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Fiscal Regimes, Petroleum Contracts, and Natural Gas

Asia-Pacific Natural Resource Taxation Conference

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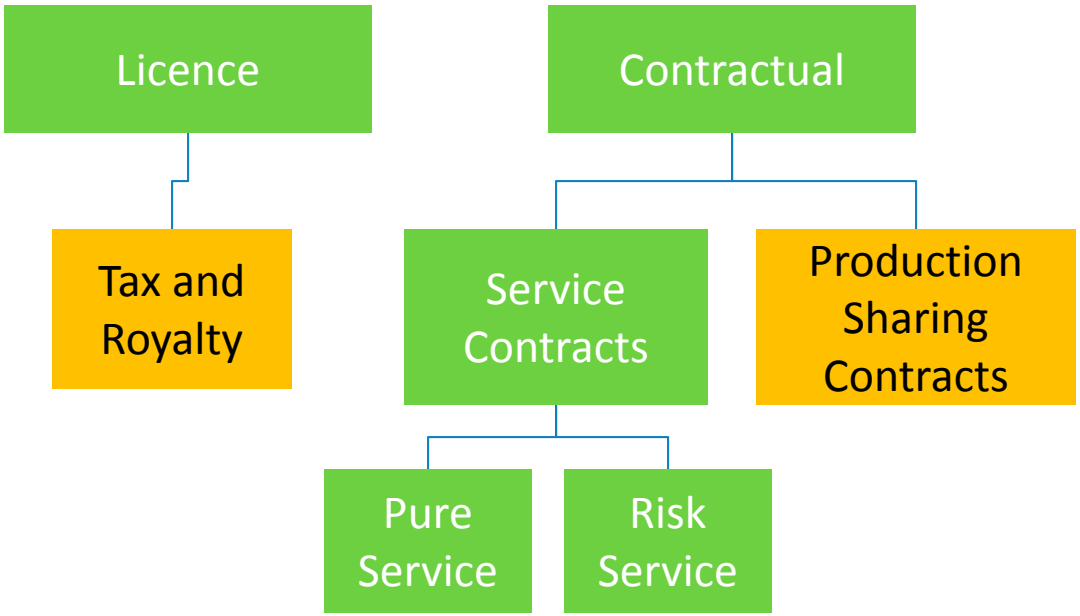
Types of Fiscal Regime



Government usually owns minerals in the ground in both types.

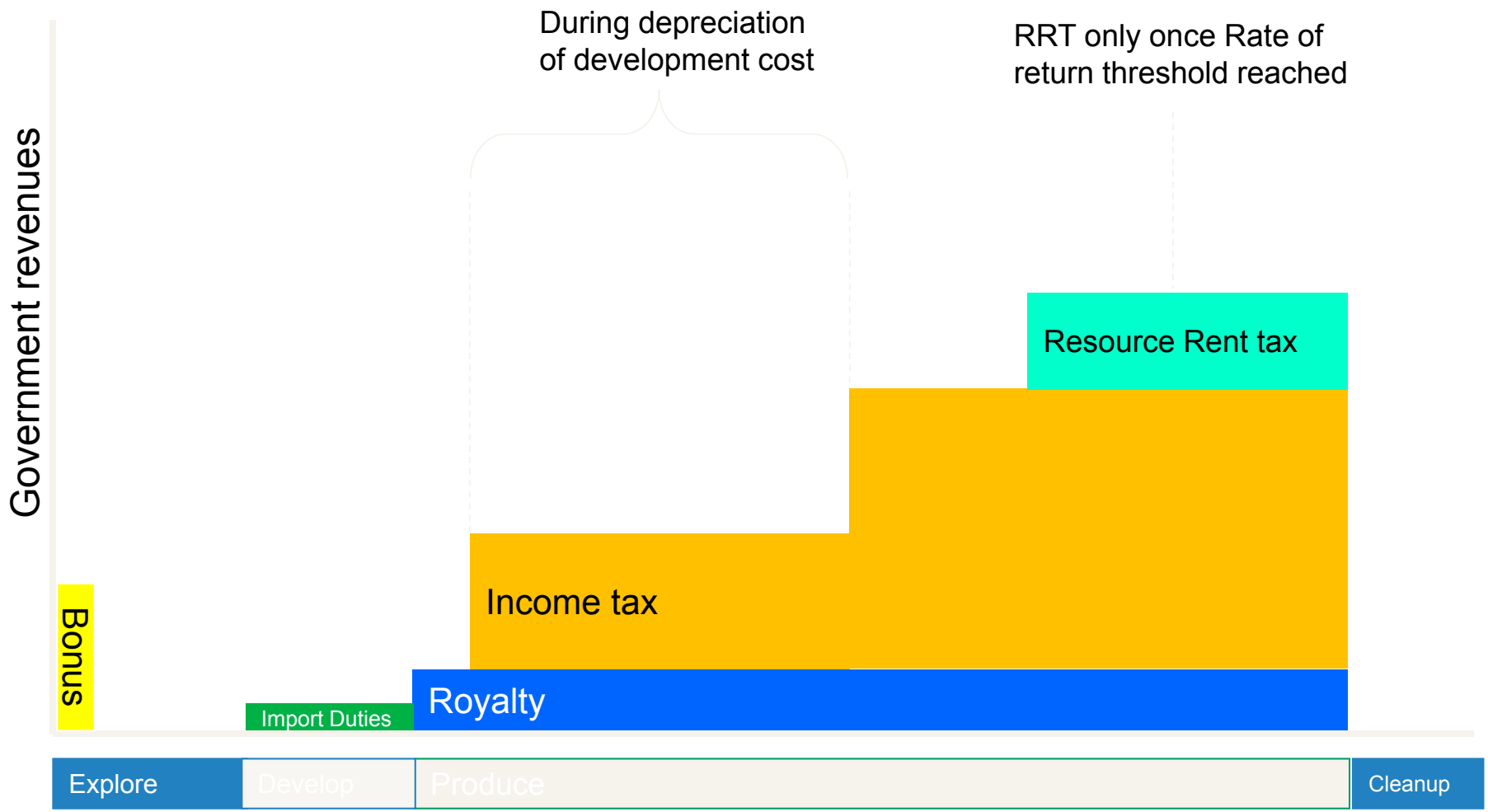
Each involves sharing of proceeds, but by different methods.

- Petroleum – Tax & Royalty and PSC systems most common
- Mining - Tax & Royalty; PSC uncommon
- Mechanics different, but economics can be equivalent
- Most countries have an “hybrid” system

Tax & Royalty

- Investor meets all costs
- Takes and sells 100% of production
- Pays royalty ($ or physical)
- Pays income tax on profit
- Maybe indirect taxes - Import Duties, VAT
- Maybe additional rent-capture mechanisms:
  - Resource Rent Tax
  - Government equity
- Investor “books” all of reserves even though paying taxes

Stylized Government Revenue Profile – Tax & Royalty



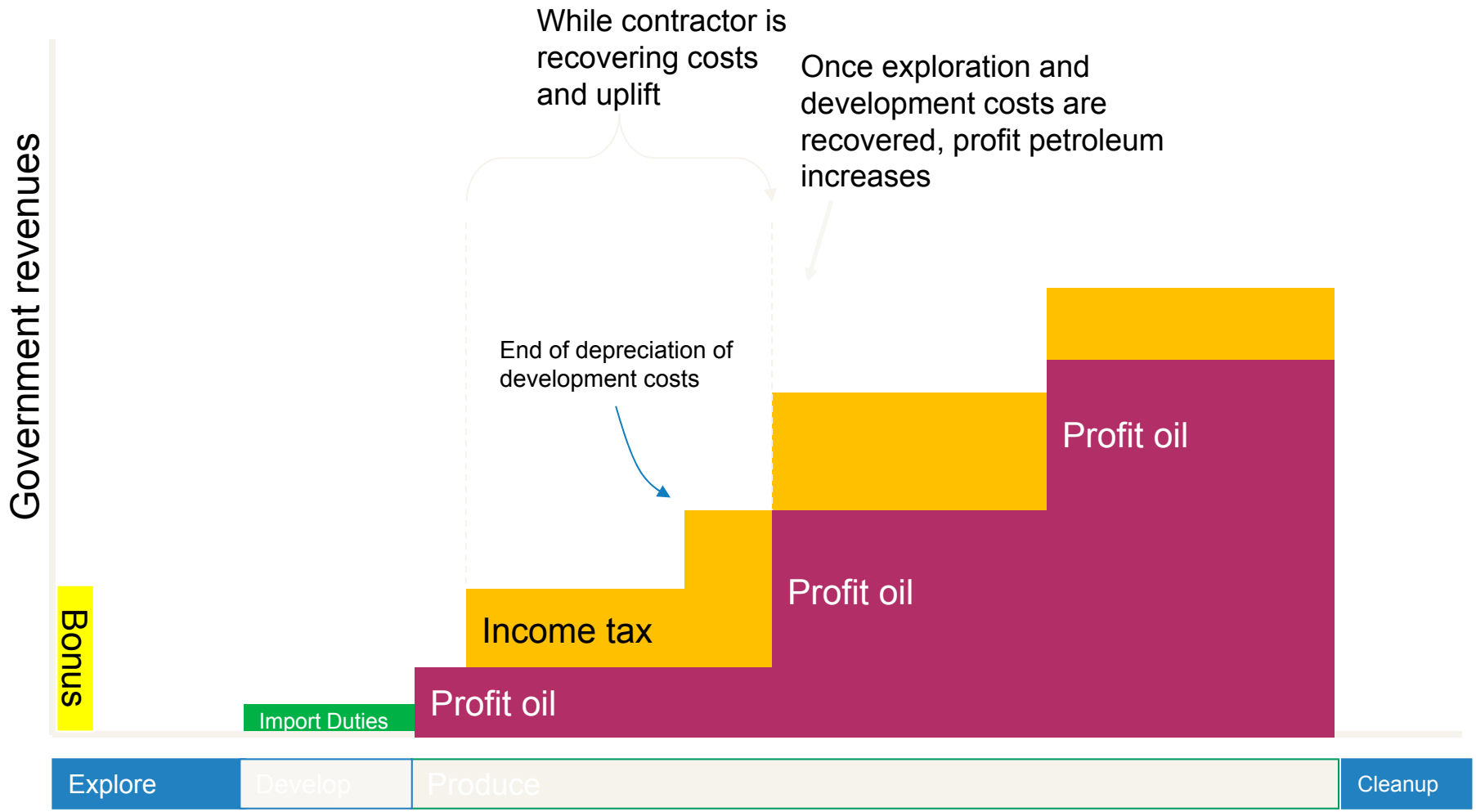
Production Sharing Contract

- “Contractor” meets all costs
- Petroleum shared when produced
  1. Royalty or minimum share via profit oil
  2. Cost recovery (usually limited % of revenues)
  3. Profit petroleum – usually progressive
- Contractor pays income tax on profit
  - PSC system and Tax&Royalty share many features
- May include indirect taxes and government participation
- Contractor “books” only part of reserves

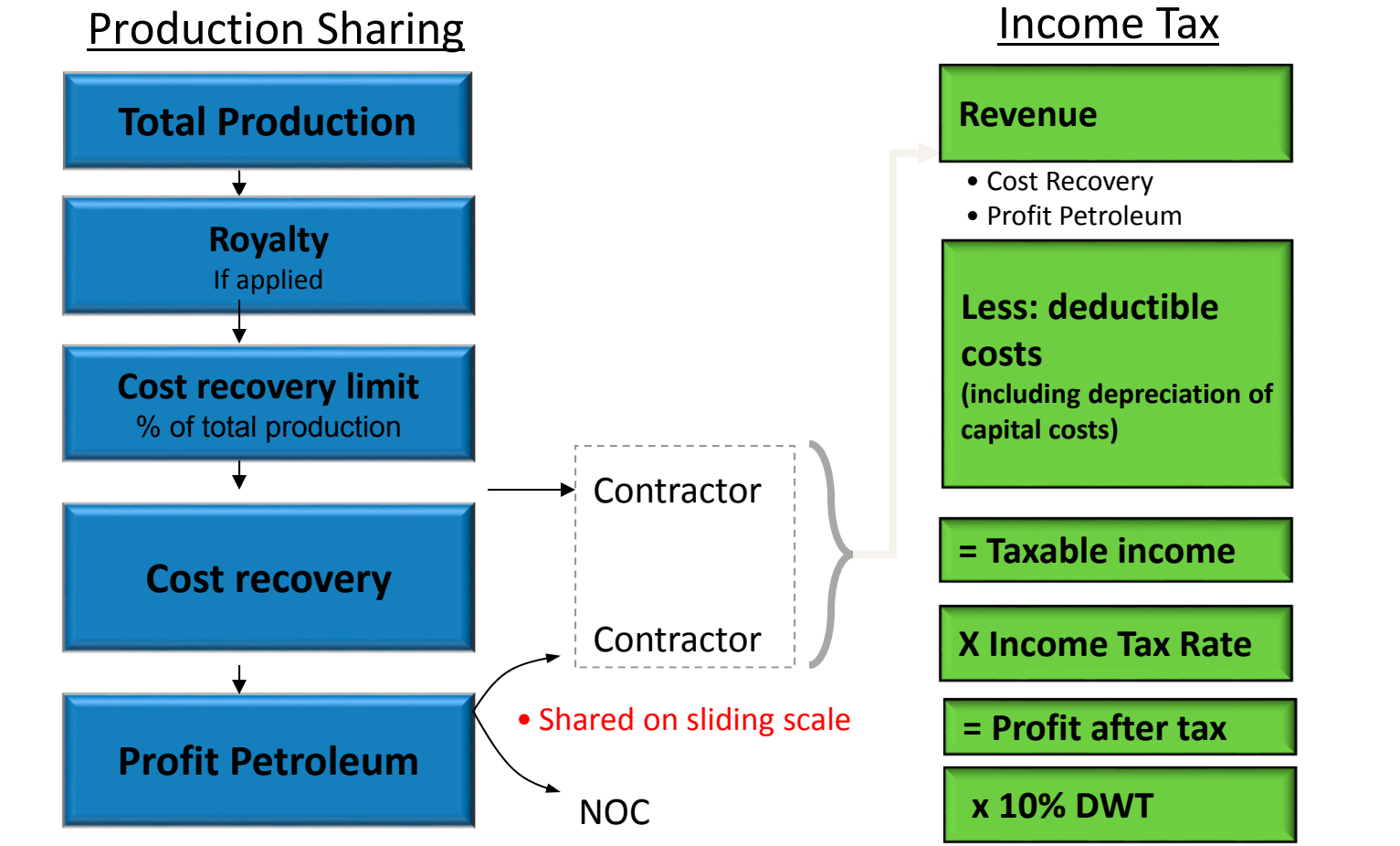
Profit Petroleum Sharing

- Wide range of mechanisms for sharing profit oil
- Usually sliding scale with proxy for profitability:
  - Daily rate of production (sometimes of profit production)
  - Cumulative production
  - R-Factor (cumulative revenues / cumulative costs)
  - Contractor Rate of Return
- Profit Oil split may be pre-tax sharing (contractor paying CIT) or post-tax sharing (Govt paying tax on behalf of the contractor)

Stylized Government Revenue Profile – PSC
With cost recovery limit



PSC + Tax Framework



Government Revenues

- Royalty
- Profit Petroleum

- Income Tax
- Dividend Withholding Tax (DWT)
- Interest withholding tax
- Import duties

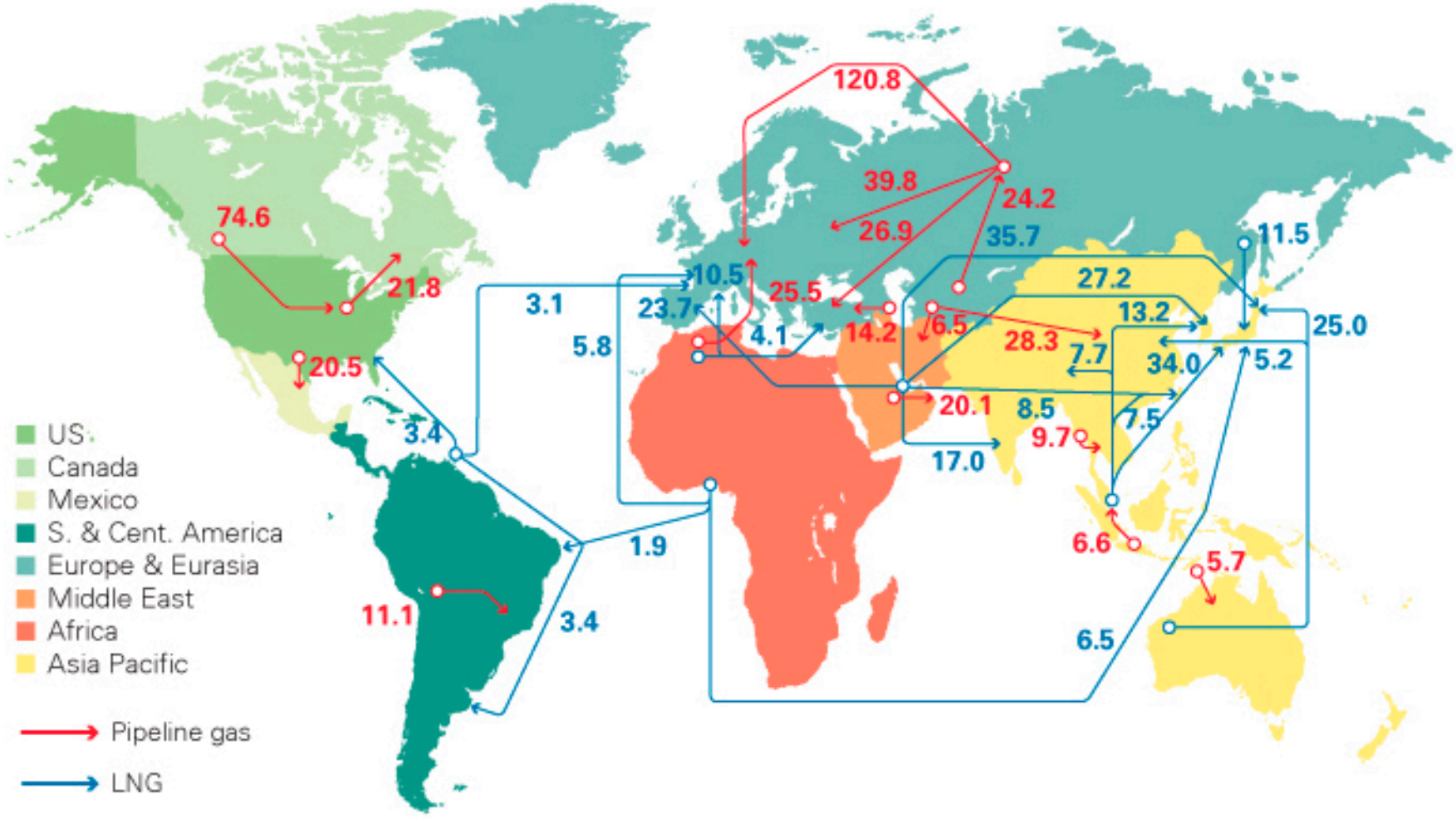
Regional Distribution For Petroleum

	Tax-Royalty Systems			Production Sharing Systems			Service Agreements
Africa (49)	Algeria Angola Cameroon C. Af Republic Chad Congo (Z) Gabon Gambia	Guinea-Bissau Ghana Libya Mali Moroco Namibia Niger	Nigeria Senegal Seychelles Sierra Leone Somalia S. Africa Tunisia Rwanda	Algeria Angola Benin Cameroon Congo (Br.) Cote D Ivoire Egypt Eq. Guinea Ethiopia	Eritrea Gabon Guinea Guinea-Bissau Kenya Liberia Libya Madagascar Mauritania	Mozambique Nigeria Senegal Sudan Tanzania Togo Tunisia Uganda Zambia	
Europe (21)	Austria Bulgaria Czech Republic Denmark Faroe Islands France	Greece Hungary Ireland Italy Netherlands Norway	Poland Portugal Romania Spain Turkey UK	Albania Croatia Malta			
Asia-Pacific (25)	Australia Brunei Japan	New Zealand Pakistan PNG	S. Korea Thailand	Bangladesh Brunei Cambodia China India	Indonesia Laos Malaysia Mongolia MTJDA	Myanmar Nepal Pakistan Timor-Leste Vietnam	Phillipines
FSU (11)	Latvia Kazakhstan Kyrghyzstan	Russia		Azerbiajan Georgia Kazakhstan	Kyrghyzstan Russia Turkministan	Ukraine Uzbekistan	
Latin America (20)	Argentina Bolivia Brazil	Colombia Costa Rica Falkland Is.	Peru Trinidad/Tobogo	Aruba Belize Cuba Guatemala	Guyana Honduras Pananma	Suriname Trinidad/Tobogo Uruguay	Chile Ecuador Mexico Venezuela
Middle East (12)	Israel Neutral Zone Pakistan	Qatar Saudi Arabia UAE		Bahrain Iraq Jordan	Pakistan Oman Qatar	Syria	Iran Iraq Kuwait
North America (3)	Canada	Greenland	United States				
Total (147)		**69**			**70**		**8**

Source: ExxonMobil

Natural gas major trade movements 2014

Trade flows worldwide (billion cubic metres)

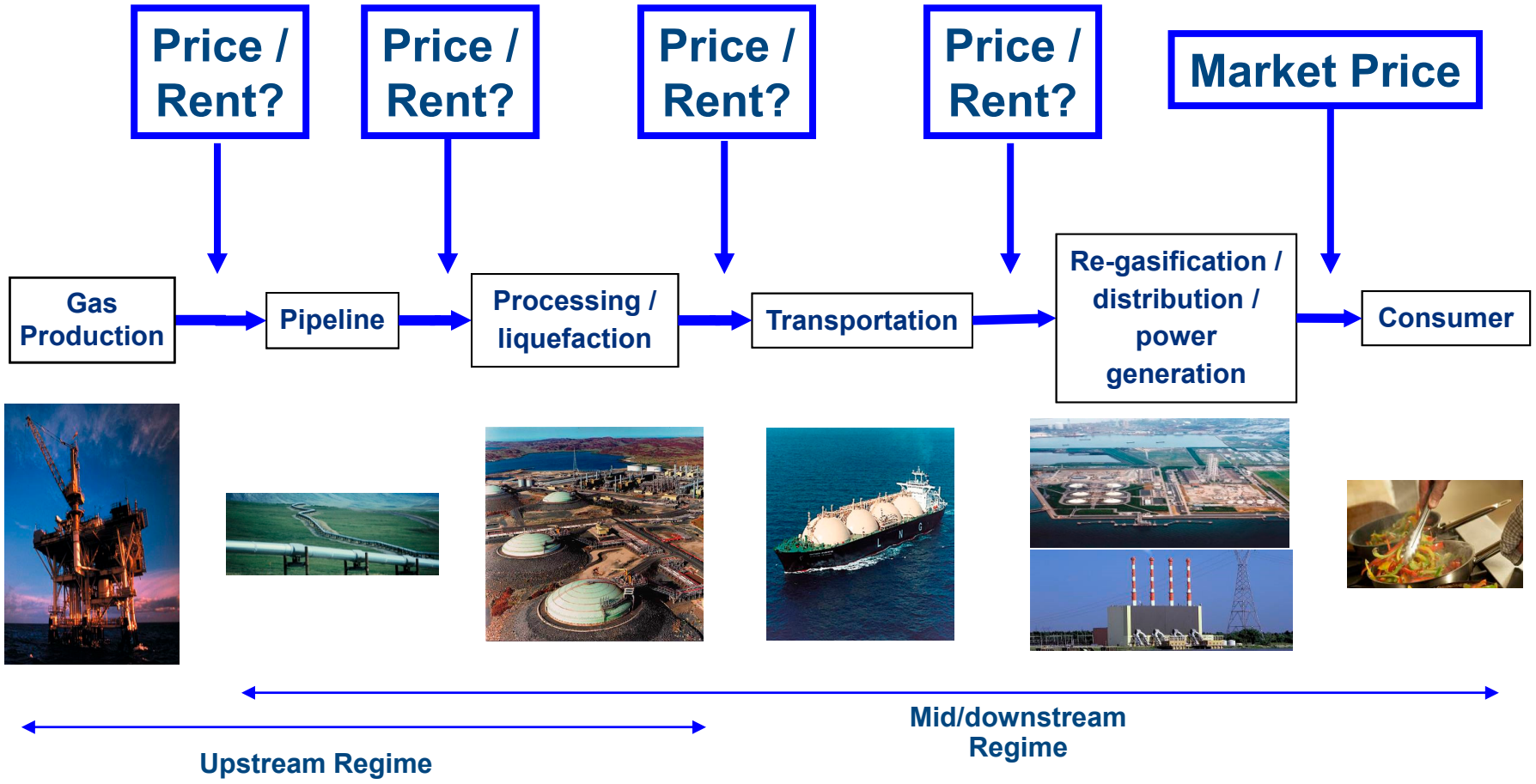


Source: Includes data from Cedigaz, CISStat, FGE MENAgas service, HS Waterhorne, Wood Mackenzie, PIRA Energy Group.

BP Statistical Review of World Energy 2015

Natural Gas Projects

Natural Gas Value Chain



Source: Wood Mackenzie

Natural Gas Value Chain

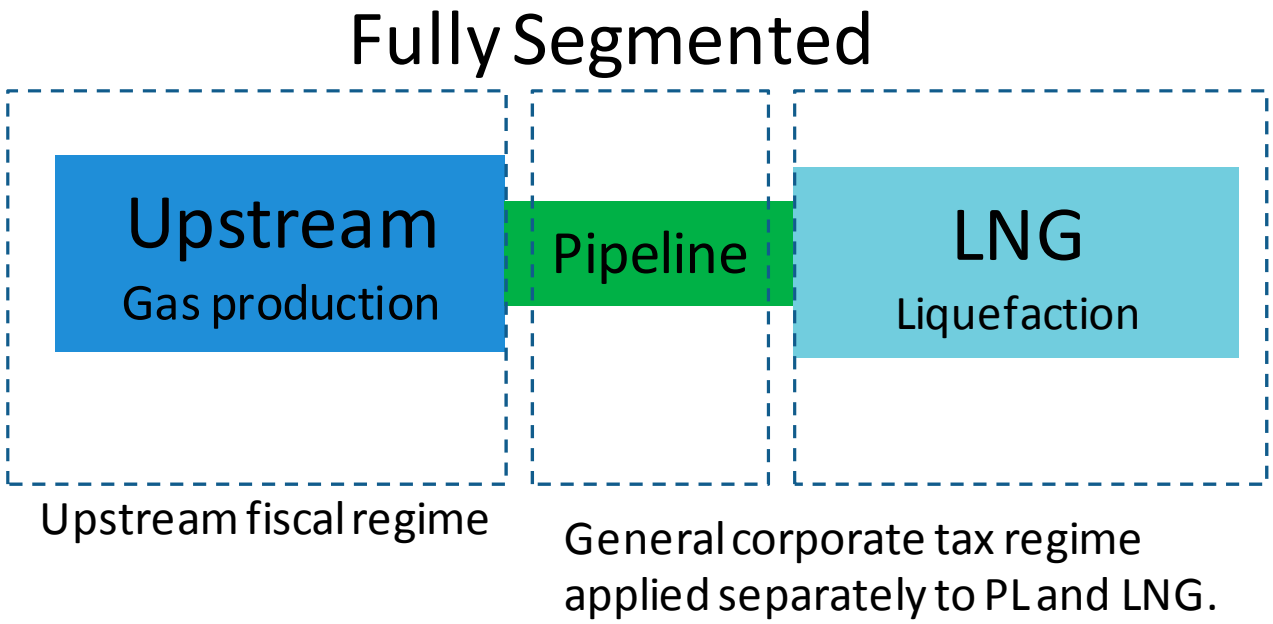
- Separation of gas and oil cost and revenue streams (in combined production) less necessary if fiscal regime profit-related
- The chain can be 'segmented' – different ownership of each link – or 'integrated' – the same companies own the entire chain
- Most integrated projects are either LNG exports or domestic power generation (IPP)
- Major distinction between domestic and export sales: **prices**
  - domestic energy prices in many countries have been regulated and kept as low as possible – now almost universally increasing
  - export prices have been significantly higher and agreed under long term sales contracts, often with some linkage to oil prices
- Another distinction: **costs**
  - export of gas normally incurs significant additional processing and transportation costs
- In a segmented chain, agreements set the price and level of economic rent achieved in each link – may or may not be at arm's length
- Government may own one or more links of the chain and take economic rent
- Where there is common ownership but different tax systems for each link, there are no 'arm's length' prices and proxy transfer prices need to be established
- The alternative is to treat the entire project as the taxable entity

Natural Gas Projects

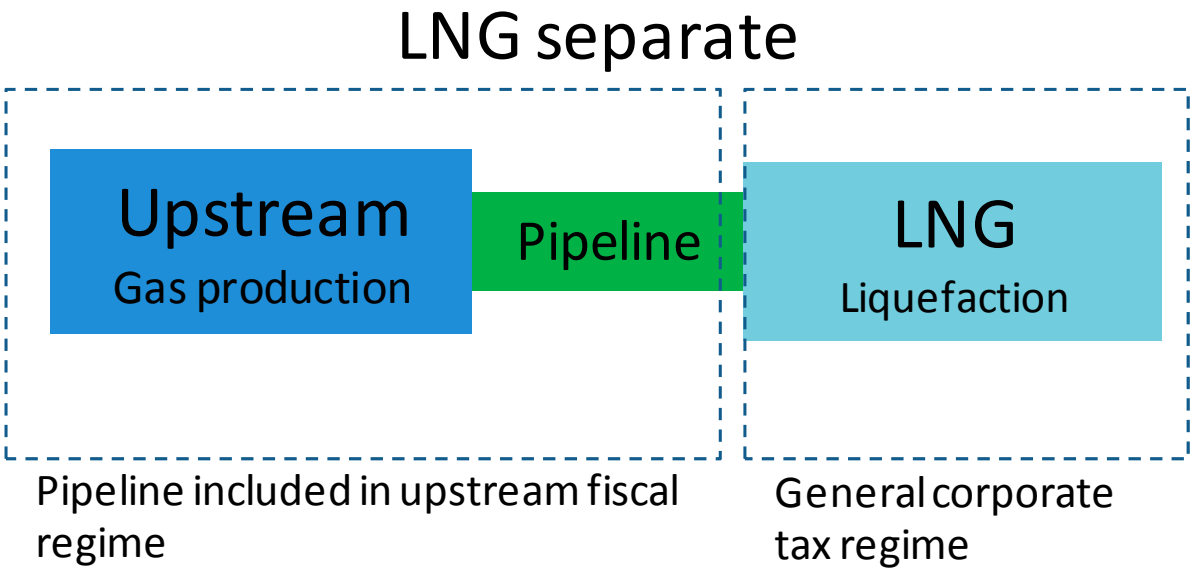
Defining the taxable entity

- Elements of the fiscal regime may only apply to specific links in the chain
- Mid/downstream elements tend to be treated as general industrial projects and are subject only to standard corporate income tax
  - major projects, such as greenfield LNG plants, sometimes receive fiscal incentives; FAD would usually advise against
- Upstream production tends to be subject to more complex fiscal terms
  - bonuses, royalty, production sharing, additional profits taxes
  - corporate income tax usually payable or replaced with a special petroleum profit tax
  - oil and gas production treated separately or together for tax purposes
  - individual licenses or fields may be ring-fenced for elements of the fiscal regime
- The fiscal ‘take’ tends to be much higher from upstream than mid/downstream
- Only projects which have a fiscal ‘ring fence’ around the entire project are truly ‘integrated’ - if different tax systems apply to upstream and mid/downstream then, even with common ownership, the project is ‘segmented’

Segmented project (1)

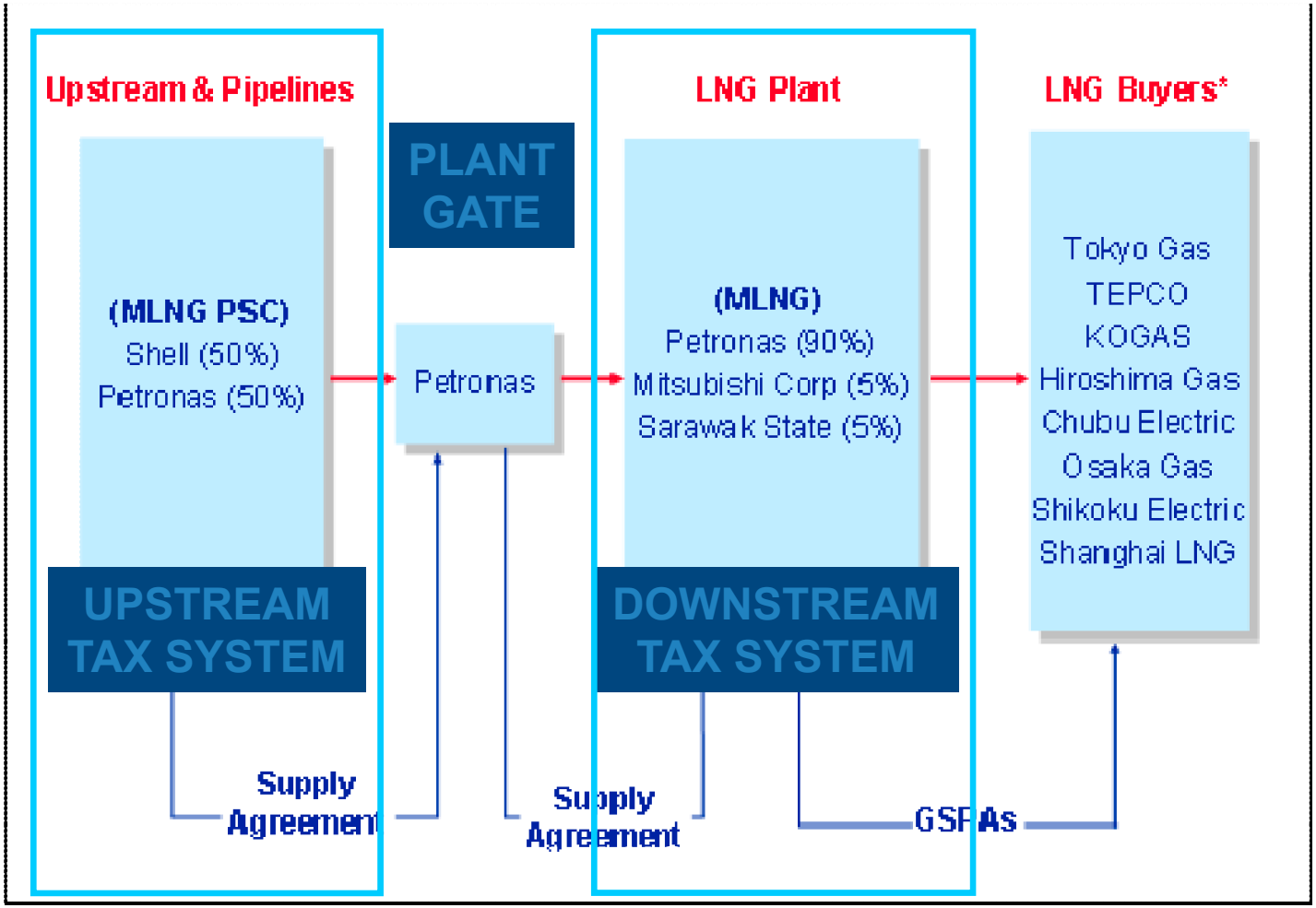


Segmented project (2)



1. Upstream sells feed gas to LNG; LNG plant sells LNG
2. Or, Upstream sells LNG, pays processing fee to LNG

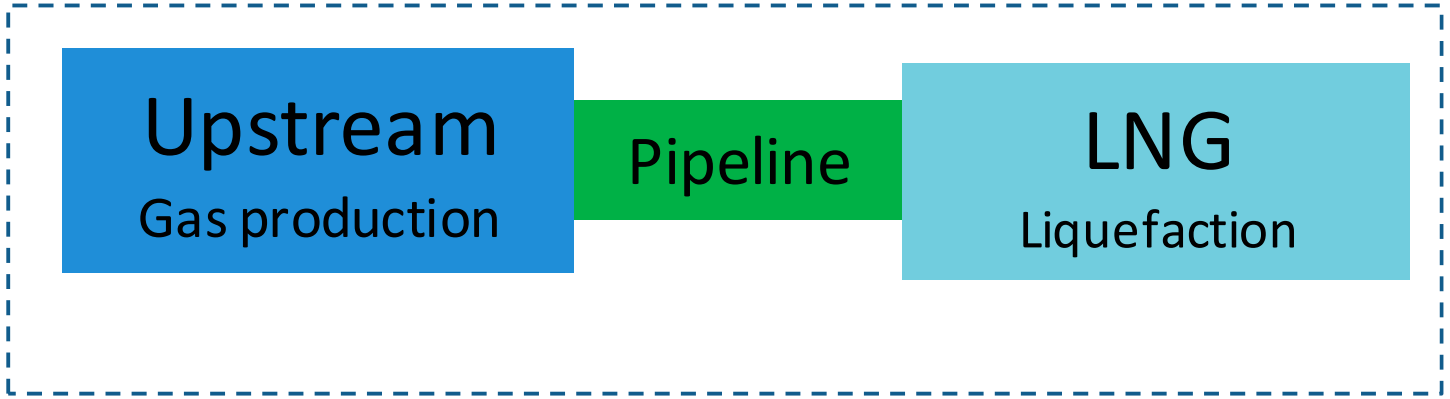
Segmented taxation example: Malaysian LNG



Source: Wood Mackenzie

Aggregated project

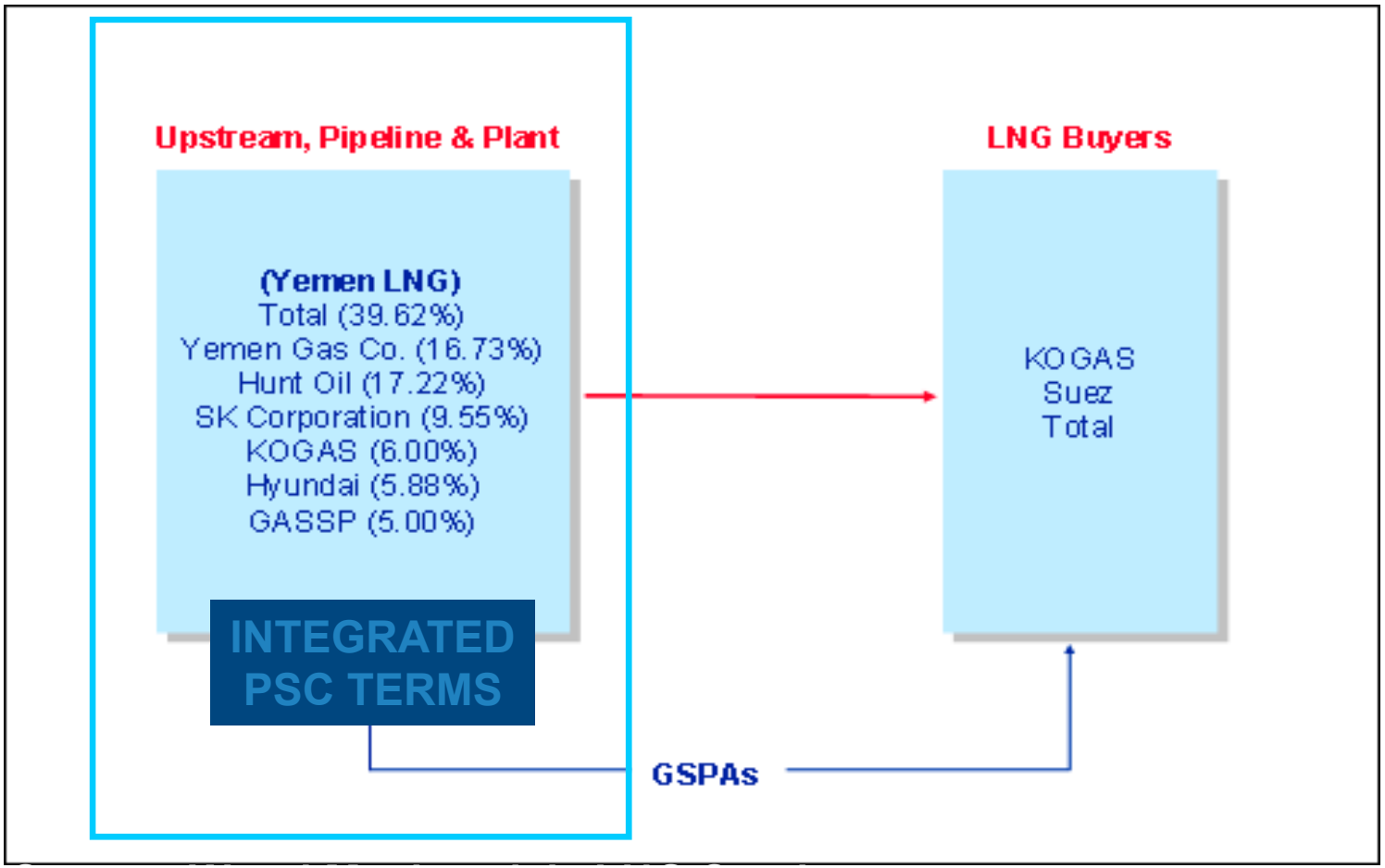
Fully aggregated



Single fiscal regime applied to aggregated project

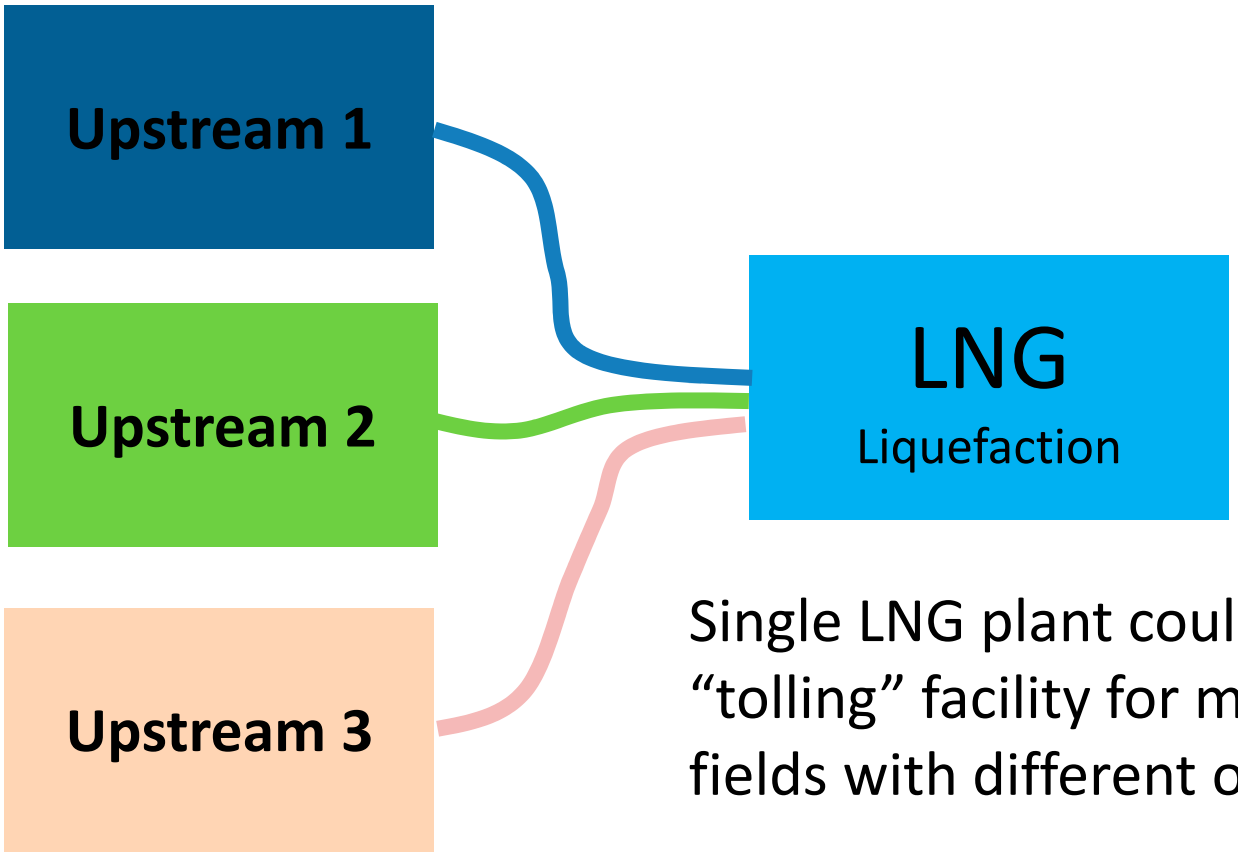
Natural Gas Projects

Integrated taxation example: Yemen LNG



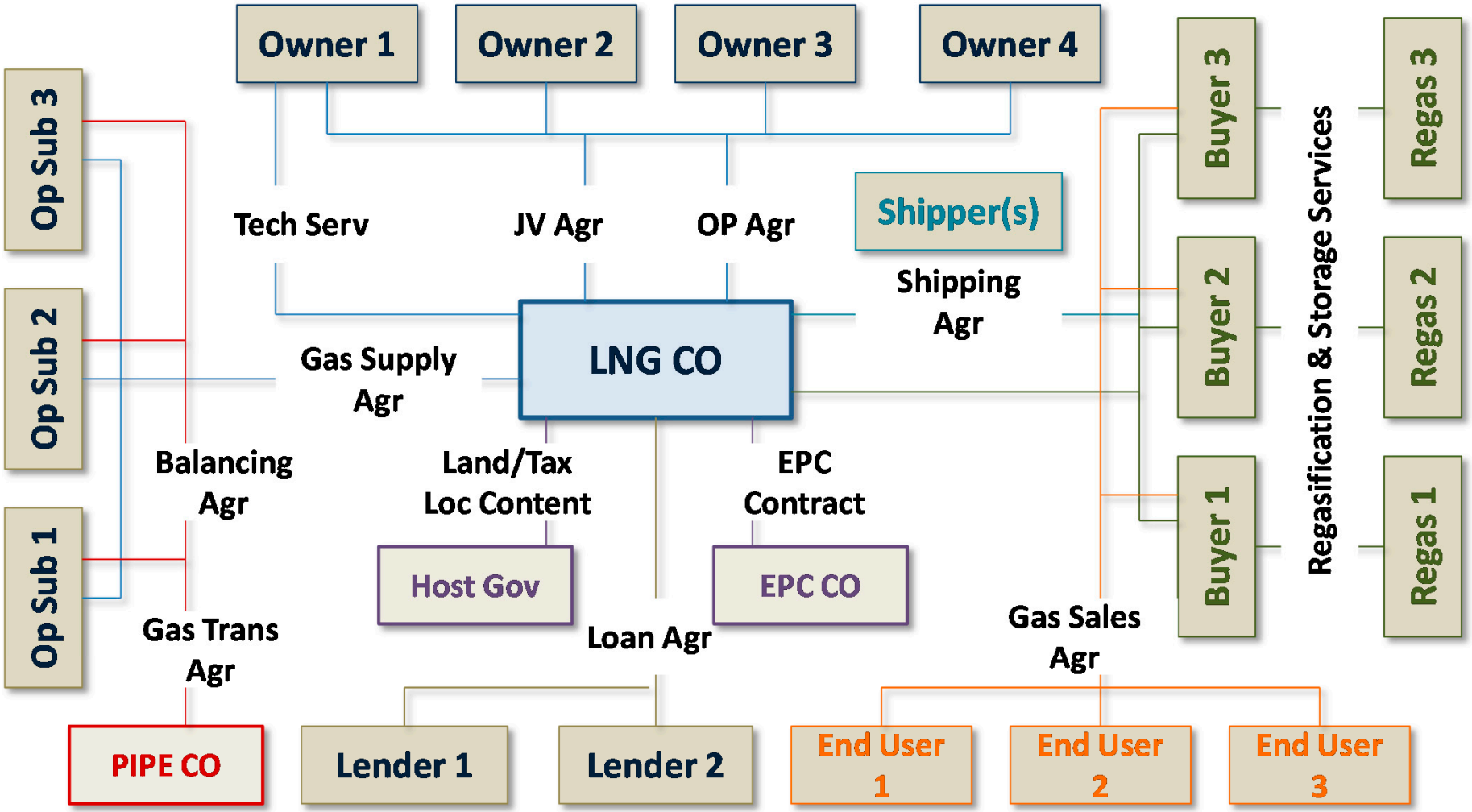
Source: Wood Mackenzie

A key reason to segment



Single LNG plant could operate as "tolling" facility for multiple upstream fields with different owners.

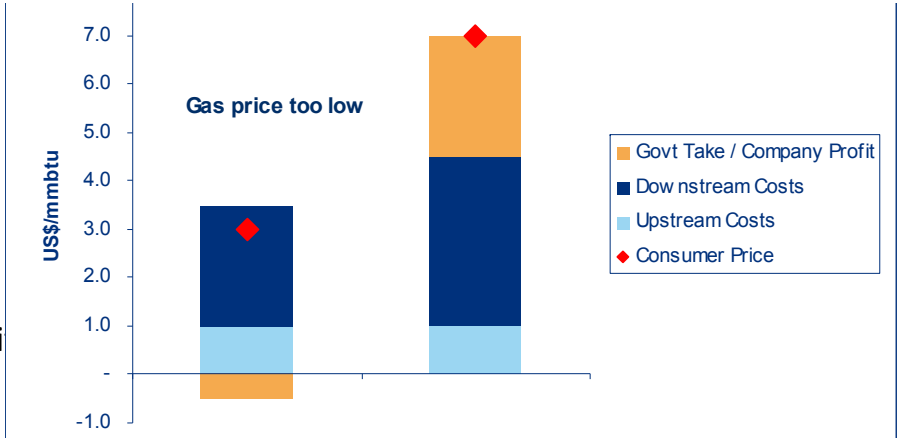
Commercial Complexity

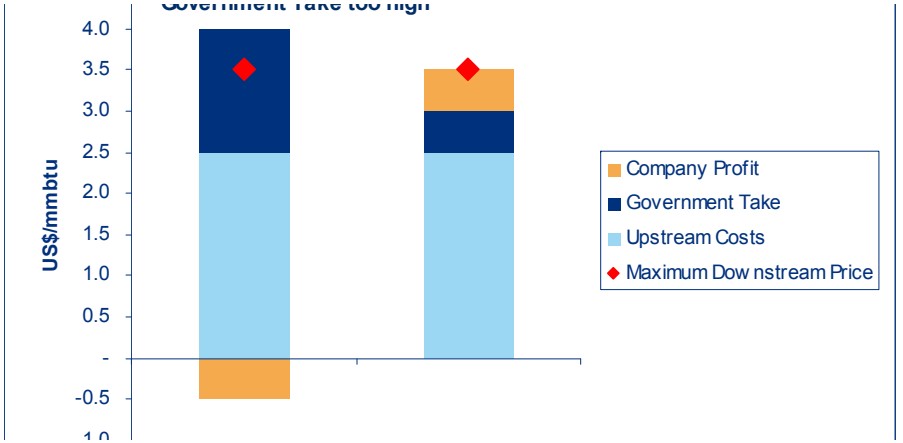


Source: World Bank LNG Import Strategy for World Bank Client Countries. Robert M Lesnick Oil & Gas Program Coordinator David J. Santley Senior Petroleum Specialist

Subsidised Prices or Government Take?

- Domestic gas pricing and fiscal policies must be developed simultaneously
  - Regulated consumer prices can render projects uneconomic (unless subsidized)
  - Fiscal terms need to be adjusted to take this into account
  - Regressive fiscal terms (revenue rather than profi based) can be particularly harmful in a low price environment
- In extreme cases, government may have to subsidise producers as well
  - Nigerian domestic prices have been so low that only oil producers who receive 85% tax relief on capital costs (but pay 30% tax on gas profits) can supply gas economically
- Government to decide between subsidising consumers and collecting fiscal revenue





Natural Gas Pricing & Taxation

Upstream natural gas prices

- Government owns gas and only reimburses costs: Algeria, Oman, UAE
- Government establishes prices for royalty/taxation purposes: Alberta's "select prices"
- Spot markets: currently USA, Canada and UK, and beginning to develop in Europe
- Gas price formulae are established in upstream contract: Egypt PSC, Timor-Leste
- Consumer contracts
  - normally 20-30 years with volume and price commitments – this is the most common form of pricing for direct sales to consumers in developing countries
  - consumer contracts for export sales are normally agreed with the plant owners and the upstream "share" of the price (netback) needs to be established
- Consumer price netbacks
  - upstream receives final sales price less regulated tariffs/tolls payable to mid/downstream operations (Indonesia, Trinidad (Atlantic LNG 2/3/4))
  - upstream receives a fixed % of FOB sales price (Nigeria LNG)
  - upstream and downstream agree sharing of final sales price (e.g. Trinidad (Atlantic LNG 1))
  - Upstream price agreed by "competing fuels" formula: Mozambique to South Africa project
- If upstream and mid/downstream owners are the same but tax rules are different, a proxy transfer price is required

Petroleum valuation

- Value for profits tax, royalty, production sharing should be identical or easily reconciled
- Taxing point = delivery point
- All liquids (except LNG) treated as oil
- Government right of approval over gas contracts and pricing terms
- Recognize arm's length prices/terms where available
- Rules for determining pricing where no contract
  - Advance Pricing Arrangement
  - Comparable Uncontrolled Price
  - Index to competing fuels

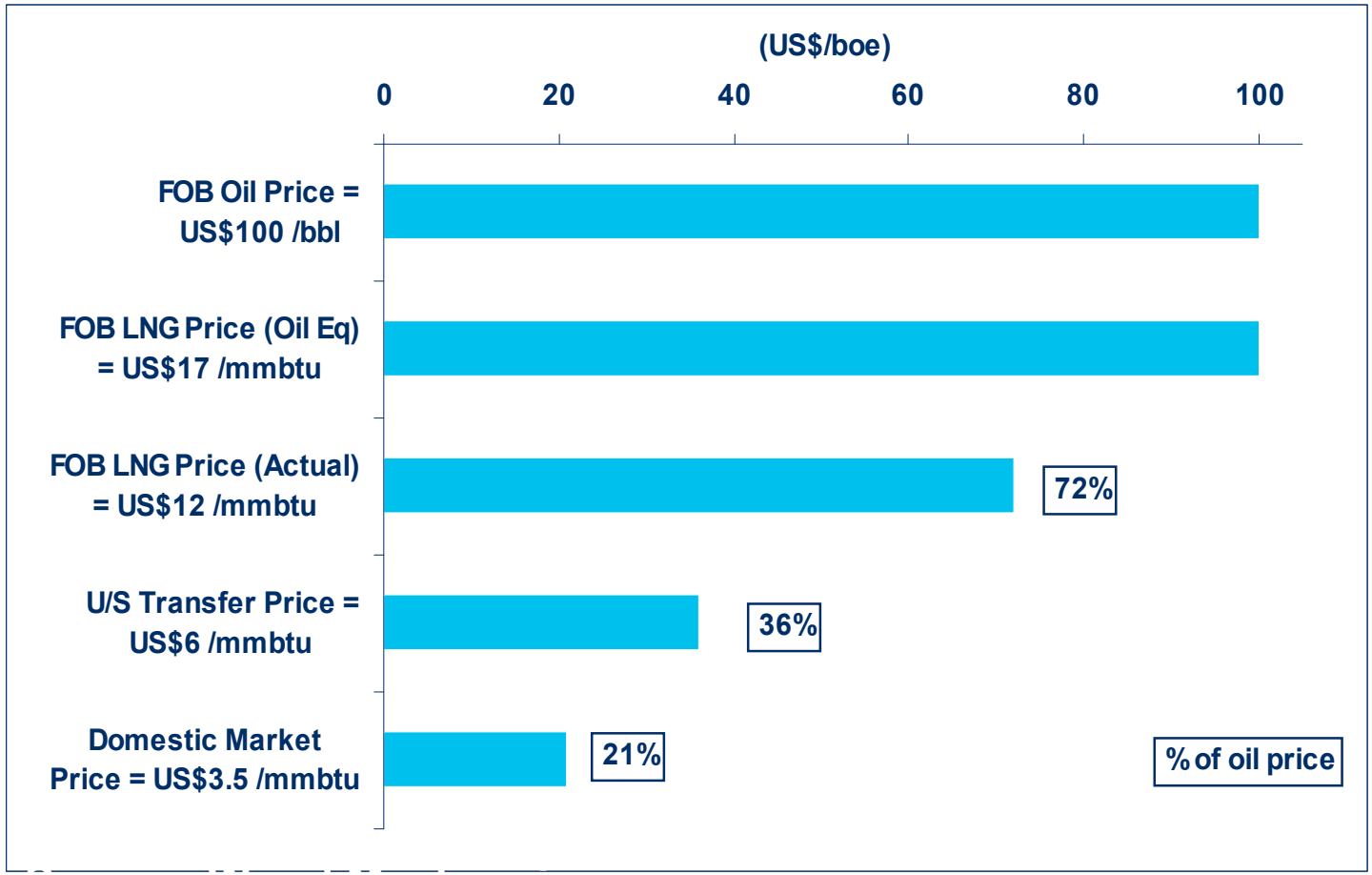
Differentiating Fiscal Terms

Gas vs Oil - 1

- Upstream gas project economics are normally much less robust than oil
  - lower prices per b.o.e. (either domestic regulations or export netbacks)
  - higher transportation costs
  - longer, flatter production profiles (which reduces the present value of future production)
- To compensate, many governments offer fiscal incentives to gas
  - lower royalty rates (Nigeria, Tunisia, Vietnam)
  - higher cost recovery ceilings and/or profit shares (Egypt, Indonesia, Malaysia)
  - lower tax rates (Nigeria, Tunisia, Papua New Guinea)
  - exemption from certain oil taxes (Trinidad & Tobago (SPT))
  - Deductions for gas infrastructure against oil revenue streams (Trinidad and Tobago, Nigeria)
- Alternative approach is to levy additional taxes on export sales to reduce incentive to export
  - Argentina, Russia
- Where local gas prices are not regulated, fewer (if any) incentives offered
  - USA, Canada, Norway, UK

Differentiating Fiscal Terms

Oil vs Gas Prices



Source: Wood Mackenzie

Differentiating Fiscal Terms

Gas vs Oil - 2

- Increasing trend toward linking fiscal take to project profitability permits the same fiscal terms to apply to oil and gas
  - automatically provides lower take from less valuable projects and vice versa
- Major issue in differentiated fiscal regimes is the treatment of liquids associated with gas production (condensate) – treat as oil or gas revenues?
  - high liquids content reduces breakeven gas prices and can often “make or break” gas projects
  - very high taxation (oil rates) on condensate can nullify this – (North West Shelf gas project in Australia, now superseded by PRRT)
  - particularly important issue when gas is associated with oil production

Conventional gas pricing mechanisms

Cost-plus principle (additive methodology)

Sales price = production cost + transportation services + overheads + profit margin

"Market-value" or netback value principle (subtractive methodology)

- Introduced in 1962 by Dutch Minister of Economic Affairs as the basis for natural gas marketing (previously the cost-plus principle was used)

"Netback value" at the point of sale = "market value" of natural gas in inter-fuel competition (in each market sector) - costs of transport services - overheads and profit margin

Long-term oil-indexed contracts

- Remain the dominant form of GSAs in northwestern Europe

Europe Model

$Pn=Po \times (W1 \times F_1/F_{1(t=0)} + W2 + F_2/F_{2(t=0)})$	
Po	Original negotiated price at time 0
W	Weighting factors/percentage of alternate fuels
F1, F2	Alternate Fuels' prices published by third parties, low/high sulfur fuel oil, and coal are common alternative
Inflation Component	May be added.

Japanese Model

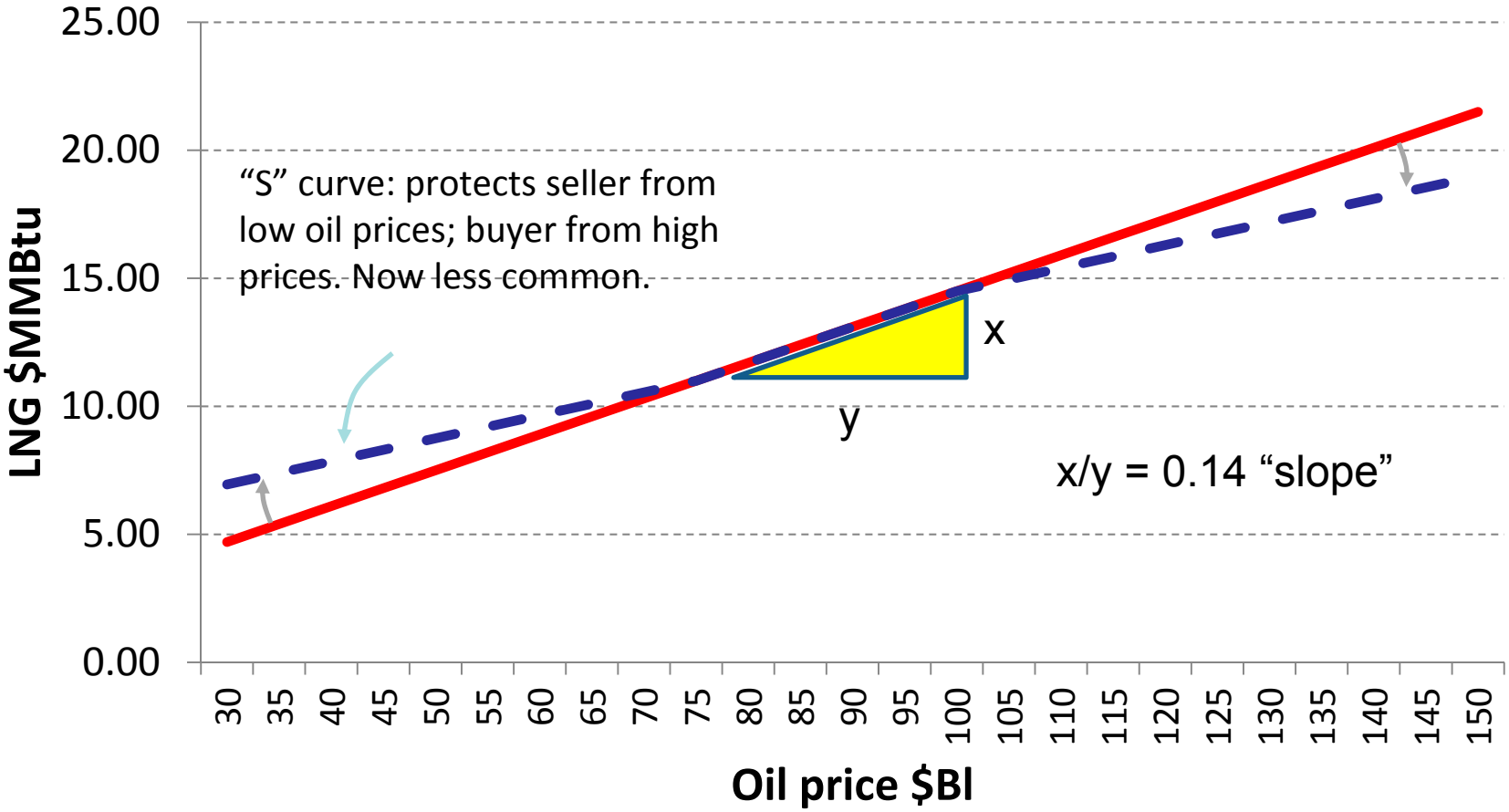
$Pn= C_o + B_1 \times$ Brent	
Co	Base Price
B_1	Coefficient of adjustment
F1, F2	A basket of fuels' prices published by third parties,
Inflation Component	May be added.

LNG pricing

- In Asia, a formula relative to oil
  - LNG $MMBtu = Oil price $Bl * A + B
    - A = “slope”; 0.14 – 0.15 in some deals
      - $100 Bl * 0.14 = $14.00 MMBtu LNG
        = around 80% “parity “ with oil
      - Perfect “parity” would be slope 0.172 /1
    - B = constant (negotiated, maybe zero)
- In India; formula relative to competing fuels
- Distance to customer matters: shipping costs

1/ = 1 / 5.8 MMBtu per Barrel oil

LNG “slope”


25.00
20.00
15.00
10.00
5.00
0.00
LNG $MMBtu
“S” curve: protects seller from low oil prices; buyer from high prices. Now less common.
x
y
x/y = 0.14 “slope”
30
35
40
45
50
55
60
65
70
75
80
85
90
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120
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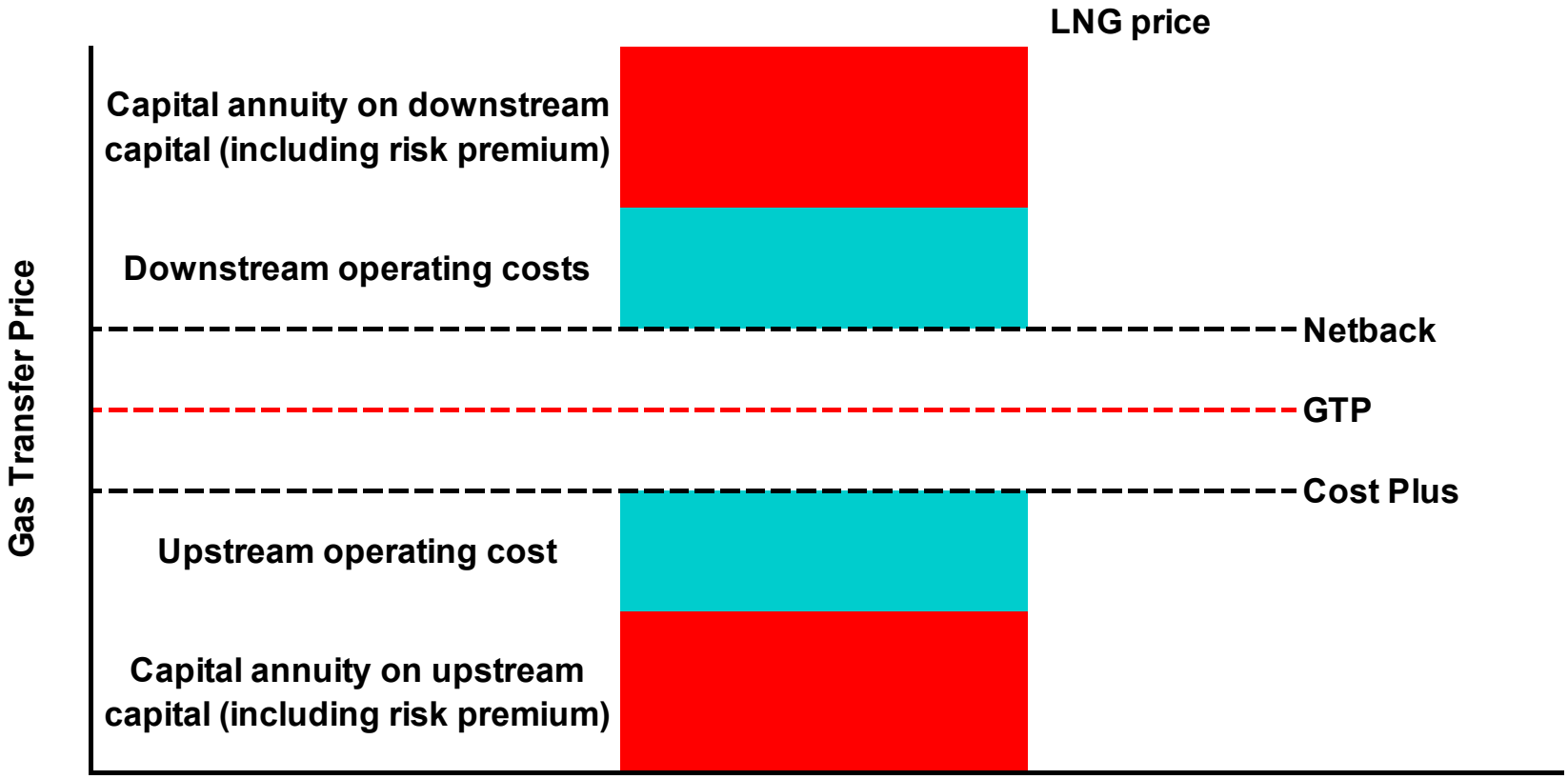
130
135
140
145
150
Oil price $Bl

Residual Pricing Mechanism - Australia



Conclusions and implications for tax policy

- Domestic gas pricing and fiscal policies must be developed simultaneously
- If upstream and downstream fiscal regimes are different – which is normal – there is a strong rationale for upstream and mid/downstream operations to be segmented
- Where ownership of upstream and mid/downstream operations is the same, a proxy transfer price needs to be established
- Alternative approach is to have a separate tax regime for integrated gas projects and treat the entire project as the taxable entity
- Role of national oil company normally very important as it may have different equity interests in upstream and mid/downstream
- In integrated export projects, government needs to closely monitor and benchmark agreed market prices and costs in each link of the chain to ensure taxable income is fairly calculated
- Government and producers should aim to share in realised market prices which are greater than expected – needs to be addressed in gas sales agreements
- Gas projects may require more attractive fiscal terms than oil projects - although fiscal terms linked to project profitability could apply to both
- Where liquids are taxed at a higher rate than gas, it is important to consider how condensate is treated – if liquids, then higher tax revenue, but also a higher price will be required for gas