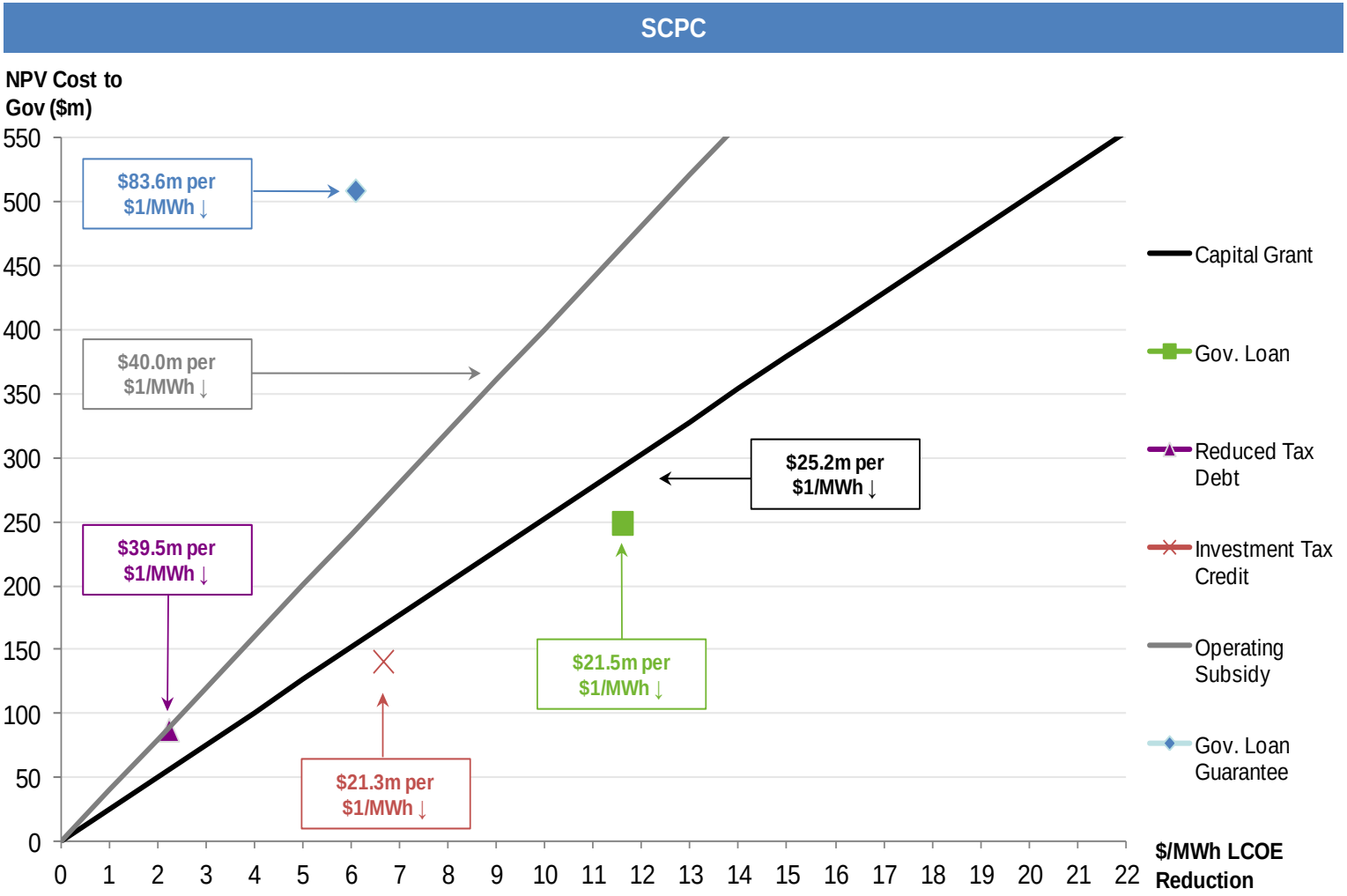
Financial Support Measures

- A combination of government support measures is likely to be required to address the initial capital and ongoing operating cost penalties associated with early mover CCS projects, however a degree of revenue certainty is key
- Key output will be “value for money” impact of various support structure

Capital Cost Reduction	**Capital Grant/Preferred Equity**	■ Should leveraqe government’s cost of capital advantage ■ Preferred equity structure may benefit both government and proponents
	Tax Credits, R&D Credits	■ Investment/production tax credits, accelerated depreciation ■ Tax exempt financing also effective for capital-intensive projects
Operating Cash Flow Support	**Emission Obligations**	■ Limits on maximum emissions intensity ■ Low emissions targets ■ Cap and trade
	Feed-in Tariff/PPA/Regulated Rate Base Adjustments	■ Set or bid ■ Government concerns in deregulated power markets
	CO2 Disposal Price Underwrite	■ Contracts for difference for CO2 price may be less likely to distort market bidding behaviour than PPA’s in pool markets
Risk Mitigation	**Loan Guarantees**	■ Can be structured to address specific risks ■ Relatively common in the US, but seen as less attractive in Europe
	Public-Private Partnerships	■ Project developer revenue based on agreed parameters

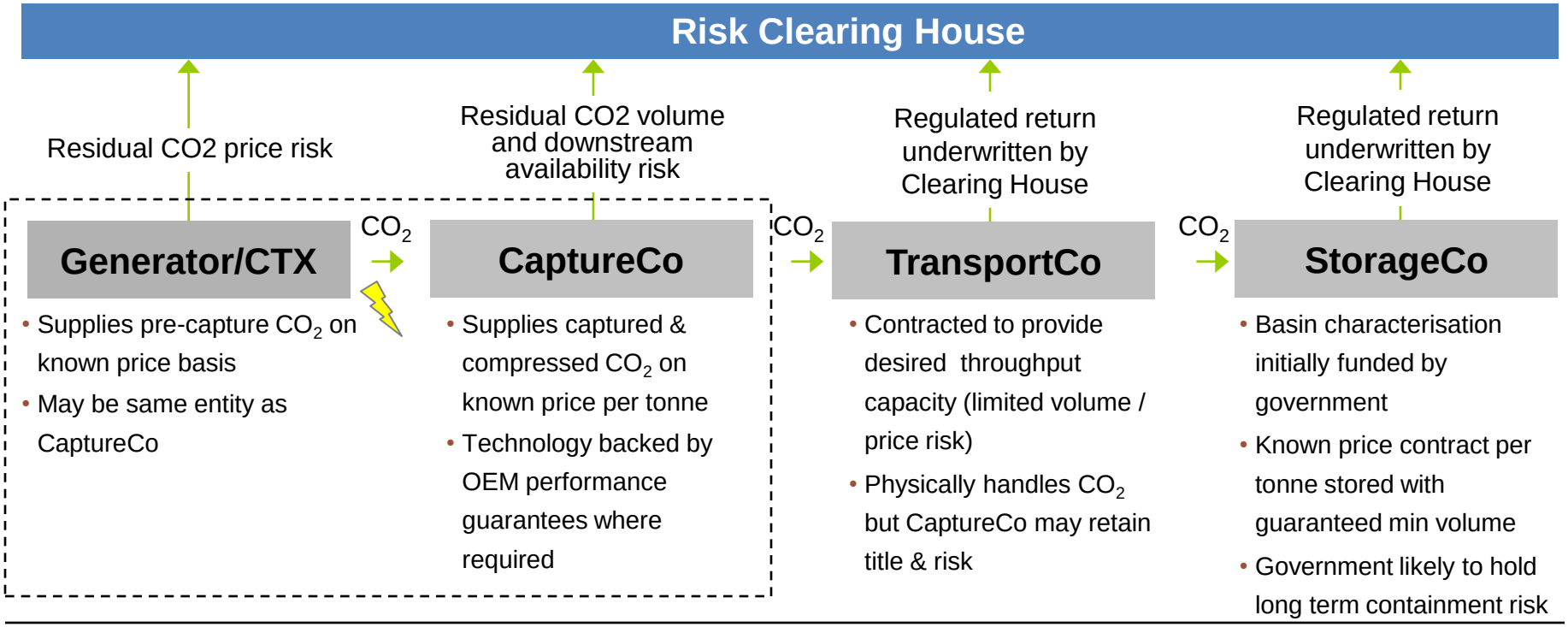
Financial Support Measures Impact Summary

- While the nominal cost to government of various support measures varies in terms of ability to bridge the economic gap, a combination of measures is likely to be required in order to attract private sector investment



Addressing Interface Risk

- Multi-developer projects introduce additional volume/deliverability and credit risks
- Government may need to act as a clearing house for residual risks unable to be borne by private sector
  - In principle, operating risks remain with private sector, while government "clearing house" underwrites risks unable to be borne by private sector
- Clearing house may be regulated authority or corporation backed by government guarantee



Summary Observations

- Lack of strategic or commercial imperative for involvement in CCS by most private sector
  - However, subject to broader market conditions, private sector finance likely to be available for well structured projects backed by credible proponents
- Various support measures available to close commerciality gap
- Revenue certainty is an absolute priority for projects
  - Eg Southern Kemper County and Summit Texas Clean Energy projects partly offsetting costs through EOR and signing secure power/product offtake agreements
  - Mountaineer project unable to secure increase to rate base
- Government support likely to be required to underwrite residual interface risks in projects with

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