Financing Large Scale Infrastructure

Discussion Points by Mike Thomas

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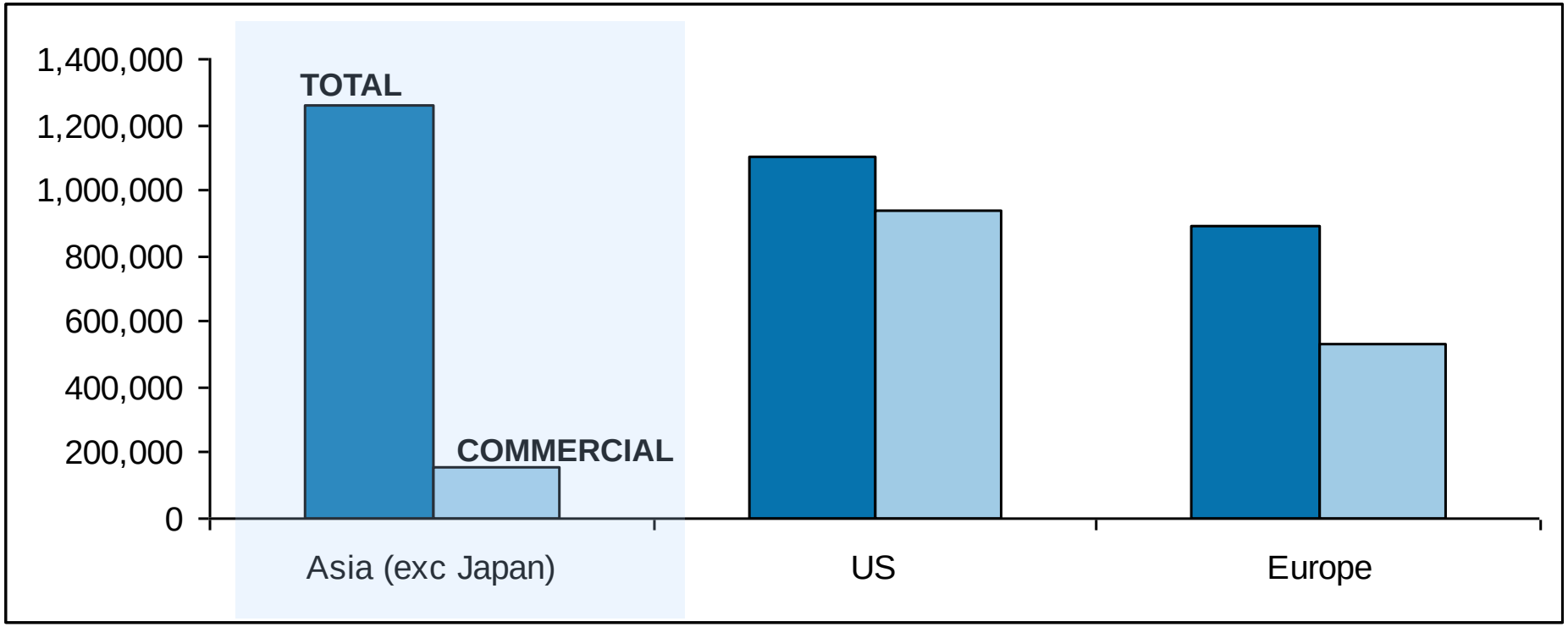
Myanmar is undergoing an exciting and utterly dramatic transformation…

- Has significant power infrastructure needs due to expected growth and a low starting point
- Has abundant (but relatively undeveloped) natural resources, including natural gas and hydro
- Faces significant investment challenges in electrification and gas transport infrastructure
- Many steps to go before decision-making and evaluation "readiness" compares to countries that develop successful large scale private sector involvement in infrastructure
  - Defining what is needed
  - Determining how to evaluate it
  - Determining who evaluates it
  - Creating the capacity to treat long-term commitments consistently and robustly
  - Setting up and managing the institutions and agencies needed to accept risk

At some point soon, Myanmar will be ready for some projects….and then the fun begins

Why Myanmar is so attractive for power sector investment?

Asia has a very small commercially addressable power sector due to extensive government control and limited investor access to green- and brownfield opportunities



TLG Research (2012): Excluding Japan, India, and FSU countries

Any market in Asia that is open to commercial investors is going to get a lot of attention because there are too few commercially addressable projects to keep everyone busy

How not to do it

- Don’t establish basic evaluation “hygiene”
  - An evaluation framework
  - A framework PPA
  - Standards for defining and screening candidate projects
  - A legal and regulatory framework supportive of contracting
  - Clear communication of the risks – will contract terms be treated robustly, or will they be changed later?

- Lead investors into temptation but deliver no projects
  - Long queues
  - Unclear approvals and shifting policies
  - Excessively expensive or convoluted pre-qualification process
  - Arbitrary awards

- Fail to recognise inherent value and, thus, lose it or give it away
  - As valuable as it is to move quickly, mistakes can be costly and long-lived
  - Understanding the value of what is being bought or sold matters

How to spend money without getting (fully) commensurate value…

- The Philippines turned to IPPs to try to solve the looming power crisis after 1992
  - By 1998, foreign-owned IPPs had build 4,800MW and invested US$6 billion
  - But the growth rates were exaggerated by a combination of poor forecasting, governmental optimism, and genuinely unexpected reality

- And…then the opportunity to develop the Malampaya gas field emerged
  - Despite warning signals that the power sector needed only a small fraction of the potential gas…a further 2700 MW of essentially baseload gas-fired generation was developed
  - Project started off well-scoped and sized but then took a life of its own, even as market conditions changed

- Government-owned National Power Corporation (NPC), quickly racked up US$22.35 billion in debt by the end of 2003

Projects can be strongly financeable if they have robust, enforceable, PPAs with payments backed by the Philippine government (through its ownership of NPC) – but they may not be the best projects for the country

How to promote rapid investment without regard as to whether it is sensible

- Use force of government or government-backed entities for credit

- Tender secure, long-term contracts for the wrong things

Big engines need good pilots

Issues for Myanmar

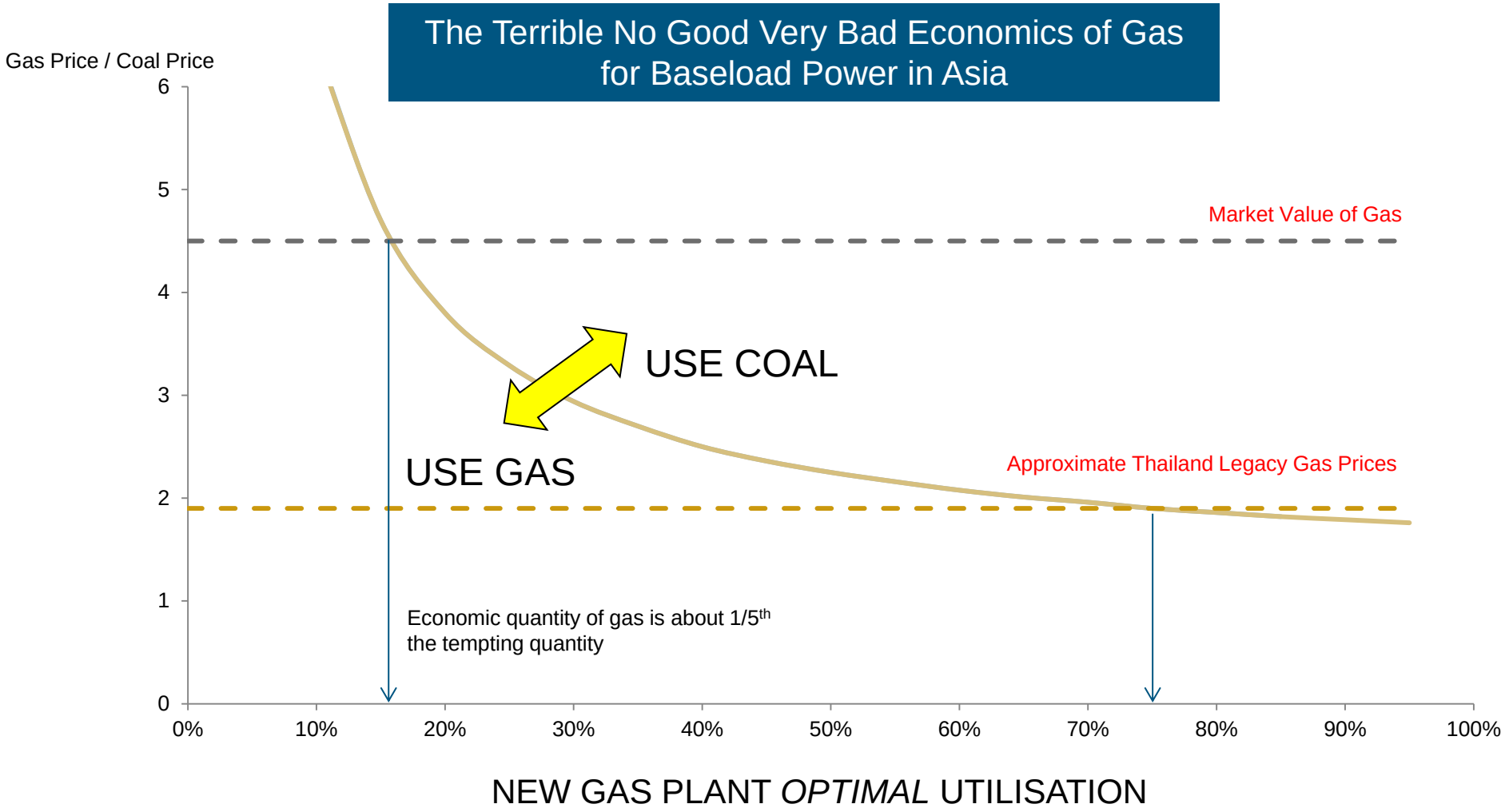
- Investors spend quite a bit of money and dedicated talent developing prospects
  - They need to believe that their efforts are worth it

- International investors crave straightforward structures
  - Ad hoc policies and frequent changes are both frustrating and expensive
  - Sometimes investors want structures that are more simple than the underlying value challenge….

- Much depends on the strength and bankability of commitments
  - Who is promising what to whom
  - How enforceable is it
  - What happens if something goes wrong

- A fool and his/her money will soon part
  - The better projects are linked to a robust assessment of fundamentals
  - The first step to solving energy problems is to define what is needed with some care

What kind of investments make sense: Using valuable gas wisely



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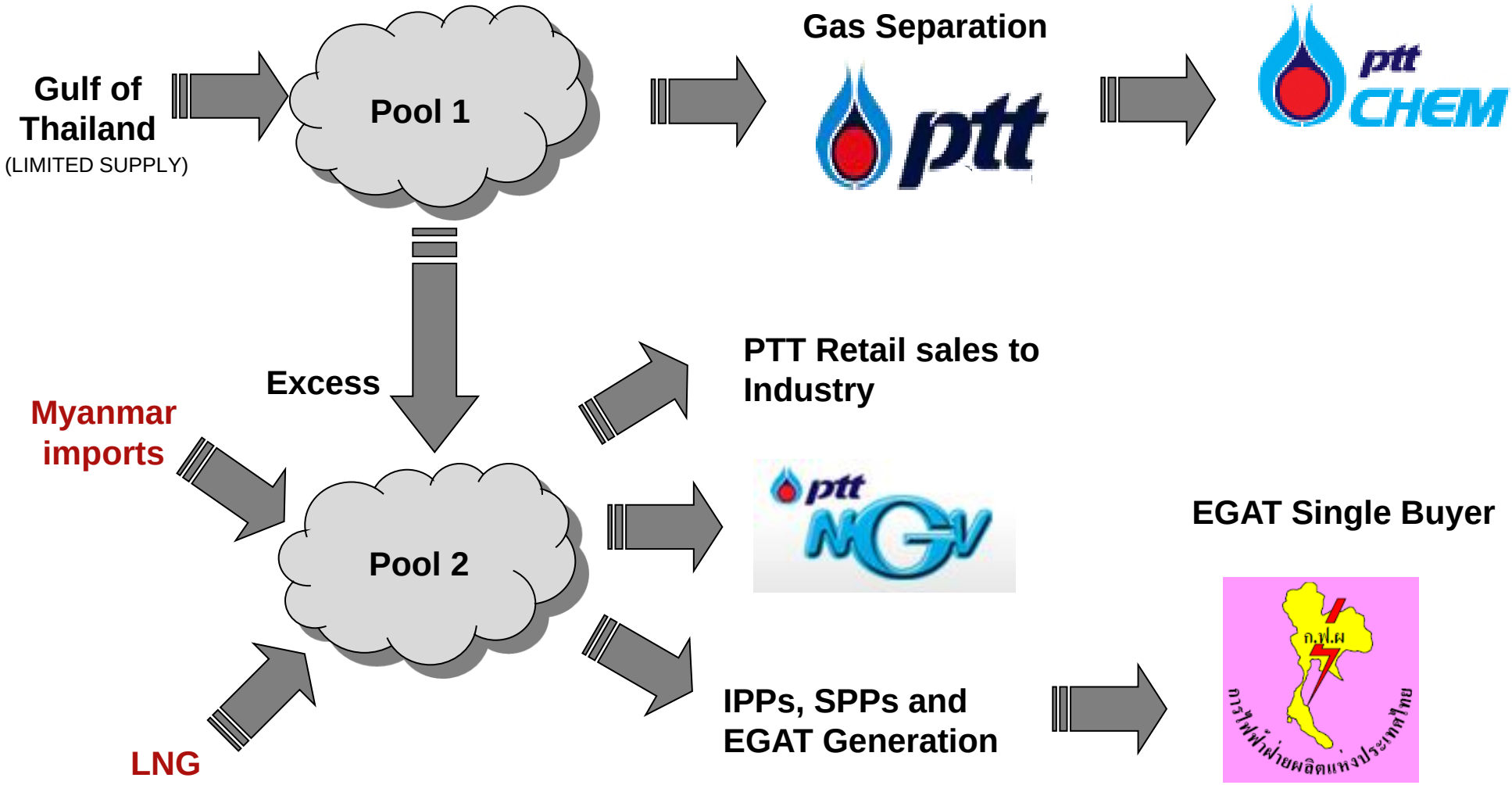
LNG sets the value of Myanmar's gas exports to Thailand…. (1 of 2)



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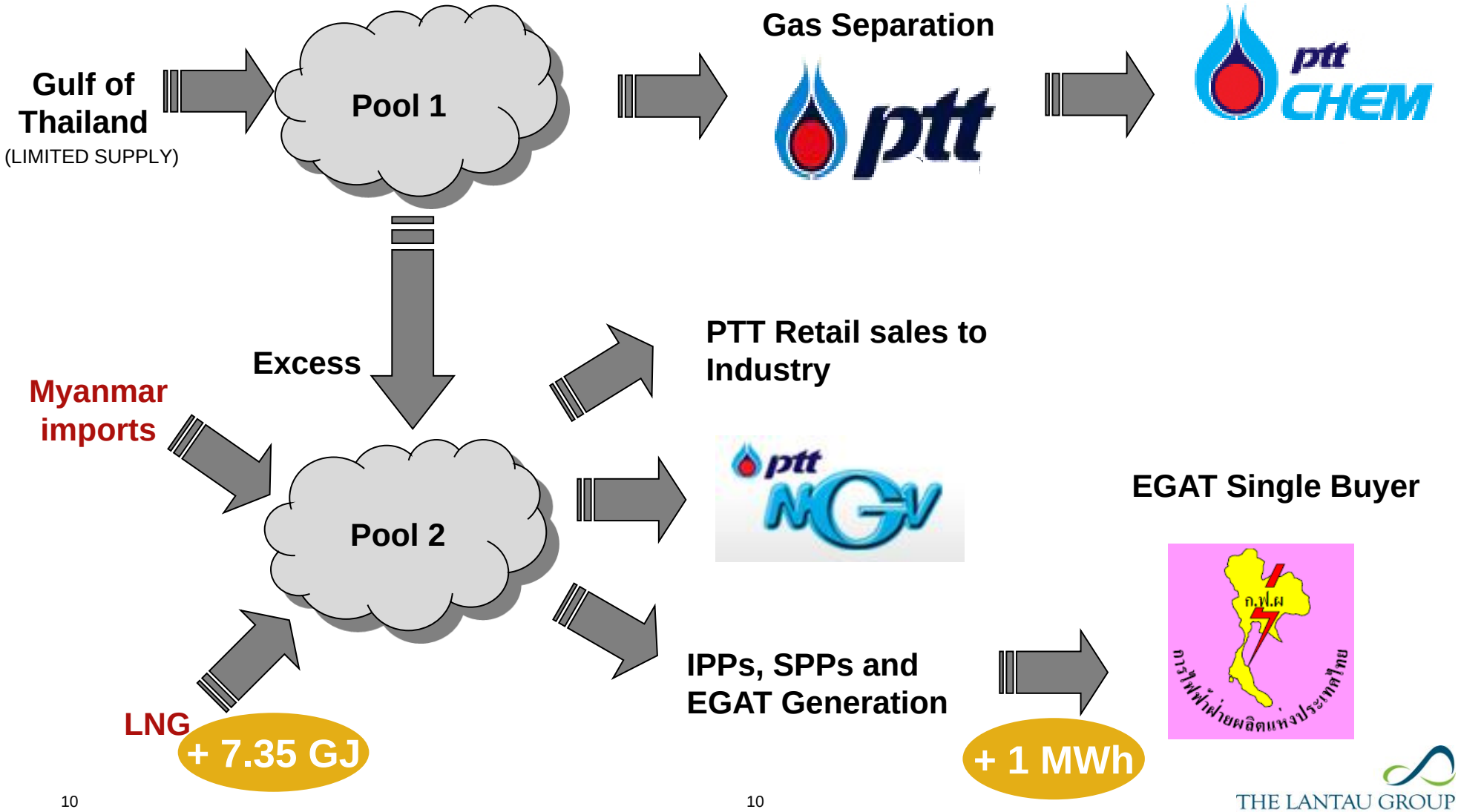
To get more MWh in Thailand, requires more LNG or more Myanmar gas – so value of Myanmar gas is set by the LNG price!



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No wonder so much interest in Myanmar's fuel resources….

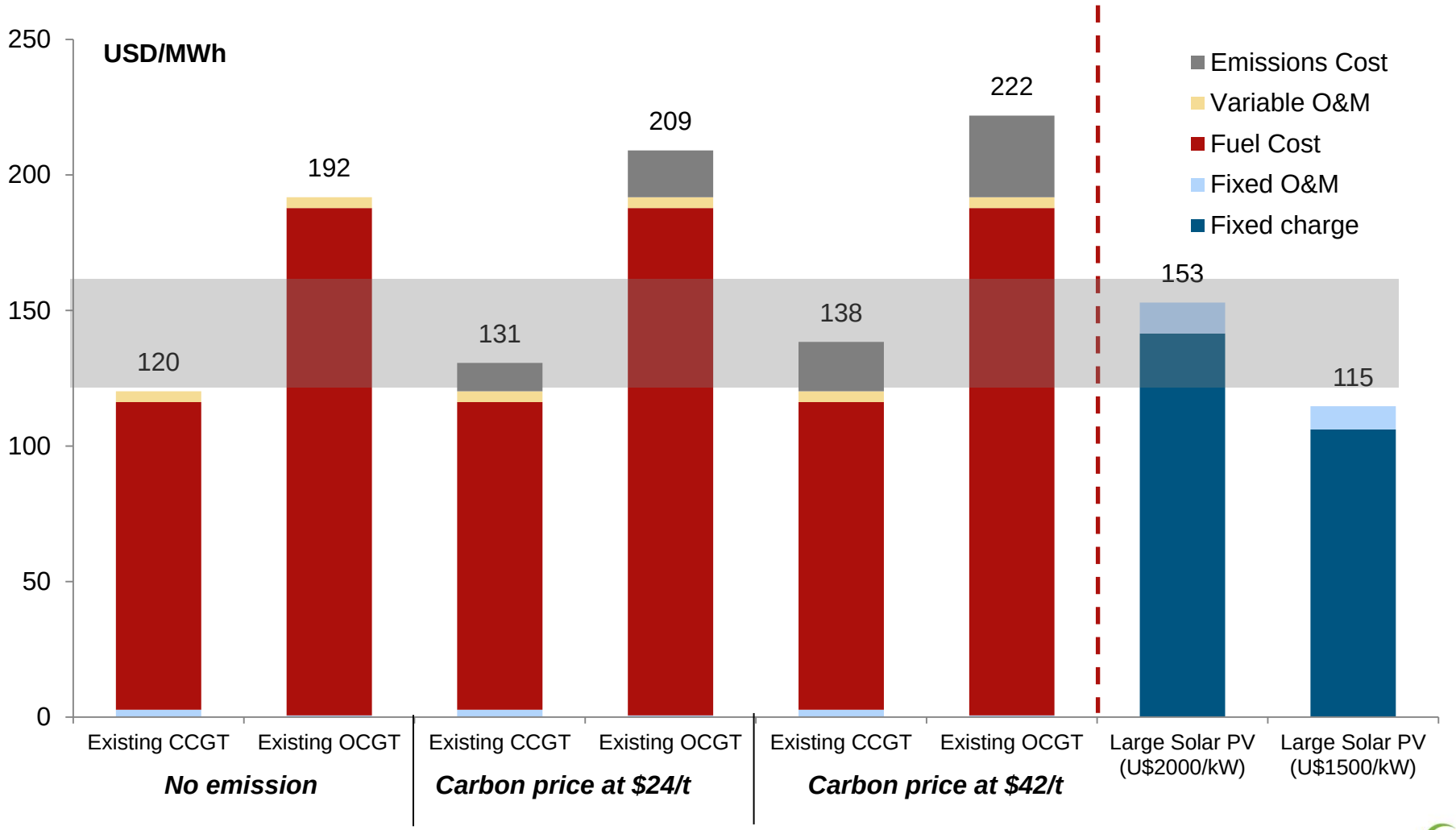
- A low cost contract that looks "ok" or provides "forex benefits" to Myanmar may look "fabulous" to China or Thailand, who otherwise depend on higher cost imported LNG

- Myanmar's hydro resources also provide a way for other countries to reduce their exposure to imported LNG or oil costs

- Raising interesting questions of how to capture the best value for Myanmar's development, especially for the cost of its electrification challenges

The value of resource is a function of the next best alternative

The high value of Asian natural gas makes solar economically attractive – potentially beating even *existing* gas-fired power stations



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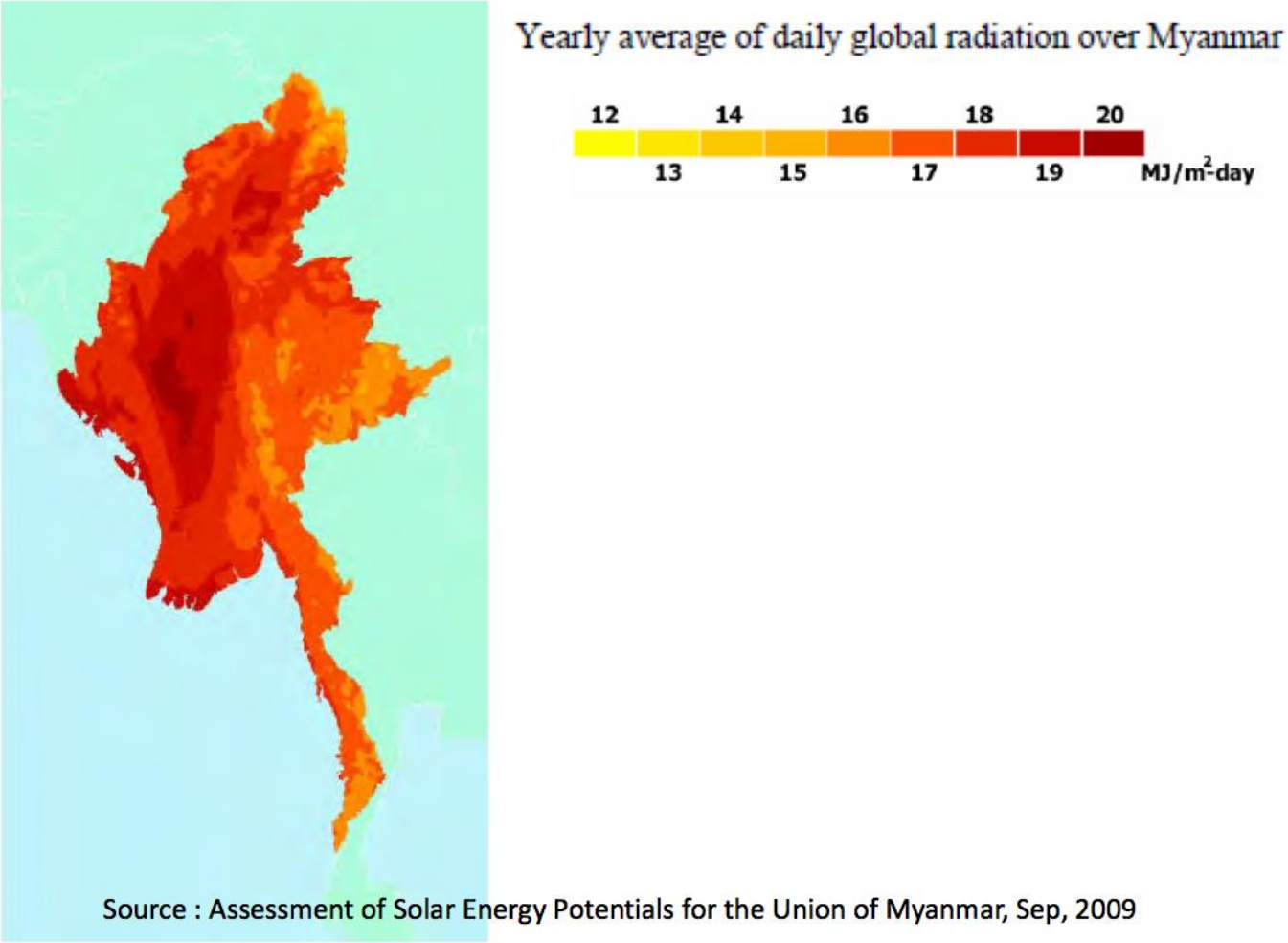
Solar potential is attractive, and will become even more so as technology improves and given the cost of grid development and reinforcement



Source : Assessment of Solar Energy Potentials for the Union of Myanmar, Sep, 2009

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To accelerate these developments much work has to be done on the appropriate commercial and regulatory structures

- The features of a traditional PPA and the role of the IPP are intended to make the buyer *pay attention*
  - You take the risk of what type of capacity (and how much) to procure
  - You take the risk of fuel costs
  - If transmission construction does not keep pace with IPP construction, you may still be paying for energy-not-delivered
  - If demand does not keep pace with IPP construction, you will still be paying for capacity-not-required
  - If the unit is out for maintenance at the wrong time, perhaps the contract allows it to be
- Other valuable system support services may not be ignored (even if the project can technically provide them) if they are not considered up front (such as ancillary services support)

IPPs (with PPAs) are a huge source of valuable capital and expertise, but they are very focused on the project, and not necessarily on benefits or risks to the system-as-a-whole

Mistakes will happen, so focus on smaller developments with learning opportunities

- Mega projects are tempting, but learning and avoiding big regrets can be more valuable

- Mega projects require clearer and more robust structures and significant “competition” if the extra value benefits are mainly to be captured by Myanmar

- Network expansion prioritisation is essential
  - How will power reach each village, community, city
  - If the timeframe is soon, then the local options take one form
  - But if the timeframe is longer before grid-connection, then the opportunities for local supply are more important

- Myanmar has attracted some of the most intense commercial interest in Asia; the challenge is how Myanmar can benefit fairly from this interest!

Summary (1)

UNDERSTANDING THE HOLD-UP PROBLEM

- Why rob a bank?
  - (Because that's where the money is..)
- What makes a large power infrastructure investment like a bank?
  - (Because investors tie up a lot of money in them)
- Why would investors invest if their bank is not safe?
  - (They won't)

Solving the "hold-up" problem requires mechanisms, institutions, and structures that allow "commitment" – just like a bank commits to put your money in a safe

Summary (2)

PLANNING AND IMPLEMENTING PROJECTS WISELY

- Once the hold-up problem is reasonably under control, the other challenge is to figure out how to pick the right investments to commit
  - Always value resources and opportunities relative to the next best alternative

- Investors care about projects, not about countries
  - Any project that can be financed is a good project to the investor
  - But not all projects that can be financed are good projects to the country

Develop a framework for identifying and prioritizing projects – and for applying greater discipline the larger the project and the more irreversible the required commitment

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