

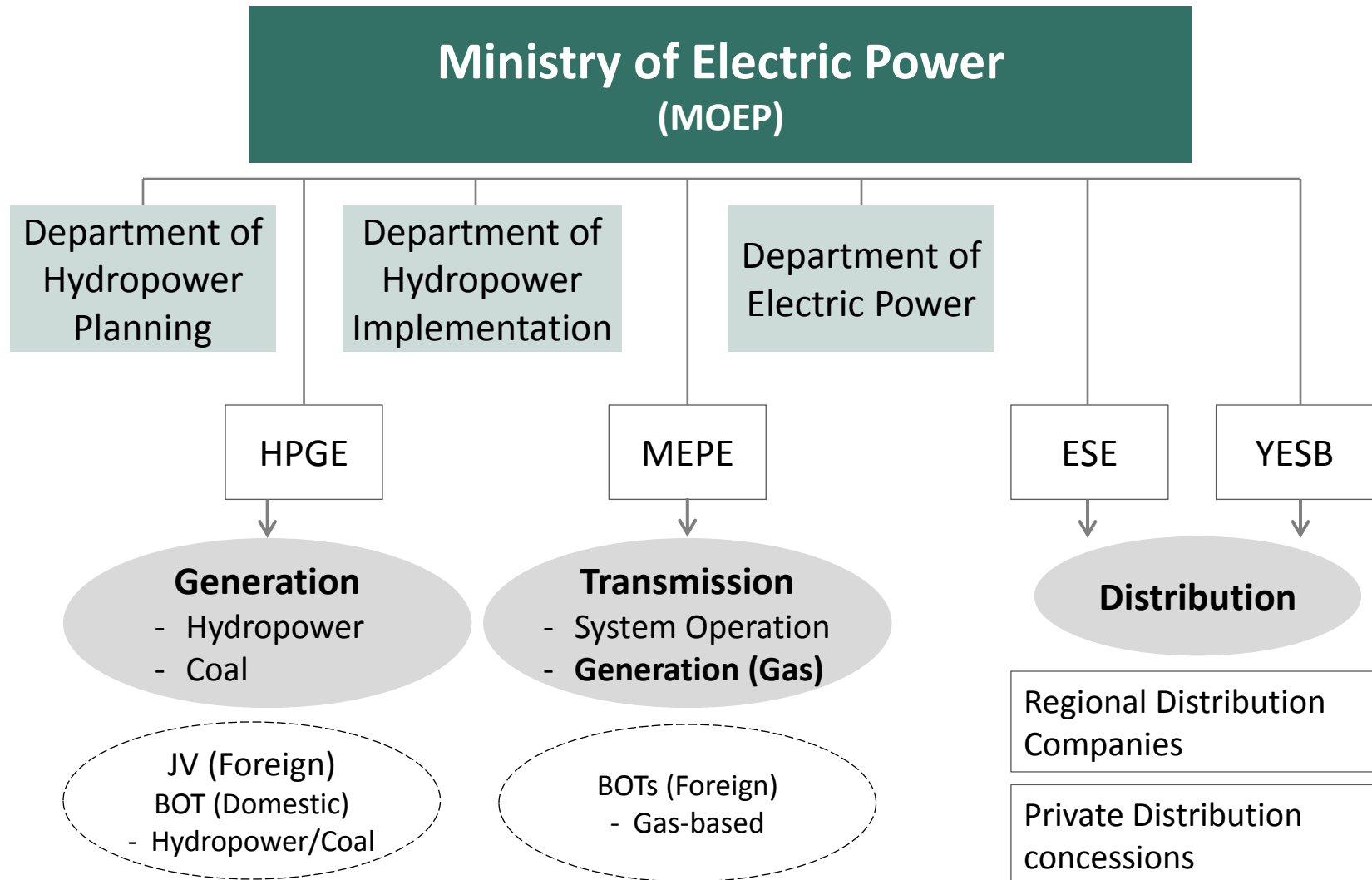


Attracting Investors in Hydropower: What's Needed -- Lessons from Laos

World Bank/IHA Sustainable Hydropower and
Regional Cooperation in Myanmar Workshop
20 January 2015, Nay Pyi Taw



- **Nepal** – exporting to India
- **Bhutan** – exporting to India, possibly Bangladesh
- **Lao PDR** – exporting to Thailand, Vietnam, possibly China
- **Myanmar** – exporting to China possibly Thailand, India, Bangladesh





- Regulatory ambiguity: Electricity Commissions power
- Security creation and perfection,
- Approvals for loans and repayments; offshore bank accounts
- Update basic laws – company law, contract law
- Commercial issues (Tariff policy, free power, free shares)
- Export policy (50%)
- Administrative process, decision making, negotiation
- International Standard documentation: PPA, Direct Agreements
- Site conflicts with local people:
- E&S processes, transparency, etc.
- Arbitration

Lao advances that others haven't reached

1. Ready access to large sums of international debt financing on commercial terms (2014 – 2b; USD 1b/year avg)
2. Capacity to approve / negotiate multiple projects
3. Rapid development in 10 years (2005 to 2015) able to bring 10,000 MW (20 projects) to FC
4. Solid legal system covering E&S; project approvals; security
5. Financeable project docs; risk allocation policy; acceptable finance structures
6. Predictable and negotiated relationship with offshore offtakers

The Thai Model: 11 project, govt owned, non since 1994, 2 since 1984

▪ **Phase One: Support (1971-98)**

- Government ownership
- IFI aid financing and support of project company and government

Nam Ngum 1 (155MW)
Xe Set 1 (40MW)

▪ **Phase Two: Transformation (1998-2005)**

- PPP
- IFI aid financing of government, commercial financing of project, PRG
- IFI technical support
- Commercial bank participation

Huoy Ho (152MW)
Theun Hinboun (210MW)
Nam Theun 2 (1.1GW)

▪ **Phase Three: Commercial (2005 - ??)**

- PPP (Private control majority),
- Commercial bank financing
- IFI “commercial” financing of government equity
- BFI “soft” financing of 100% domestic supply projects

Nam Ngum 2 (615MW)
XPXN (400MW)
Xayaburi (1.2 GW)

▪ **Phase Four: Domestic Supply + Grid export (?)**

- Commercial financing of 100% supply domestic projects

Can we compare this progress with that of Cambodia, Myanmar, Nepal, Bhutan and others in ASEAN? Does it fit?

1. Role of Foreign Off-taker

- Will the Transformational Project be export, domestic or combination
- Foreign Off-taker (with credit rating) paved way for Domestic supply projects
- Laos: to date, only EGAT projects are pure PF basis with commercial lenders
- Would IFIs have financed without EGAT??
- Is Export of Power Necessary for Finance Myanmar HPP? What would be structure of Domestic sale project?? Govt Guarantee key. Other risk reduction.
- PPA? System sales (merchant v. contract): What will the Transformational Project follow?

1. Key Role of IFIs (BDI, ECA, etc)

- Provide comfort to commercial lenders (THPC and NT2)
- Improve legal system standards, etc E&S through TAs
- Paved way for Commercial bank financed projects
- Provide PRG
- Finance government equity

2. E&S: regulatory regime – how much is needed?

- A Transformation Project will impose contractual Standards through Financing covenants if regulatory standards not adequate.

3. Financial Incentives and Disincentives

- Exemptions from taxes and royalties
- Tariff Structure, Free Shares and Free Power

4. Tariffs Not Cost-Reflective

- YESB and ESE retail sales tariffs fixed by govt.; Cover operating costs but no surplus for maintenance and upgrades
- MEPE tariffs are two-tiered fixed rates based on consumption level, which are **insufficient to recover basic operating costs**
- Additionally, private investors are concerned about uncertainties in tariff negotiation and what is considered acceptable rates of return on project investments

Reform Recommendations:

- Cost recovery assurances for the full cost of development and projected maintenance
- Industrial cost competitiveness compared to neighboring countries
- Regulations to protect consumers from monopolistic abuses
- Subsidized “lifeline” tariffs for economically disadvantaged

*****Creation of a regulatory institution and a transparent process for determining tariffs would provide greater assurance to consumers and the private sector***

Regional Comparison: Mekong, Nepal and Bhutan

	Myanmar	Lao PDR	Bhutan	Nepal
Current Hydro Capacity	3,048.5 MW	3,000 MW	1,602 MW	704 MW
# of large-scale HPPs (+5MW)	20 (17 Govt, 2 Local, 1 JVA)	12 (7 JVA; 5 govt)	22	23
Identified Hydro Potential	46,101 MW	26,500 MW	30,000 MW	43,000 MW
2020 Planned Capacity	34,000-44,000MW	12,500-15,000 MW	+10,000 MW	2,200 MW
Number Planned:	Govt 13, Local 7; JVA 44	50 JVA BOT	70 RoR 6 Reservoir	30+ Majority RoR
Hydro as a % of total grid capacity	76.0%	97.3%	99.0%	+90.0%
Basic Structure	10-15% Free Shares 10-15% Free Power 50% sold to Myanmar 30 year concession JVA - BOT	15 -25% paid shares 1% Royalty; tax exemptions Approx 5% sold to Laos 30 year concession SPV – BOOT	51% GoB ownership 15% Royalty or Free Power 30 year concession JVA –BOOT	15-25% Free Power 5-8% Royalty 0.5-1% Export Tax 30 year concession JVA - BOOT
Avg Annual Growth	17.9%	8.4%	12.8%	< 5.0%

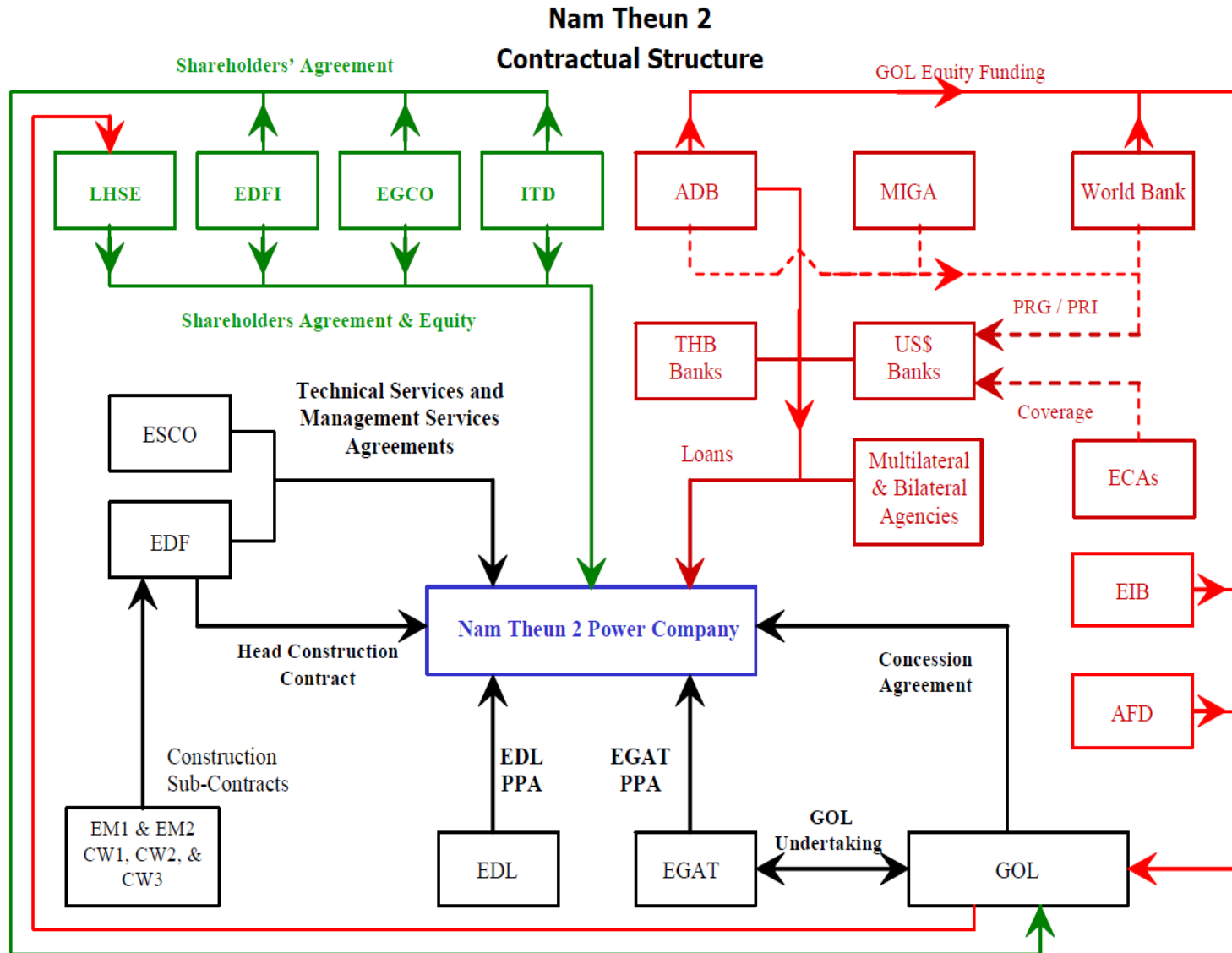
Regional Comparison: Mekong Region

	Myanmar	Lao PDR	Thailand	Vietnam
Current Hydro Capacity	3,048.5 MW	3000 MW	3,406 MW	12,000 MW
# of large-scale HPPs (+5MW)	20 (17 Govt, 2 Local, 1 JVA)	12 (7 JVA; 5 govt)	11	50+
Identified Hydro Potential	46,101MW	26,500MW	13,500MW	24,880 MW
2020 Planned Capacity	34,000-44,000MW	12,500-15,000 MW	3,535 MW	17,400 MW
No. Planned:	Govt 13, Local 7; JVA 44	50 JVA BOT	19 projects = 130 MW	211 + 266
Hydro as a % of total grid capacity	76.0%	97.3%	9.3%	40%
Basic Structure	10-15% Free Shares 10-15% Free Power 50% sold to Myanmar 30 year concession JVA - BOT	15 to 25% paid shares 1% Royalty; tax exemptions Approx 5% sold to Laos 30 year concession SPV – BOOT	EGAT owned except some SPP and VSPP	EVN, some private Planned
Avg Annual Growth (%)	17.9	8.4	0.3	8.6

5. Financing of government equity participation

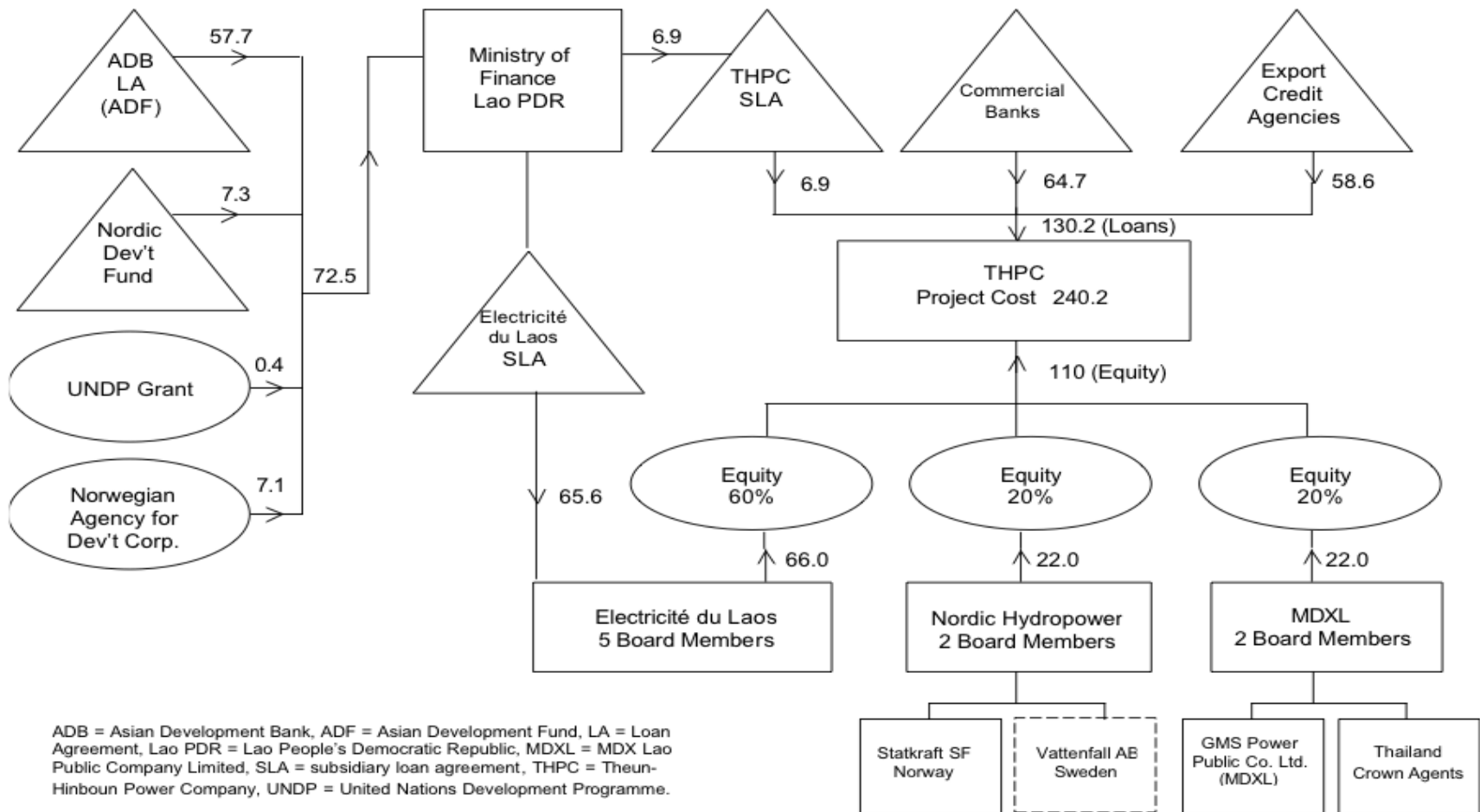
- Free share policy (Myanmar model).
- Lao model options: MOF; State Utility (EdL); state investment Co.
- IPO: EdL Gen IPO model.
- IFI debt financing (and BFI).
- Dividend financed shares.
- Tax & Royalty financed shares (illegal in Lao PDR).

NT2 Contract Structure



THPC Financing and Equity Structure

FINANCING AND OWNERSHIP STRUCTURE
(\$ million)



ADB = Asian Development Bank, ADF = Asian Development Fund, LA = Loan Agreement, Lao PDR = Lao People's Democratic Republic, MDXL = MDX Lao Public Company Limited, SLA = subsidiary loan agreement, THPC = Theun-Hinboun Power Company, UNDP = United Nations Development Programme.

2010 - EDL-Generation Co. Ltd (EDL-Gen) was incorporated as a subsidiary of Electricity Du Laos.

- 25% Floated on LSE; up to 49% Float
- 75% owned by EdL
- EdL Ltd Co Owned by MOF (A GOL agency)

2011 - EDL-Gen participated in an IPO on the Lao Securities Exchange becoming the first company to list

- Operates 7 HPPs totaling 387MW
 - Nam Ngum 1
 - Nam Song
 - Nam Leuk
 - Xeset 1 & 2
 - Nan Mang 3
 - Selabam

2012 - EDL-Gen approved the transfer of shares in four IPPs owned by Electricite du Laos

- 60% of shares in Theun-Hinbeun (300 MW)
- 10% of shares in Nam Lik 1-2 (10 MW)
- 25% of shares in Nam Ngum 2 (153.75 MW)
- 20% of shares in Houay Ho (30 MW).

EDL-Gen also plans to purchase 2 HPPs from Electricite du Laos that are currently under construction:

- Nam Khan 2 (126 MW)
- Huaylamphan Nhai (88 MW)

EDL – Gen raised 198 (Dec 2014) to buy projects from EdL

- EDL-Gen has raised Bt6.5bn (US\$198m) from the sale of a dual-tranche issue that marks the first offshore bond for the government-owned company.'
- First corporate bond for a Lao company in Thailand. The success of the deal will help Thailand's bid to become a major regional funding centre.
- The bond was rated BBB+ from Tris, allowing more institutional investors to participate, unlike the unrated Laos' sovereign bonds, which were sold mainly to high-net-worth investors.
- Bank of Ayudhya, Standard Chartered and TMB Bank were joint bookrunners for the deal, which will settle today.
- Proceeds from the bonds will be used to acquire nine hydropower projects from parent Electricite du Laos
- proceeds would be used to buy 100 percent stakes of four hydro power plants from EDL (combined generating capacity of 292 megawatts (MW)) and 10-60 percent stakes of another five power plants as

3. Debt Financing Issues

- a. Necessity of PRG early projects? Especially where domestic offtaker
- b. Necessity of Govt Guarantee for domestic offtaker
 - Project shareholder guarantee?
 - Myanmar Issue
- c. Frees Shares; Free Power
- d. Necessity of Pledge of Govt Shares
- e. Necessity of pledge of offshore bank accounts
 - Problem for onshore offtaker
- f. **Clear up Security registration and enforcement Uncertainties**
 - NT2 required modification to Law Secured Transaction Laws as CP to future Draw.
 - Myanmar security issues?

- The Lenders provided the USD 85 million loan directly to Pan Asia Majestic Eagle Limited (PAMEL) for financing support of the rollout of its network of over 1,250 telecommunications towers across Myanmar for Ooredoo, Myanmar.
- Standard Chartered Bank, ING Bank, DBS Bank, OCBC Bank and Sumitomo Mitsui Banking Corporation.
- Taking foreign currency loans from offshore banks by Myanmar companies is possible in Myanmar, if approved by :
 - by the MIC (Myanmar Investment Commission) for companies with MIC permit (FIL)
 - by the Central Bank of Myanmar (CBM) for other companies – note that CBM approval is also required for MIC loans to MIC companies, but while the CBM ‘no objection’ has up to now been given as part of the MIC approval process, rather than a separate exercise, we have had recent intelligence that this practice may be changing and a separate CBM approval required
- No approval required for granting or taking of security. As practice, submit package to MIC with application and financing documentation. But registration requirement for perfection (i.e. first priority)

The common types of security taken over the assets of a Myanmar company, are as follows:

- **Stand alone mortgage over immoveable property**, but only in the form of a lease
- **fixed and floating charge over the immoveable and moveable assets and property of the company** (include bank accounts) - works in the same way as under English law, the Myanmar Companies Act which deals with this security dates from 1914.
- **charge or mortgage over shares in the Myanmar company** – this equitable security (consisting of a suite of documents allowing the mortgagee to transfer the shares to itself is given by the owners of the shares, usually offshore entities.
- **assignment of key contracts by way of security** – if these are Myanmar law contracts, then this assignment would also be governed by Myanmar law
- **Perfection of the security problems:**
 - CRO with legal responsibility, but . .
 - mortgages and assignments of leases are by law required to be registered with the Office of Registration of Deeds (ORD)., but problems. . . .

7. Standardization of Contracts and Policies

- Role of IFI Key to developing standardized approach
- International standard docs and structure (i.e., will govt accept Direct agreements, Guarantees, legal opinions,)
- Tariff Policy

8. Facilitate the Agreement Process

- One Stop Agency for negotiation
- Consistency in staff
- Government Legal and Technical Advisers to move process forward and communicate with Legal and Tech advisers from Lenders and developers. Who pays?

9. Legal Framework supportive of financing (flexibility to change laws quickly to address project issues). **Exemptions from Law**

10. Positive Evolution of Institutions and Procedures.

List of Players in a typical HPP deal

Developers Team:

- Lead Sponsor
- Other Shareholders
- EPC Contractor
- Advisers (Technical, Environmental, Resettlement, financial, legal, insurance)

Government:

- Regulator
- Ministry or Govt Coordinating Agency and Licensing Authorities
- Government Shareholder
- Offtaker (Utility)

Lenders Team

- Lead Arrangers (Thai/Intl)
- Currency Lenders
- Security Agent(s)
- Export Credit Agencies
- Lenders financing govt equity
- International and Bilateral Financial Institutions
- Political Risk Guarantee provider
- Advisers (Technical, Environmental, Resettlement, financial, legal, insurance)

Project Documents:

- Concession Agreement (sometimes only license)
- Licenses
- JVA or Shareholders Agreement
- Corporate Documents
- EPC Contract and various technical and service agreements
- Insurance

Financing Documents

- Common Term Agreements and Facility Agreements
- Intercreditor Agreement(s)
- Accounts Agreement
- Equity Contribution Agreement
- Onshore and Offshore Security Agreements
- Direct Agreements with Govt.
- Government Undertaking (toward offshore offtaker)
- Gov't Payment Guarantee
- Political Risk Insurance or Guarantee
- Government Equity Funding Loans

6. Government Approval of Private Projects

- Repetitive and confusing repeated submissions

Five phases (Four for BOT by domestic company)

1. **MOU**: Requires MOEP signature after endorsement from OAG, MNPED, and MOF
2. **MOA**: **2nd review by OAG, MNPED, MOF**, and submission to Union Cabinet for approval is required before signing
3. **MIC approval**: EIA / SIA completed and approval from MOECAAF required
4. **JVA**: **3rd review by OAG, MNPED, MOF**, and **2nd approval by Union Cabinet** required before signing
5. **Signed JVA**: Required submission to MNPED, OAG, and for Concession Agreement to MOEP

*****Process can be significantly shortened by the use of model transaction documents, such as PPAs, Lease Agreements, security packages, etc.***

Regional experience



Experience



Legend

- Clean Energy
- Energy
- Hospital
- Hydropower
- Mining
- Oil & Gas
- Telecommunications
- Water

Projects within a country are listed north to south.

EMI Awards

- 2011 Project Finance Deal of the Year, ALB**
Awarded project finance deal of the year for the USD2.7 billion Hongsa Mine-Mouth Power Project, which was the largest Thai project financing syndication and first thermal power project in Lao PDR
- 2011 IPP Financial Advisers Award SE Asia Deal of the Year, ALB**
Awarded IPP Financial Advisers Southeast Asia deal of the year for the Hongsa Mine-Mouth Power Project by Asian Legal Business
- 2011 ASIAN-MENA COUNSEL Deals Of The Year**
Mentioned in Deals of the Year for advising the Vietnam Ministry of Industry and Trade on the JAKS Resources Berhad's Malaysia-China-Vietnam Energy Project, which had a deal value of approximately USD2 billion and this was one of the largest cross-border energy project
- 2009 ASIAN-MENA COUNSEL Deals Of The Year**
Mentioned in Deals of the year for advising on China Minmetals' acquisition of the majority of assets of OZ Minerals, including 90% equity interest in Lane Xang Minerals Limited
- 2009 Asia Deals of the Year, Telecom Finance Magazine**
Mentioned in Asia Deals of the Year for advising on Royal Group's buyout of Millicom's shares in CamGSM voted as the "Asia Deal of the Year"
- 2008 Deals of the Year, ASIAN-MENA COUNSEL**
Mentioned for DFDL's role in the USD650 million Theun Hinboun Hydropower expansion project in Laos
- 2007 ASIAN-MENA COUNSEL Deals Of The Year**
Mentioned in the 2007 deals of the year for advising on the Singapore Tech Tel Acquisition, which was the first major multi-jurisdictional telecommunications sale in the Mekong region (USD200 million)

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Since 1994

1	Brief intro to DFDL
2	HPP Basics
3	Global and regional supply / demand trends
4	Key development issues from Lao experience
5	Typical HPP structures and players
6	Appendix: Tables of regional HPPs

Cambodia: Hydropower overview

Name	MW	COD	Owner
Operational			
Kirirom 3	18	Feb. 2013	China State Grid Corp. 30 yr BOT
Kam Chay	194	2011	Sinohydro 44yr. BOT
O Chum 2	1	1992	Government of Cambodia
Planned / Under Development			
Russei Chrum Krom*	246	By 2015	China Huadian Corp. BOT
Stung Tatay	120	By 2015	China National Heavy Machinery Corporation (CNHMC) 37 yr BOT
Stung Atay*	12	By 2015	China Electric Power Technology Import & Export Corporation (CEPTIEC) 30 yr BOT
Kirirom 1	338	By 2015	CEPTIEC 30 yr BOT
Stung Treng	980	By 2020	---
Sambor	2600	By 2020	China Southern Power Co.
Lower Se San 2	400	By 2020	Royal Group
Lower Sre Pok 2	222	By 2020	EVN
Stung Battambang 1	24	By 2020	Korean Co.
Stung Sen	40	By 2020	Korean Co.
TOTAL NEW HYDRO BY 2020			4,982 MW

Vietnam: Hydropower overview

Name	MW	COD	Lenders / Owners
Operational			
Da Nhim	160	1964	Japanese war reparation funds
Thac Ba	120	1972	USSR / EVN
Hoa Binh	1920	1988/1994	USSR / EVN
Tri An	400	1988	USSR / EVN
Thac Mo	150	1995	JBIC / EVN
Dong Nai 3-4	536	2000	JBIC / EVN
Plei Krong	120	2000	Russian & Vietnamese Banks / EVN
Yali	720	2001	Russia & Ukraine / EVN
Dai Ninh	300	2001	JBIC / EVN
Dai Thi	250	2001	JBIC / EVN
Se San 3A	108	2007	20% Russia; 50% VN Banks; 30% EVN / EVN
Tuyen Quang	342	2008	Song Da IPP
Song Ba Ha	220	2009	JBIC / EVN
Se San 4	255	2010	JBIC / EVN
Son La	2,400	2010-2012	70% Vietnamese Banks ; 30% EVN
Dak Mi 4	192	2012	Vietnamese Banks / EVN

Lao PDR: Hydropower overview

Name	MW	COD	Offtaker	Finance	Ownership at COD
Operational					
Xekaman 3	250	2012	EVN	VDB	EDL 15%; VLP (Vietnam) 85%
Nam Ngum 5	120	2012	EDL	Chinese BFI	EDL 15%; Sinohydro 85%
Nam Ngum 2	615	2011	95%+ EGAT	Thai Banks	EDL 25%; CH. Kanchang (Thailand) 28.5%; Ratchaburi 25%; Bangkok Expressway PCL 12.5%; 9% Others
Nam Theun 2	1080	2010	95% EGAT	26 Banks & IFIs	LHSE (Laos) 25%; EDF (France) 35%; EGCO (TH) 25%; ITD 15%
Nam Lik 2	50	2010	EDL	China BFI	EDL 10%; CWE (China) 90%
Se Xet 2	76	2009	EDL	IFI / BFI	EDL 100%
Nam Mang 3	40	2004	EDL	IFI / BFI	EDL 100%
Nam Leuk	60	2000	EDL	IFI / BFI	EDL 100%
Houay Ho	152	1999	98% EGAT	Int'l Banks	EDL Suez Energy (Belgium) 60%; HHTC (Thailand) 20%; EdL 20%.
Theun-Hinboun	210	1998	95%+ EGAT	Intl Banks	EDL 60%; Nordic 20%; GMS 20%
Se Xet 1	45	1990	EDL	IFI / BFI	EDL 100%
Nam Ngum 1	155	1971	EDL	IFI / BFI	EDL 100%

Name	MW	Offtaker	Finance	Ownership at COD
Under Development				
Xayaburi	1285	EGAT	Thai Banks	LHSE ; CH. Kanchang (Thailand)
Nam Ou	1100	EDL / EGAT	China BFI	Under Negotiations (formerly Japanese led)
Nam Thuen 1	520	EDL	China BFI	Sinohydro; LHSE
Xe Kaman 1	468	EVN	VDB	EDL 30%; Viet-Lao Power 70%
Nam Ngiep 3	460	EVN	Negotiation	LHSE 15%; VLP (Vietnam) 85%
XPXN	400	EGAT	Thai & Int'l Banks	Korean led consortium; LHSE
THPC Expansion	280	EGAT	Int'l Banks	EDL 60%; GMS Power 40%
Nam Ngiep 2	280	EGAT	CDB	CWE 90%; EDL 10%
Nam Ngiep 1	262	EGAT	ADB, Thai and Int'l banks	Kansai, EGATi LHSE
Nam Khan 2&3	173	EDL	China ExIm	Sinohydro 85%; EDL 15%
Nam Tha 1	170	EDL	China BFI	CSGI; EDL
Nam Phay	140	EDL	Negotiation	Norinco International Corporation Ltd. (China) 85%; EDL 15%.
Nam Kong 2	66	EDL	BIDV	Hoang Anh Gia Lai Group (Vietnam) 100%
Nam Lik 1	65	EGAT	Negotiation	Gamuda, EGCO, LHSE

Myanmar: Hydropower overview

Name	MW	Financing	Owner / Contractors	Offtaker
Operational				
Yeywa	790	China ExIm Bank, CITIC	MEPE / HPGE CITIC, Sinohydro, CHMC, CGGC, Siemens, Malcolm Dunstan, COLENCO, HTCT,	Domestic Sale
Upper Paungluang	140	China ExIm Bank	MEPE COLENCO, Malcolm Dunstan, Yunnan Machinery ExIm	Domestic Sale
Shweli I	600	China ExIm Bank	Yunnan Machinery ExIm Datang United Hydropower Dev Co.; China Southern Power Corp; (BOT).	50% Exported to PRC; 50 to Myanmar no costs, + 15% to Myanmar with tariff
Dapeyin I & II	408	China ExIm Bank	MEPE, Datang United Hydropower Dev Co.;	90% to PRC; 10% to Myanmar
Lower Paungluang	280	China ExIm Bank,	MEPE, Yunnan Machinery ExIm, Sinohydro	Domestic Sale
Planned/Under Development				
TaSang	7110	Thai and Chinese Banks	EGATi; China Three Gorges Corp.	China Gezhouba Group, CSPG, Malcolm Dunstan
Wei Gyi	4540	Thai Banks	EGATi	EGATi
Kunlong	2400		Goldwater Resources Co.; Hanergy Holding Group,	
7 Dams Project: Chibwe, Kaunglanphu, Laiza, Lakin, Myitsone,, Pashe, Phizaw	13,360	China BFI	Asia World Company, MEPE	China Power Investment China Gezhouba Group, Sinohydro
Hat Gyi	1200	Thai and Chinese Banks	EGATi, Sinohydro, MEPE,	EGATi, Sinohydro

Bhutan: Hydropower overview

Name	MW	COD	Funding	Investment Model
Operational				IG (Intergovernmental)
Chhukha	336	1988	100% Grant	IG (India)
Kurichhu	60	2001	60 / 40	IG (India)
Basochhu (1-2)	64	2001/2004	70 / 30	IG (Austria)
Tala	1020	2007	60 / 40	IG (India)

Bhutan: Hydropower overview *cont'd*

Project	MW	Funding	Investment Model
Planned/ Under Development		Equity-Grant / Loan (%)	
Kuri-Gongri	2,640	30 / 70	IG (India)
Sankosh	2,560	30 / 70	IG (India)
Rotpashong	1,230	30 / 70	IPP
Punatsangchhu-I	1,200	40 / 60	IG (India)
Punatsangchhu-II	1,020	30 / 70	IG (India)
Chamkharchhu-I	770	30 / 70	JV
Mangdechhu	720	30 / 70	IG (India)
Kholongchhu	600	30 / 70	JV
Wangchhu	570	30 / 70	JV
Amochhu	540	30 / 70	IG (India)
Nyera Amari (1+2)	473	30 / 70	IPP
Bunakha	180	30 / 70	JV
Gamri (1+2)	176	30 / 70	IPP
Dagachhu	126	40 / 60	PPP
Nikachhu	118	30 / 70	PPP

Bhutan: Planned new hydropower by 2030 (+50MW)

Project	Capacity	Project	Capacity
Chamkar 3	1890	Dara 2	115
Manas RS 1	1800	Gumthang	108
Kuri/Rothpas	1230	Shongarchu	107
Puna 1	1200	Parochhu	104
Puna 2	1020	Bomdeling/Kholong	130
Manas RS 2	1000	Dara 2	115
Chamkhar 2	992	Chamkhar	97
Chamkhar 1	770	Thampochhu	95
Amochhu 1	747	Kholong	94
Mochhu 1	658	Gamrichu 4	91
Puna 3	595	Gamri	81
Kheng	570	Gamrichu 3	80
Amochhu 2	500	Dara 1	79
Mochhu 2	403	Gamrichu 2	79
Khomachhu	362	Dang 2	78
Nyera ameri 2	330	Pachhu	77
Dara 4	212	Cherichhu	76
Chamkh 5	162	Sichhu	73
Dara 3	153	Dhansiri	73
Dangchhu 1	150	Samchu	71
Nyera Amari 1	142	Gamrichu 1	64
Daga 2	135	Thimpuchhu	57
Pochhu	132	Piping	55
Bomdeling/Kholong	130	Gobarichu	53

Nepal: Hydropower overview

Name	MW	COD	Funding	Offtaker/ Owner
Operational				
Trishuli	24	1967	Govt. of India and Govt. of Nepal	NEA/NEA
Gandak	15	1979	Govt of Nepal and India	NEA/NEA
Kulekhani 1	60	1982	World Bank, Kuwait Fund, UNDP, OECF and OPEC	NEA/NEA
Devighat	14	1984	Govt. of India and Govt. of Nepal	NEA/NEA
Kulekhani 2	32	1986	Government of Nepal, OECF of Japan	NEA/NEA
Marsyangdi	69	1989	GON, IDA, KFW, SFD and ADB	NEA/NEA
Jhimruk	12	1994	Butwal Power Company	NEA/IPP
Khimti	60	2000	Himal Power Limited	NEA/IPP
Khimti	60	2000	International Finance Corporation (IFC), the Asian Development Bank (ADB), Eksportfinans a.s., the Norwegian Agency for Development Cooperation (NORAD) and the Nordic Development Fund (NDF)	NEA/NEA
Bhote Koshi	36	2001	Bhote Koshi Power Company	NEA/IPP
Middle Marsyangdi	70	2008	German Federal Ministry for Economic Cooperation (BMZ)	NEA/NEA
Kali Gandaki	144	2008	ADB, FINNIDA and UNDP	NEA/NEA

Under Development				
Project	Capacity			
Upper Modi	14			
Planned				
Project	Capacity		Project	Capacity
Karnali Chisapani	10,800		Upper Marshyangdi A	121
Pancheswor	6480		Tamor/Mewa	100
Wet Sati	750		Madi Ishaneswor	86
Kali Gandaki II	660		Kankai	60
Budhi Gandaki	600		Likhu 4	51
Arun III	402		Kulakhani III	45
Upper Arun	335		Upper Modi A	42
Lower Arun	308		Kabeli A	30
Upper Karnali	300		Chamelia	30
Dudh Koshi	300		Rahughat Khola	27
Upper Tama koshi	250		Khimti II	27
Langtang Khola	218		Thulodhunga	25
Andhi khola	180		Budhi Ganga	20
Upper Seti	122			