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Indonesia's Experience with IPPs: Food for Thought

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Indonesia's IPP Experience

- Introduction: The development of Indonesia's IPP Regime
 - Rapid economic growth
 - Generous fuel supply
- “High Cost” economy



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Indonesia's IPP Experience

- The development of Indonesia's IPP Regime
 - Rapid economic growth
 - Typical growth rates of 6-8% p.a. in late 1980s and early 1990s
 - Power demand was growing at 9-12% p.a.

Although the country has more than 17,000 islands, the main theater was seen as the Java-Bali Grid

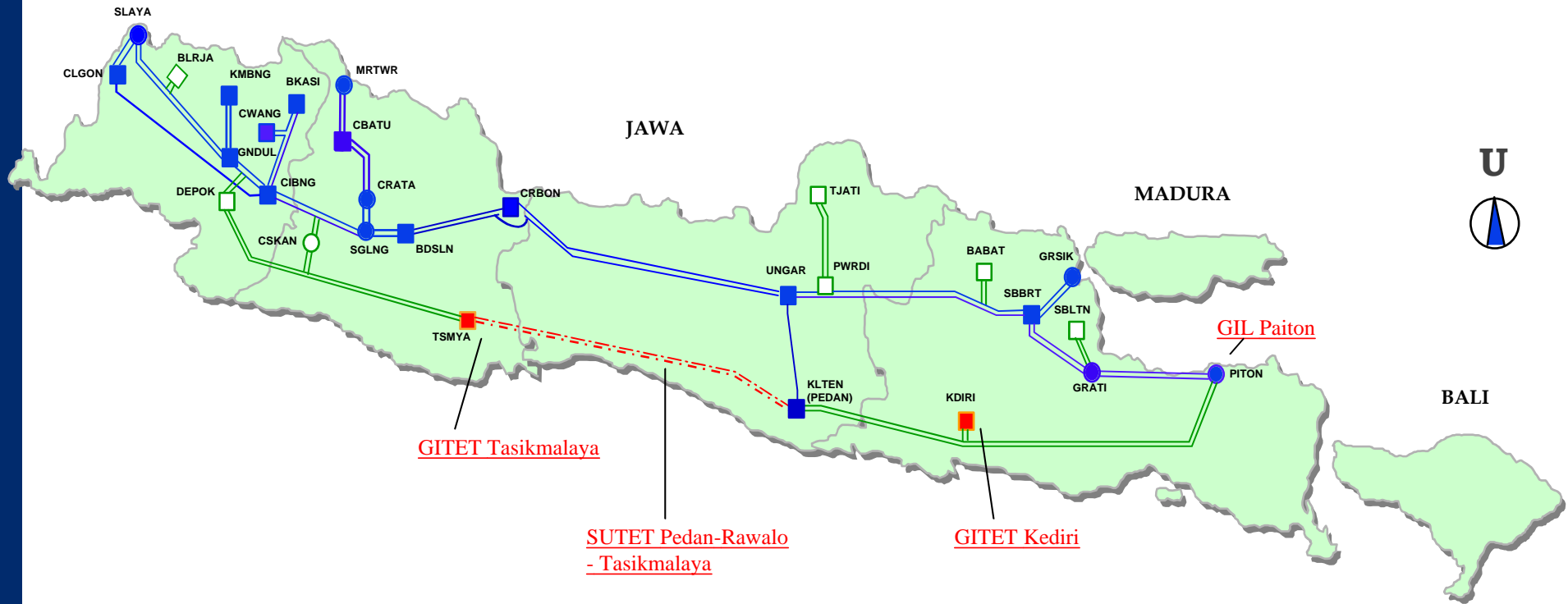


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500 KV JAVA-BALI GRID



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Keterangan :

- Gardu Induk Tegangan Extra Tinggi (GITET) Existing
- Gardu Induk Tegangan Extra Tinggi (GITET) Rencana
- Saluran Udara Tegangan Ekstra Tinggi Existing
- Saluran Udara Tegangan Ekstra Tinggi Rencana
- - - - Saluran Udara Tegangan Ekstra Tinggi Rencana (PTUN antara PLN-Bukaka)
- GIL Gas Insulated Lines



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Indonesia's IPP Experience

- The development of Indonesia's IPP Regime
 - PLN was unable to finance expansion
 - Uniform national prices left revenues below costs throughout archipelago
 - Advice of IFIs was:
 - Restructure the system
 - Contract out expansion plan



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Indonesia's IPP Experience

- The development of Indonesia's IPP Regime
 - “High Cost” economy
 - Indonesia was known as an expensive place to do business
 - Power sector faced international costs *plus* “Indonesia Price Factor”
 - Domestic fuel prices were controlled

The Ministry of Finance was expected to pick up the tab for any difference

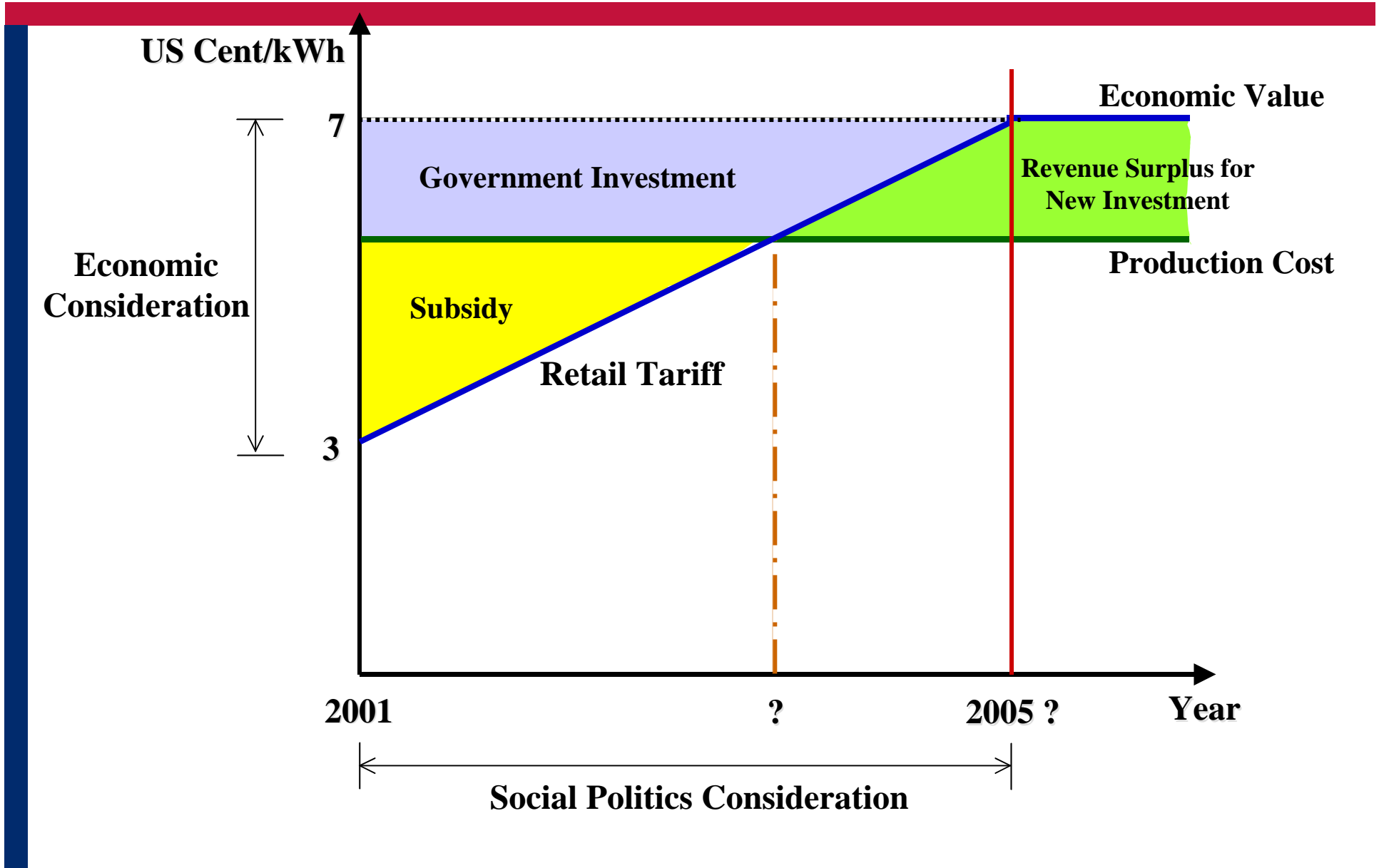


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PLN'S RETAIL TARIFF DETERMINATION





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Indonesia's IPP Experience

- IPP business structure for early deals
 - Paiton coal-fired power plant
 - Geothermal power projects
 - Prices
 - Other terms



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Indonesia's IPP Experience

- IPP business structure for early deals
 - Paiton coal-fired power plant
 - Intended as 2 x 1.3 GW power station in E. Java
 - Coal supply from plentiful domestic resources
 - New transmission line to demand center in W. Java

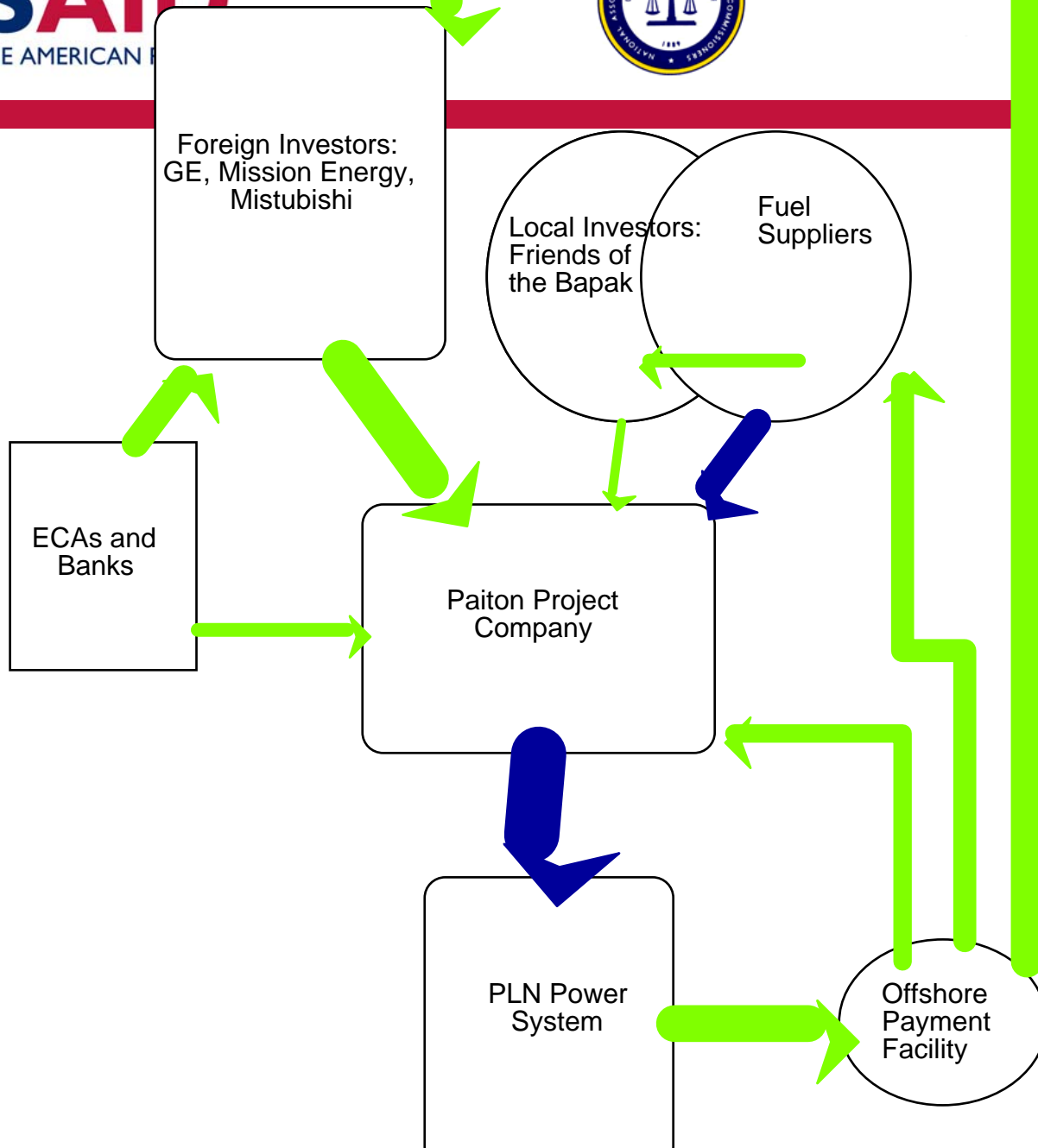
Paiton was intended to be the centerpiece of a privately-financed system expansion for Java-Bali featuring GE, Mission Energy, Mitsubishi, local investors



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Indonesia's IPP Experience

- IPP business structure for early deals
 - Paiton coal-fired power plant - what went wrong?
 - Coal prices were too high (about equal to imports from Australia)
 - New transmission line still not completed (only ~500 MW of plant's output is marketable as firm capacity)
 - Basis for payment was assurance of political continuity



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Indonesia's IPP Experience

- IPP business structure for early deals
 - Geothermal power plants
 - Geothermal energy is plentiful in Java
 - Three companies drilled out large steam fields

Initial idea was to treat geothermal like upstream oil and sell steam to PLN



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Indonesia's IPP Experience

- IPP business structure for early deals
 - Geothermal power plants
 - Disagreements about steam prices delayed investments
 - Drilling companies took over power plant development
 - Pertamina (grantor of mining right) remained as partner in all deals - created a partner with recourse for investors & lenders



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Indonesia's IPP Experience

- IPP business structure for early deals
 - Geothermal power plants
 - Different companies took varying approaches to projects
 - IPP model
 - Oil production model

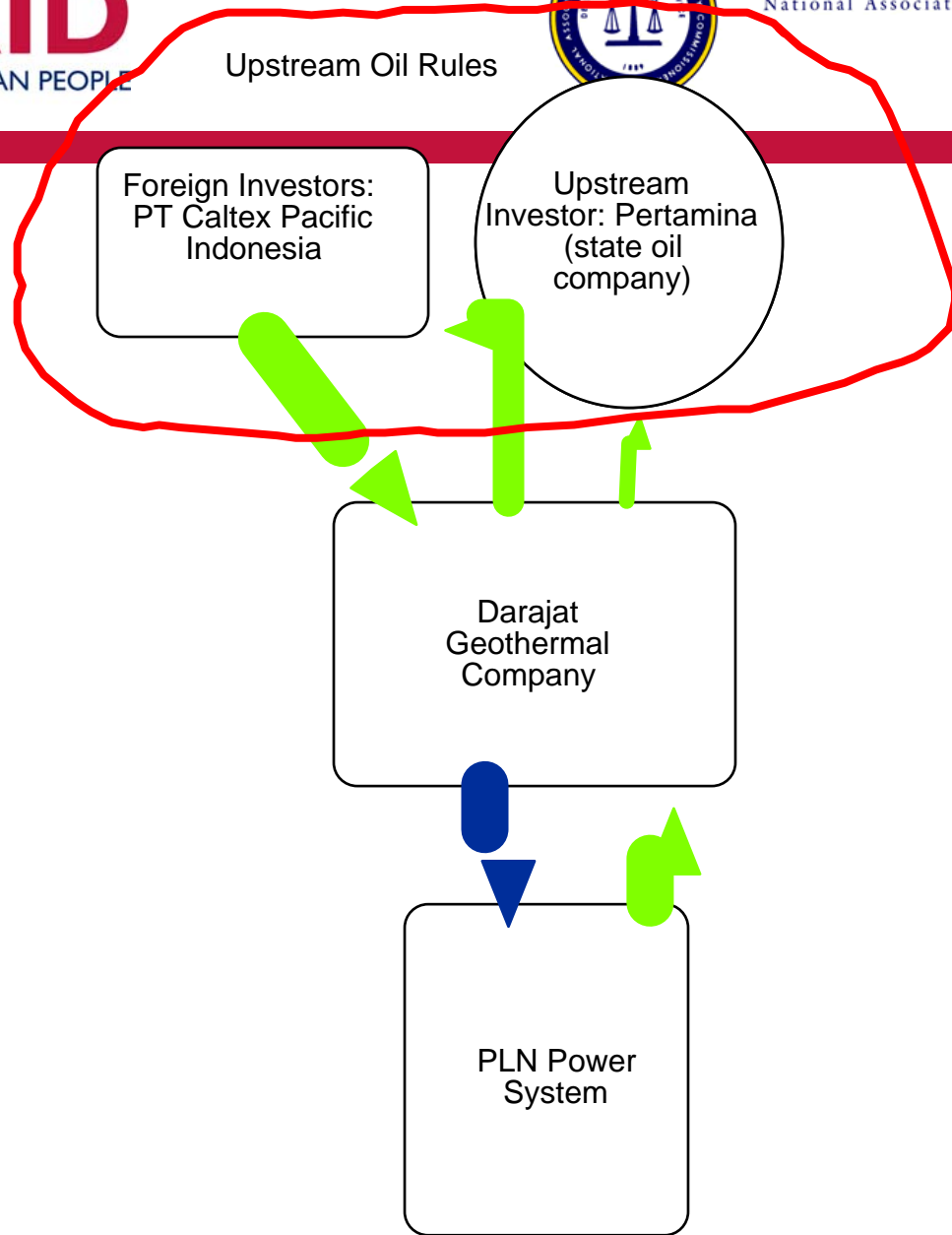


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Upstream Oil Rules





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Indonesia's IPP Experience

- IPP business structure for early deals
 - Pricing - all in USD
 - Initial Paiton price was 8.6¢ per kWh
 - Geothermal projects had prices of 6.5-7¢ per kWh
 - PLN “yield” in Java-Bali grid was about 3.5¢ per kWh



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Indonesia's IPP Experience

- IPP business structure for early deals
 - External events intervened
 - The guarantor left office
 - Depreciation of the Rupiah put the USD structure of all of the deals in jeopardy
 - Overnight the retail price of electricity went down to 1-2.5¢ per kWh



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Indonesia's IPP Experience

- Financial Crisis of 1998-2000
 - Currency depreciation
 - Rapid rise in domestic prices for foreign commodities
- IPPs become a domestic political issue
 - A way to oppose the government
 - Blatant examples of “KKN”



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Indonesia's IPP Experience

- Financial Crisis of 1998-2000 - IPPs become a domestic political issue
 - The new government declares (truthfully) it cannot pay
 - Work out efforts commence



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Indonesia's IPP Experience

- Financial Crisis of 1998-2000 - IPPs become a domestic political issue
 - Some IPPs are abandoned with only an agreement in place
 - Some IPPs are abandoned with ground broken
 - Some completed or nearly-completed IPPs are sent to Export Credit Agencies for payment of “expropriation” claims
 - Some try to stick it out and renegotiate

PLN tries to remove KKN from restructured deals



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Indonesia's IPP Experience

- The government forms a commission to renegotiate the PPAs
 - Successes and failures
 - Two geothermal projects are back on track
 - Projects represent ~5% of needed capacity over next 10-15 years
 - Prices are under 5¢ per kWh



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Indonesia's IPP Experience

- The government forms a commission to renegotiate the PPAs
 - Successes and failures
 - Paiton expansion still uncertain
 - Fuel prices are still high
 - Demand in E. Java still weak
 - Only 1 other coal project on track (but not a good one)
 - Tanjung-Jati B will probably be completed
 - None of the other coal plants on the original list have generated any active interest



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Indonesia's IPP Experience

- The government forms a commission to renegotiate the PPAs
 - Successes and failures
 - No takers for gas-fired CCGTs
 - Retards development of local gas market
 - “chicken and egg” situation
 - Perception of increased risk hangs over market
 - Forward integration now seen as one option



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Indonesia's IPP Experience

- The government forms a commission to renegotiate the PPAs
 - Impacts on pricing for power projects
 - Developers still want USD contracts
 - Developers still want some kind of guarantee
 - Prices reflect increased risk perception



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Indonesia's IPP Experience

- The government forms a commission to renegotiate the PPAs
 - Impacts on risk perception
 - Indonesia seen as essential but very risky market
 - PLN still looking at cost-of-service model as cost comparison
 - Deals are few and slow - blackouts loom



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Indonesia's IPP Experience

- The government forms a commission to renegotiate the PPAs
 - The Karaha-Bodas case
 - Geothermal developer went to OPIC and received expropriation insurance
 - K-B is technically correct, but case stalled resolution of PPAs for 2 years
 - Indonesian government has learned lesson and will not likely arbitrarily reduce payments again
 - Developers have also learned that they need some entity that they can access outside the country for recourse



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Indonesia's IPP Experience

- Impacts of financial crisis and IPP renegotiation
 - Reduced demand for electricity
 - Reduced domestic prices in \$ terms
 - Change in planning process for new projects
 - Difficulty in financing new projects

The process becomes disorderly



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Indonesia's IPP Experience

- Impacts of financial crisis and IPP renegotiation
 - Reduced demand for electricity
 - Financial crisis knocked about 3-4 years of demand increases from the table
 - Electricity demand now rising at ~2 x rate of economic growth
 - Suppressed demand is apparent everywhere



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Indonesia's IPP Experience

- Impacts of financial crisis and IPP renegotiation
 - Reduced domestic prices in \$ terms
 - Financial crisis knocked about 2-3 ¢ per kWh off the price of electricity
 - Prices are still above international standard levels



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Indonesia's IPP Experience

- Impacts of financial crisis and IPP renegotiation
 - Change in planning process for new projects
 - Decentralization of government has removed from PLN the central planning function
 - There is no orderly process to establish what types of plants are needed, where and when



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Indonesia's IPP Experience

- Impacts of financial crisis and IPP renegotiation
 - Difficulty in financing new projects
 - Hard to establish “essentiality” of a proposed plant
 - No concrete pricing guidelines
 - Insufficient attention to fuel supply issues

The process has become disorderly, with negative impacts on the investment climate and economic growth



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Indonesia's IPP Experience

- Lessons from the Indonesian Experience and Relevance to other countries
 - Price levels
 - Risk mitigation
 - Risk perception
 - Financing issues
 - Impacts on the economy from a failed process
 - Interaction with ongoing power sector reform
 - Opportunities for investors



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Indonesia's IPP Experience

- Lessons from the Indonesian Experience - Price levels
 - Right pricing a deal is essential to its long term viability
 - Odor of overpricing can set things back for years (e.g., Philippines & Indonesia)
 - PPA must reflect price assurance that it gives vis-à-vis pool operation - but only that insurance, not the hopes and desires of multitudes of bankers and project developers
 - Contracts should be convertible to some other form if system restructures



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Indonesia's IPP Experience

- Lessons from the Indonesian Experience - Price levels
 - Delays in IPP or restructuring implementation can lead to self-fulfilling pricing increases
 - Investors hold back while rules are established
 - Long period without investment automatically creates capacity shortages



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Indonesia's IPP Experience

- Lessons from the Indonesian Experience -Financing issues
 - Deal structure cannot be perfect - e.g., like a crystal vase
 - Vulnerable to sudden changes in operating environment
 - Difficult to convert to market-related instrument, if necessary
 - Mitigating risk for investor will reduce price of first few deals
 - Fuel supply
 - Full offtake purchase agreements
 - Inflation protection



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Indonesia's IPP Experience

- Lessons from the Indonesian Experience - Financing and risk issues
 - Increased risk perception calls forth
 - Higher interest rates
 - More points
 - Longer time arranging financing
 - Delays in institutional implementation (restructuring, regulation, etc.) will increase perceived risk
 - Puts a brake on all sector investment
 - Brings forth capacity shortages



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Summary of Findings - Indonesia

Cost Element	Effects on probable electricity prices	Notes/comments
More coal + cost overrun + reduced availability	+ 0.5 ¢ per kWh	Inherent in system structure
Increased risk premium	+ 1.2 ¢ per kWh	Artifact of problems that led to shortage in first place
Effects of gas supply limitations	+ 1.4 ¢ per kWh	Likely to affect MECs for 6-10 years, bilateral contracts likely to moderate this impact for <i>some</i>
Total	>2.5 ¢ per kWh	Average impact likely to be about 1.5-2¢ per kWh

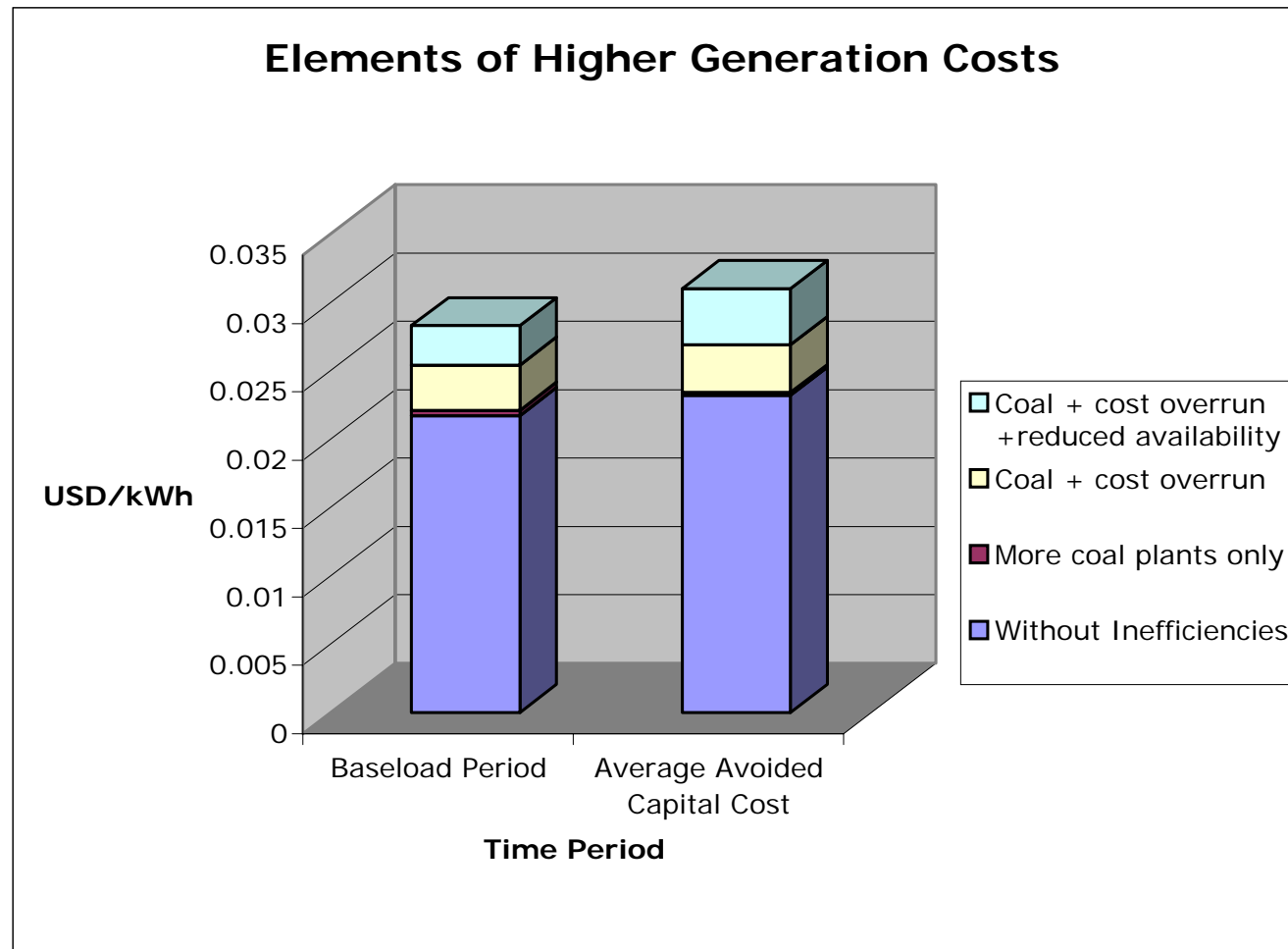


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Summary of Findings - Indonesia





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Summary of Findings - Indonesia

Electricity prices in Java-Bali system could rise substantially
(continued)

Excess costs for the Indonesian economy could reach \$2 billion annually
by later in this decade

Excess fuel costs due to gas supply problems could contribute as much as
\$1 billion of the annual total

Pure inefficiency costs - higher plant construction and financing costs -
would account for most of the other \$1 billion in annual excess costs

Up to 3-4% of year 2010 GDP could be devoted to excessive electricity
generation costs in the Java-Bali system



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Summary of Findings - Indonesia

Mitigating the impacts of electricity sector problems:

Encourage completion of greater gas supply for Java from least cost sources

Promote electricity supply contracting between generators and major users

Reduce transmission bottlenecks & increase capacity to transmit through grid

Promote transparency of pricing system to give consumers & producers incentives to behave rationally during periods of insufficient generation capacity



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Summary of Findings - Indonesia

Mitigating the impacts of electricity sector problems: (continued)

Promote competition in fuel supplies for all generators

Provide stable policy environment to reduce risk premiums
for new plants

Create improved capacity to dispatch plants in unbiased and
efficient manner under conditions of insufficient
generation capacity

These proposals will not eliminate the shortages, but they will
reduce the severity, duration and economic impact of
apparently unavoidable problems in the sector



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Summary of Findings - Indonesia

Mitigating the impacts of electricity sector problems: Steps recently taken

Forward integration of gas producers into electricity generation market

Increased transparency of pricing system

Improved operations at PLN dispatch center

Greater role for gas transmission company in assuming risk of new gas deliveries

Joint ventures in gas pipeline construction

Not a complete solution, but a good start