

Existing and Planned Lao Hydropower Projects – 1 July 2009

The table below lists existing and planned large (greater than 10 MW) hydropower projects in Laos. The table is based on the Lao Government Department of Energy Promotion and Development's "Electric Power Plants in Laos" as of April 2009, available at: http://www.poweringprogress.org/index.php?option=com_jotloader&cid=10&Itemid=91.

The table is updated regularly by International Rivers with new information from news reports, official project documents and other sources. Please send comments, questions or corrections to ikuko@internationalrivers.org.

SUMMARY:

- Projects in operation: 7
- Projects *officially* under construction: 8
- Projects at planning stage: 16
- Projects at feasibility stage: 44
- Projects proposed for Mekong mainstream in Laos/Lao-Thai border: 8

KEY:	Existing projects	Projects under construction	Project at planning stage	Projects at feasibility stage
PPA = Power Purchase Agreement		COD = Commercial Operations Date	NPA = National Protected Area	Mekong mainstream projects

Project (province)	Installed Capacity (MW)	Project Sponsors (Country)	Purpose	Remarks (status, cost, actors, impacts, etc.)
Houay Ho (Champasak & Attapeu)	150	Electricité du Lao (EdL) (Laos) 20%; Suez Energy (Belgium) 60%; & HHTC (Thailand) 20%	Export to Thailand	<ul style="list-style-type: none"> – Began operation in 1999. – Built by Daewoo (Korea) & Loxely (Thailand); was sold to Tractebel in 2002. In September 2008, Thailand's GLOW Energy, a unit of Suez, said it would buy a 67.25% stake in the project from Suez-Tractebel for US\$45 million (Reuters 9/15/08). – Resettled about 2,500 mainly ethnic minorities to area with insufficient agricultural land and affected others downstream; adequate compensation still not provided. – Power generation fell in the first half of the 2009 fiscal year, from 201.8 million kWh over the same period last year to 199 million kWh; the reservoir is short of water because the southern provinces are dry (Vte Times 04/29/09). – More information: http://www.internationalrivers.org/en/node/3343 http://www.internationalrivers.org/en/node/1794
Nam Leuk (Vientiane)	60	EdL (Laos)	Domestic/Export to Thailand	<ul style="list-style-type: none"> – Began operation in 2000. – US\$130 million project was largely financed by ADB and Japanese government. – More than 9,500 people downstream affected by fisheries losses and clean water shortages; adequate compensation still not provided. – Built in Phou Khao Khouay NPA. – More information: http://www.internationalrivers.org/en/node/877 http://www.internationalrivers.org/en/node/3343
Nam Mang 3 (Vientiane)	40	EdL (Laos)	Domestic/Export to Thailand	<ul style="list-style-type: none"> – Began operation in 2004. – CWE secured finance from China EXIM to build the project and hand it over to EdL. – More information: http://www.internationalrivers.org/en/node/1794

Nam Mong (Luang Prabang)	70	Japanese funding; EdL (Laos)	Domestic	<ul style="list-style-type: none"> – Supplies electricity to six villages (ISRIA 04/07/09). – Funded by Japanese money; handed over from the Energy and Mining Division in Luang Prabang to EdL on April 1, 2009 (ISRIA 04/07/09). – EdL compensated Mr. Syvone, a Phonekeo villager, the sum of 4.4 million kip, because part of his land was taken up by the project (ISRIA 04/07/09).
Nam Ngum 1 (Vientiane)	155	EdL (Laos)	Domestic/ Export to Thailand	<ul style="list-style-type: none"> – Laos' first large hydropower project, began operation in 1971. – According to one estimate (Thayer Scudder), approx. 3,500 people were displaced, although exact numbers unknown. – Project's underperformance led the ADB to finance Nam Song diversion dam to increase Nam Ngum's power output.
Theun-Hinboun (Bolikhamsay)	210	EdL (Laos) 60%; Nordic Group [owned by Statkraft] (Norway) 20%; & MDX [GMS Power] (Thailand) 20% = Theun-Hinboun Power Company (THPC)	Domestic/ Export to Thailand	<ul style="list-style-type: none"> – Began operation in 1998. – Funded by the ADB and Norwegian aid agency, Norad. – Despite originally claiming that the project had minimal impacts, THPC and the ADB now admit that more than 29,000 people in 71 villages have lost fisheries, rice fields, vegetables gardens and fresh drinking water supplies as a result of the dam. – Power generation fell in the first half of the 2009 fiscal year, from 812.1 million kWh over the same period last year to 561.4 million kWh, because there was not enough water to fill the reservoir. The drop in power generation is attributed to the Nam Theun 2 (NT2) reservoir upstream, filling since April last year; water from Nam Theun River can't flow into Theun Hinboun reservoir because the NT2 dam is temporarily blocking the flow. Until NT2 starts to generate power, Theun Hinboun can only use water from tributary streams that flow into the river between the two dams (Vte Times 04/29/09). – More information: http://www.fivas.org/, http://www.internationalrivers.org/en/node/964 http://www.internationalrivers.org/en/node/3343
Xeset 1 (Salavanh)	45	EdL (Laos)	Domestic/ Export to Thailand	<ul style="list-style-type: none"> – Began operation in 1990.
Nam Lik 1, 2 (Vientiane)	100	China International Water and Electric Corporation (China) 80%; EdL 20%	Domestic	<ul style="list-style-type: none"> – Concession Agreement signed October 2006. – Construction started December 2007 (51% complete), expected COD 2010. – Estimated cost US\$150 million (Vte Times 10/30/08). – Dam will be 103 meters high; resettlement required only for construction of access road (Vte Times 12/18/07).

Nam Ngum 2 (Vientiane)	615	Shlapak Group (USA) 4%; EdL (Laos) 25%; Ch. Karnchang (Thai) 28.5%; PT Construction & Irrigation Co., (Laos) 4%; Ratchaburi Generating Co. (Thai) 25%; Bangkok Expressway PCL (Thai) 12.5%; & TEAM Consulting Engineering and Management Co. (Thai) 1%	Export to Thailand	<ul style="list-style-type: none"> – Under construction (71.4% complete) and expected to be operational by 2013. – EIA finalised and but not publicly disclosed (in violation of National Hydropower Policy). – Estimated cost US\$832 million, largely financed by Thai commercial banks; EdL's equity share in project was provided by Thai EXIM. Reports that costs have increased by 30% (Bangkok Post 10/7/08). – Mitsui and Toshiba (Japan) awarded contracts worth approx US\$100 million to supply turbines and generators (JCN Newswire 8/23/06). – In May 2006, Jakko Poyry (Finland) announced it had been awarded an engineering contract worth €8.9 million. – Roctest Ltd. of Canada won civil engineering contract (Foxbusiness.com 03/09). – Displacing approx. 6,100 mainly ethnic minorities from 17 villages; questionable land availability and livelihood proposals; apparent lack of RAP. Will impact fishery of Nam Ngum 1 reservoir, a source of food and income for more than 9,000 people. Transmission line constructed through Phou Khao Khouay NPA. – Nam Ngum basin is a high-security area, with reports of major mining and logging interests controlled by the military. – More information: http://www.internationalrivers.org/en/node/3343
Nam Ngum 5 (Vientiane & Xiengkhuang)	120	EdL 15%; Sinohydro (China) 85%	Domestic	<ul style="list-style-type: none"> – Sinohydro announced it had signed a Concession Agreement and PPA for the project in April 2007. – Construction reportedly began in April 2008 (Vte Times 4/30/08) and confirmed by Ministry of Energy and Mines in May 2008 presentation, before EIA was approved in June 2008; 10% complete; COD expected 2011. – Estimated cost US\$200 million, will be covered by a loan from national Bank of China (US\$140m); Sinohydro (US\$54m) and EdL (US\$6m) (VOA 4/03/07). – Affect paddy land of 49 households; questionable livelihood proposals. Lack of baseline data or assessments of downstream impacts. – Nam Ngum basin a high-security area, and reports of major mining and logging interests controlled by the military in the basin. – Sinohydro has approached World Bank's MIGA for a guarantee, although construction is proceeding before MIGA's Board has approved its involvement; EIA posted on MIGA's site: http://www.miga.org/news/index_sv.cfm?aid=1640 – More information: http://www.internationalrivers.org/en/node/3343

Nam Ou 8 (Phongsaly & Luang Prabang)	90	Chinese investors	Domestic and Export	<ul style="list-style-type: none"> - Expected cost US\$70 million (Vte Times 04/03/09) - Construction has begun, according to a official quoted in the Vientiane Times on 3 April, 2009. - 25 year CA signed (Vte Times 04/03/09) - Expected to be operational by 2015. - Eight villages containing 600 residents will be affected; they will be relocated to other villages or in a resettlement area prepared by local authorities (Vte Times 04/03/09). - According to Khua district Governor, Mr Bounly Voraoukham, local people who will be affected by the dam are being encouraged to stop growing industrial trees and building permanent houses on the project site, but to grow crash crops instead (Vte Times 04/03/09). - Will affect approximately 50,000 people, displacing some 7,000; 300 sq km reservoir would inundate part of Phou Dendin NBCA; "fish life and habitats badly impacted."(b)
Nam Theun 2 (Khammouane)	1,088	Nam Theun 2 Power Company (NTPC), comprising: Lao Holding State Enterprise - LHSE (Laos) 25%; Electricite Du France - EDF (France) 35%; Electricity Generating Company - EGCO (Thailand) 25%; & Ital-Thai Development Co. (Thailand) 15%	Domestic/ Export to Thailand	<ul style="list-style-type: none"> - PPA signed 2003, and approved by the World Bank March 2005. - Currently under construction (95.5% complete) and expected to be operational by December 2009; reservoir filling began in April 2008. - Estimated cost US\$1.45 billion, financed by World Bank, ADB, EIB, NIB, a number of export credit agencies and commercial banks. - Has displaced 6,300 people from Nakai Plateau and will adversely affect 120,000 people downstream along the Xe Bang Fai and along the Nam Theun. More than 10,000 people also affected by project construction. - 95% of power will be sold to Thailand (Guardian Weekly 05/28/09). - Recent field reports document violations of environmental and social safeguards and commitments. - More information: http://www.internationalrivers.org/en/node/1847 http://www.internationalrivers.org/en/node/3343 http://www.terraper.org/key_issues_view.php?id=4

<p>Theun-Hinboun Expansion (Bolikhamxay)</p>	<p>260 (500 total)</p>	<p>Theun-Hinboun Power Company (THPC) [comprising: EdL (Laos) 60%; Nordic Group [owned by Statkraft] (Norway) 20%; & GMX Lao 20%] 20%; Financial Institutions 80%</p>	<p>Domestic/ Export to Thailand</p>	<ul style="list-style-type: none"> - PPA signed September 2008; financial close reached October 2008. - Expected COD late 2012. - Estimated cost US\$720 million (Vte Times 05/07/09). Loans secured from Thai EXIM, ANZ, KBC Bank, BNP Paribas and Thai banks. - 440MW will be sold to Thailand with the remaining 60MW sold to EdL for local supply (Vte Times 05/07/09). - Resettlement Action Plan and EIA conducted by Norplan are available; scandal regarding Norplan EIA, where they used RMR EIA data but reached different conclusions. - Austrian company Andritz VA Tech Hydro awarded electro-mechanical equipment contract for US\$122 million (International Water Power and Dam Construction 12/17/08); SWECO awarded owner's engineer contract. - 6,933 people in 1,289 families in 23 villages are being relocated (Vte Times 06/03/09) mainly ethnic minorities; questionable land availability and land proposals. Will affect 48,411 people downstream, on project lands, and in host villages. Exacerbate flooding and erosion in Hai and Hinboun basins. - UXO clearance reportedly not being completed by accredited company but instead by Lao army. - Resettlement housing construction underway; approximately 30 of 120 houses expected to be completed in January 2008. (Vte Times 11/22/08). Will start moving people in March 2009 from the two villages in the construction area to a new location in Nongsong village; expects to move all households by April 2009. Residents of Nongsong, Sobpuan and Phonthong villages will all be moved by 2010 (Vte Times 01/29/09). - Ground officially broken May 5, 2009 (Vte Times 05/07/09). - Resettlement around reservoir area started May 2009. - More information: http://www.fivas.org/ http://www.internationalrivers.org/en/node/964 http://www.internationalrivers.org/en/node/3343
<p>Xekaman 3 (Sekong)</p>	<p>250</p>	<p>Vietnam-Lao Power Joint Stock Co. - VLP (Vietnam) 85%; EdL (Laos) 15%</p>	<p>Domestic/ Export to Vietnam</p>	<ul style="list-style-type: none"> - Under construction (64% complete) since April 2006 and expected to be operational by 2010. - EIA finalised and but not publicly disclosed (in violation of National Hydropower Policy). - Estimated cost increased to US\$311.7 (VNA 10/05/08); power purchase price expected to be increased once project is complete (Vte Times 8/14/08). - 85% of electricity will be sold to Vietnam, the rest is domestic consumption KPL 05/07/09). - Song Da of Vietnam is constructing dam. - Secured US\$66 million from Vietcom Bank and Bank for Investment and Development of Vietnam (Asia Pulse 7/31/07). - VLPC shareholders include: Song Da Corporation (49%), PetroVietnam, Bank for Investment and Development of Vietnam (BIDV), PetroVietnam Finance Company (PVFC), and BIDV Securities Company (Xinhua 12/10/07). - Austrian company Andritz VA Tech Hydro unit has been awarded a €42 million contract to supply electro-mechanical equipment to Xekaman 3 (Thomson Financial 6/3/08). - At least 7 ethnic minority villages downstream and 40 villages upstream may be affected. Will inundate one village. Will impact Dong Amphan NPA. - More information: http://www.internationalrivers.org/en/node/3343 http://www.terraper.org/pic_water/Watershed%2012(1).pdf

Xeset 2 (Salavanh)	76	EdL (Laos)	Domestic/ Export to Thailand	<ul style="list-style-type: none"> - Under construction (80% complete) and expected to be operational by August 2009. - Estimated cost US\$135 million, largely financed by China EXIM. - In 2006, Norconsult awarded contract for advisory services and construction supervision; main construction contractor is Norinco of China. - Will adversely affect approx. 20,000 people in the Xeset River Basin. - In the process of registering for the UN Clean Development Mechanism (Vte Times 02/09). - More information: http://www.terraper.org/pic_water/Watershed%2011(1).pdf
Don Sahong (Champasak)	360	Mega First Corporation Berhad - MFCB (Malaysia) 80%; GoL 20%	Domestic/ Export to Thailand	<ul style="list-style-type: none"> - MoU for feasibility study signed 2006; and Project Development Agreement signed February 2008. - Estimated cost US\$300 million. - Expected COD 2015. - EIA has reportedly been submitted to Lao government, but has yet to be publicly released. - Block main fish migration channel in the Khone Falls area, causing severe fisheries impacts for Laos, Cambodia and region; would threaten last Irawaddy Dolphin population in Laos and jeopardize tourism value of Khone Falls area and potential RAMSAR status. - Affected villagers not properly informed; no consultations in Cambodia. - More information: http://www.terraper.org/key_issues_view.php?id=13, http://www.internationalrivers.org/en/node/3343 http://www.internationalrivers.org/en/node/2257
Hongsa Lignite (Xayabouri)	1,878	LHSE 20%; Ratchabury 40%; BANPU 40%	Domestic/ Export to Thailand	<ul style="list-style-type: none"> - PDA signed Dec. 2006, exp. June 2009. - National Energy Policy Council approved a new proposed PPA; original MoU abandoned by the project's developers after construction costs soared (The Nation 05/11/09). - Expected to cost US\$3.9 billion; will be the nation's largest investment project. According to Lao Holding State Enterprise, the project has two parts. First, lignite will be locally mined to supply the plant and then power will be generated by the plant (Vte Times 02/06/09). - Construction will begin in 2010, with the mine and power plant scheduled for completion in 2015 (Vte Times 02/06/09).
Nam Kong 1 (Attapeu)	75	Region Oil (Russia) 80%; Lao Holding State Enterprise - LHSE (Laos) 20%	Domestic or Export to Thailand or Vietnam	<ul style="list-style-type: none"> - MoU signed 2005 and feasibility study (EIA?) completed in December 2007; Project Development Agreement signed June 2008. - Construction expected to start March 2010; COD expected 2014 (Vte Times 05/15/09). - Estimated cost US\$186 million (Vte Times 6/25/08). - Villagers already displaced from project area. Impact about 1,612 ethnic minorities downstream; no compensation proposed. - More information: http://www.terraper.org/pic_water/Watershed%2012(1).pdf http://www.internationalrivers.org/en/node/3343

Nam Lik 1 (Vientiane)	60	Hydro Engineering Co. (Thailand) 80%; GoL (20%)	Domestic	<ul style="list-style-type: none"> – Project development Agreement signed April 2008; expected COD 2013. – Estimated cost US\$109 million (KPL 4/09/08). – Environmental certificate expected to be issued in December 2008 (Vte Times 11/24/08).
Nam Mo (Xengkhuang)	105	Viet-Lao Economical Cooperative General Company (Vietnam) 85%; GoL 15%	Domestic/ Export to Vietnam	<ul style="list-style-type: none"> – Project Development Agreement signed March 2008. – Expected COD 2014. – Potential resettlement of people from Ban Maung Ngat 1.a
Nam Ngiep 1 (Bolikhamsay)	260+18	Kansai Electric & Nippon Keoi (Japan) 50%; Lao Holding State Enterprise - LHSE (Laos) 30%; EGAT (Thailand) 20%	Domestic/ Export to Thailand	<ul style="list-style-type: none"> – PPA signed April 2006, expired February 2009. – Construction expected to begin in 2008; planned COD 2015. – Estimated cost US\$477 million (Vte Times 3/03/08), but increasing costs of approx. 30% led developers to call for re-negotiation of purchase price with EGAT in July 2008 (Vte Times 7/30/08). – Developers suspended investment in December 2008, citing rising construction costs, credit crunch and uncertain Thai electricity demand (Vte Times 12/17/08). – According to feasibility study conducted by Nippon Koei in 2002, project would affect approx. 13,000 people, displacing 1,600 people; will have serious downstream impacts on aquatic life and fisheries. – ADB will review loan of US\$35M requested by EdL; loan received concept clearance April 2009, fact-finding then undertaken. ADB plans to appraise the fact-finding data in June 2009. No date has been given for the findings to be issued; application is in ADB pipeline for potential approval in 2010 (Water Power and Dam Construction Magazine 05/13/09).
Nam Ngum 3 (Vientiane & Xieng Khouang)	440	Marubeni (Japan) 25%; Ratchaburi (Thai) 25%; GMS Power (Thai) 27%; Lao Holding State Enterprise - LHSE (Laos) 23%	Export to Thailand	<ul style="list-style-type: none"> – A tariff MoU signed with EGAT December 2006; in process of negotiating PPA. – EIA workshop held in January 2008. – Pre-construction has begun despite lack of EIA approval; expected to be operational by 2014. – Estimated cost US\$779.6 million (Vte Times 3/03/08), but increasing costs of approx. 30% led developers to call for re-negotiation of purchase price with EGAT in July 2008 (Vte Times 7/30/08). – Funding likely from ADB (in lending pipeline), International Finance Corporation and/or JBIC in 2009. – ADB-financed cumulative impact assessment. – Resettle 523 people within their village territory. Affect at least 2,455 people downstream and unknown numbers upstream. – Developers suspended investment in December 2008, citing rising construction costs, credit crunch and uncertain Thai electricity demand (Vte Times 12/17/08). – ADB tentatively planned the Board meeting for 2010 (Communication with ADB 03/26/09)

Nam Ou 1-7 (Phongsaly & Luang Prabang)	1,100 (1,300?)	Sinohydro (China) 75%-90%; GoL 10-25%	Domestic or Export to Thailand or China	<ul style="list-style-type: none"> - Project Development Agreement signed October 2007. - According to Sinohydro, the Nam Ou cascade involves 6-7 projects that will be operational between 2013-2016. - American company, Pacific Resources, conducted geological surveys on the Nam Ou in the late 1990s and reportedly determined that many locations were risky due to seismic faults. - Increasing costs of approx. 30% led developers to call for re-negotiation of purchase price with EGAT in July 2008 (Vte Times 7/30/08). - Estimated cost for cascade is US\$2 billion. - On 27 Nov. 2007, Sinohydro announced it had signed an agreement to sell 90% of electricity from Nam Ou dams to Thailand, noting it was more profitable than selling to China; and Nam Ou has been included in Thailand's revised PDP (Jan 2008). - Egco plans to resume development and renegotiate the original contract (Bangkok Post 04/24/09).
Nam Sane 3 (Xiengkhuang)	60	Rohas Euco Industries Berhad (Malaysia) 75%; GoL 25%	Domestic	<ul style="list-style-type: none"> - Project Development Agreement signed June 2008. - Expected COD 2013.
Nam Theun 1 (Bolikhamsay)	525	Lao Holding State Enterprise - LHSE (Laos) 5%; Gamuda (Malaysia) 47.5%; EGCO (Thailand) 47.5%	Domestic/ Export to Thailand	<ul style="list-style-type: none"> - In process of negotiating PPA and Concession Agreement. - Pre-construction has begun despite lack of final design or EIA approval; expected COD 2016. - Estimated cost US\$759.68 million (Vte Times 3/03/08), but increasing costs of approx. 30% led developers to call for re-negotiation of purchase price with EGAT in July 2008 (Vte Times 7/30/08). - Serious questions over economic viability – was screened out of Lahmeyer/Manusell 2004 PSDP. - Located in Nam Kading Protected Area, site of WCS and World Bank GEF project – major biodiversity impacts. - Adversely affect more than 30,000 people, mainly upstream and downstream of reservoir (blocked fish migrations, water quality problems, etc.), displace approx 3,500 people from reservoir area. - Developers suspended investment in December 2008, citing rising construction costs, credit crunch and uncertain Thai electricity demand (Vte Times 12/17/08). - Egco plans to resume development and renegotiate the original contract (Bangkok Post 04/24/09). - More information: http://www.internationalrivers.org/en/node/1794 http://www.internationalrivers.org/en/node/3343
Xayabouri (Xayabouri & Luang Prabang)	1,260	Ch. Karnchang (Thailand); PT Construction and Irrigation (Laos)	Domestic/ Export to Thailand	<ul style="list-style-type: none"> - Project Development Agreement signed November 2008 and construction could begin in 2010. - Estimated cost US\$1.7 billion. - Thai contractor Karnchang Public Co signed deal with the government to build the project. - According to 1994 Mekong Secretariat study, project would displace approx. 1,720 people. - More information: http://www.terraper.org/key_issues_view.php?id=13 http://www.internationalrivers.org/en/node/2257

Xekaman 1 (Attapeu)	320	Vietnam-Lao Power Joint Stock Co. - VLPC (Vietnam) 70-85%; GoL 15-30%	Domestic or Export to Vietnam	<ul style="list-style-type: none"> - MoU for feasibility study signed in 2006. - Construction expected to begin in 2008 and COD expected in 2013. - Estimated cost US\$400 million to be financed by VLPC (Xinhua 12/10/07). - Resettle about 800 ethnic minorities; many others already displaced from reservoir area. Affect up to 10,000 people through water quality changes, fisheries losses and erosion. Impact Dong Amphan NPA. - The developer appears to have financial difficulties right now so the ADB is not certain that this project will be implemented soon (Communication with ADB 04/28/09). - More information: http://www.terraper.org/pic_water/Watershed%2012(1).pdf http://www.internationalrivers.org/en/node/3343
Xe Katam (Champasak)	61	Kansai (Japan) 55%; Thai investor 20%; GoL 25%	Domestic	<ul style="list-style-type: none"> - Project Development Agreement signed December 2007. - EIA completed but not disclosed (in violation of National Hydropower Policy). - Expected COD 2012. - According to 2006 feasibility study, project will cost an estimated US\$120 million. - Kansai expects support from JBIC and Nippon Export and Investment Insurance (NEXI). - Resettle 235 mainly ethnic minorities; questionable land availability and livelihood proposals. Affect unknown numbers downstream; no compensation proposed. - More information: http://www.internationalrivers.org/node/3343
Xekong 4 (Sekong)	300	Region Oil (Russia) 75%, Lao Holding State Enterprise - LHSE (Laos) 25%	Domestic or Export to Thailand or Vietnam	<ul style="list-style-type: none"> - MoU for feasibility study signed 2006 and EIA workshop held in Vientiane November 2007; Project Development Agreement signed June 2008. - Expected construction March 2010; expected COD 2015 (Vte Times 05/15/09). - Estimated cost US\$600 million. - Russian energy company Vostokhydro Energostroy will carry out the construction over a three-year period. - 147 sq km will be flooded (Vte Times 05/15/09). - Resettle more than 5,000 mainly ethnic minorities; questionable livelihood proposals; many villagers already moved out of reservoir area. - Cause an estimated US\$6.25 million in fisheries losses annually in Lao part of basin, potentially affecting more than 190,000 people in Laos and unknown numbers in Cambodia; no compensation proposed. No assessment of impacts in Cambodia. - More information: http://www.terraper.org/pic_water/Watershed%2012(1).pdf http://www.internationalrivers.org/en/node/3343
Xelanong 2 (Salavanh)	60	JRC Service Co. Ltd (Japan) 75%; GoL 25%	Domestic	<ul style="list-style-type: none"> - Project Development Agreement signed September 2007. - feasibility study ongoing.

Xepian-Xenamnoi (Attapeu & Champasak)	390	SK Engineering & Construction - SKEC (Korea) 26%; KOWEPO (Korea) 25%; Ratchaburi (Thailand) 25%; & GoL 24%	Export to Thailand	<ul style="list-style-type: none"> - Project Development Agreement signed November 2008. - Expected COD 2015. - Estimated cost US\$668 million. - Would be built in the area where people resettled from Houay Ho Dam currently reside, possibly in conjunction with large bauxite mining project. - Resettle at least 4 villages and affect at least another 8 villages. Impact Xepian River downstream.
Ban Koum (Champasak)	2,330	Ital Thai Development Co. (Thailand) and Asia Corp Holdings Limited	Domestic/ Export to Thailand	<ul style="list-style-type: none"> - MoU signed March 2008. - Thai and Lao governments authorized their respective "government agencies to supervise the project and coordinate with the Italian-Thai Development Company and Asia Corp. on the feasibility study." - According to a March 2008 report prepared and presented by Panya Consultants and Macro Consultants, Ban Koum would have an installed capacity of 1,872 MW and reservoir area of 98,806 rai (approx. 15,800 ha). - More information: http://www.terraper.org/key_issues_view.php?id=13 http://www.internationalrivers.org/en/node/2257
Dak Emeule (Sekong)	130	Vietnam-Lao Power Joint Stock Co. - VLPC (Vietnam) 75%; GoL 25%	Domestic/ Export to Vietnam	<ul style="list-style-type: none"> - MoU signed January 2008. - Construction expected to begin in 2009 (Vte Times 1/10/08). - Estimated cost over US\$155 million (Vte Times 1/10/08).
Houay Katam (Champasak)	33	ETEL Co Inc. (Japan)	Domestic	<ul style="list-style-type: none"> - MoU signed April 2006; expired October 2007.
Houay Lamphan Gnai (Sekong)	86.7	EdL	Domestic	<ul style="list-style-type: none"> - New Jec Inc. (Japan) commissioned to undertake feasibility study in May 2008 (Vte Times 5/12/08). - World Bank provided funds (approx. \$1 million) for study as part of GMS Power Trade (Laos) Project, approved in 2007. - Australian company GHD conducting feasibility study.
Lat Sua (Champasak)	800	Charoen Energy and Water Asia Co. (Thailand)	Domestic/ Export to Thailand	<ul style="list-style-type: none"> - MoU signed April 2008.
Luang Prabang (Luang Prabang)	1,410	PetroVietnam Power Corporation (PVPower), subsidiary of PetroVietnam (Vietnam)	Domestic/ Export to Vietnam	<ul style="list-style-type: none"> - MoU signed October 2007. - Construction expected to begin in 2010; expected COD 2016. - Estimated cost US\$2 billion. - Electricity Construction Consultancy Company No. 1 was awarded contract to survey proposed project site. Survey expected to be completed April 2008 (VNA 12/03/07). - PVPower Engineering Consulting Joint Stock Company signed the internal corporation agreement with the Moscow Irrigation and Construction Design Institute. Along with the joint stock company, the other four companies to have recently joined PVPower include the Machinery and Spare Parts Company, the Viet Nam Technology Service Petrol Power Company, the Viet Nam Real Estate Petrol Power Company and a consulting business (VNA 12/21/07). - According to 1994 Mekong Secretariat study, project would displace approx. 6,580 people. - More information: http://www.terraper.org/key_issues_view.php?id=13 http://www.internationalrivers.org/en/node/2257

Nam Bak 1 (Vientiane)	140	Shlapak Group (USA) 4%; EdL (Laos) 25%; Ch. Karnchang (Thai) 28.5%; PT Construction & Irrigation Co., (Laos) 4%; Ratchaburi Generating Co. (Thai) 25%; Bangkok Expressway PCL (Thai) 12.5%; & TEAM Consulting Engineering and Management Co. (Thai) 1% = Nam Ngum 2 Power Company	Export to Thailand	<ul style="list-style-type: none"> - MoU signed April 2007; feasibility study ongoing. - Expected cost US\$410 million (Bangkok Post 04/29/09). - Ch Karnchang is about to sign construction contract (The Nation 04/24/09).
Nam Bak 2 (Vientiane)	27	Shlapak Group (USA) 4%; EdL (Laos) 25%; Ch. Karnchang (Thai) 28.5%; PT Construction & Irrigation Co., (Laos) 4%; Ratchaburi Generating Co. (Thai) 25%; Bangkok Expressway PCL (Thai) 12.5%; & TEAM Consulting Engineering and Management Co. (Thai) 1% = Nam Ngum 2 Power Company	Domestic/ Export to Thailand	<ul style="list-style-type: none"> - MoU signed in April 2007; feasibility study ongoing.
Nam Beng (Oudomxay)	50	China Electrical Equipment Corp. (China)	Domestic	<ul style="list-style-type: none"> - MoU signed Aug 2006; expired September 2008.
Nam Et 1, 2, 3 (Houaphanh)	140+170+110 (420)	EVN International Joint Stock Company	Domestic	<ul style="list-style-type: none"> - MoU signed December 2008.
Nam Feuang (Vientiane)	28	Yunan Provincial Power Investment (China)	Domestic	<ul style="list-style-type: none"> - MoU renewed October 2008; expired June 2009.
Nam Khan 2 (Luang Prabang)	130	Sinohydro (China)	Domestic	<ul style="list-style-type: none"> - MoU signed October 2006; expired April 2008.
Nam Khan 3 (Luang Prabang)	95	Sinohydro (China)	Domestic	<ul style="list-style-type: none"> - MoU signed October 2006; expired April 2008.
Nam Kong 3 (Attapeu)	35	Region Oil (Russia)	Domestic	<ul style="list-style-type: none"> - MoU signed December 2005; expired September 2008. According to Region Oil, they will prioritize the 3 other projects in the Sekong Basin (Vte Times 10/24/06). - Handover to GoL. - Displace roughly 1,550 people from three villages; inundate approximately 23 sq km of forested lands.^a - More information: http://www.terrafer.org/pic_water/Watershed%2012(1).pdf

Nam Ma 1, 2, 3 (Houapanh)	140	Linh Linh, JFC Electrical Construction Investment Joint Stock Company (Vietnam)	Domestic/Export to Vietnam	- MoU signed December 2008.
Nam Mang 1 (Bolikhamsay)	60	Far-East Industrial Co., Ltd	Domestic	- MoU signed in February 2007; expired April 2009; feasibility study ongoing and expected to be completed in early 2009. - Expected COD 2012.
Nam Nga (Luang Prabang & Oudomxay)	80	Norpower Co. Ltd (Norway)	Domestic	- MoU signed November 2007.
Nam Ngiep 2 (Vientiane)	155	China International Water and Electric Corporation (China)		- MoU signed December 2008.
Nam Ngum Downstream (Vientiane)	70	China National Electronics Import and Export Corp. - CEIEC (China)	Domestic	- MoU signed January 2008. - Expected cost US4800 million. Having trouble getting financing due to financial crisis (KPL 02/23/09). - Construction expected to start in 2010 and finish in 2014 (KPL 02/23/09).
Nam Ngum 4A (Vientiane & Xiengkhaung)	60	Saigon Investment Group (Vietnam)	Domestic/Export to Vietnam	- MoU signed March 2008.
Nam Ngum 4B (Vientiane & Xiengkhaung)	60	Saigon Investment Group (Vietnam)	Domestic/Export to Vietnam	- MoU signed March 2008.
Nam Ou 9-11 (Phongsaly & Luang Prabang)	120+900			- Surveys are yet to be conducted as the global economic crisis has meant a decline in interest from potential investors (Vte Times 04/03/09).
Nam Pha (Luangnamtha & Bokeo)	70	AP Bizlink Group (Malaysia)	Domestic	- MoU signed May 2007; expired May 2009.
Nam Phak (Champasak)	75	Kobe Green Power Co. Ltd (Japan) 40%; EdL 20%; other investor 40%	Domestic	- MoU signed May 2007; expired May 2009; feasibility study ongoing.
Nam Phoun (Xayabouri)	60	SOK Corporation Ltd.	Domestic	- MoU signed December 2008.
Nam Seuang 1 (Luang Prabang)	56	Bru Thai International Co. Ltd (Thailand)	Domestic/Export to Thailand	- MoU signed May 2007; expired May 2009.

Nam Seuang 2 (Luang Prabang)	220	Bru Thai International Co. Ltd (Thailand)	Domestic/ Export to Thailand	– MoU signed May 2007; expired May 2009.
Nam Tha 1 (Luangnamtha)	168	China Southern Power Grid Co. (China) 75%; EdL 25%	Domestic	– MoU signed August 2006 and study submitted in September 2007. – Concession Agreement under negotiation. – Construction of access road and transmission line before EIA approval. – Resettle 8,000 mainly ethnic minorities; questionable land availability and livelihood proposals. Affect more than 4,600 downstream and unknown numbers upstream. Impact Bokeo Reserve and Nam Ha NPA. – More information: http://www.internationalrivers.org/en/node/3343 http://www.internationalrivers.org/en/node/1794
Nam Theun 4 (Bolikhamxay)	110	REE Power Plant Inc. (Vietnam)		– MoU signed September 2008.
Nam Xam (Houaphan)	750	Saigon Investment Group (Vietnam)	Domestic/ Export to Vietnam	– MoU signed March 2008.
Pak Beng (Oudomxay & Xayabouri)	1,300	Datang International Power Generating Co. (China)	Domestic/ Export to Thailand & China	– MoU signed August 2007. – According to 1994 Mekong Secretariat study, project would displace approx. 1,670 people. – More information: http://www.terrafer.org/key_issues_view.php?id=13 http://www.internationalrivers.org/en/node/2257
Pak Lay (Xayabouri & Vientiane)	1,320	China National Electronics Import and Export Corporation [CEIEC] and Sinohydro (China)	Domestic/ Export to Thailand	– MoU signed June 2007; feasibility study ongoing. – Estimated cost US\$1.7 billion (Vte Times 6/13/07). – According to 1994 Mekong Secretariat study, project would displace approx 11,780 people . – More information: http://www.terrafer.org/key_issues_view.php?id=13 http://www.internationalrivers.org/en/node/2257
Sebang Hieng 1, 2 (Savannakhet)	50+52	Song Da United Company (Vietnam)		– Feasibility studies being done. – US\$151 million (KPL 03/02/09).
Thakho (Champasak)	60	Companie Nationale du Rhone (CNR)		– MoU signed March 2009
Xanakham (Xayabouri & Vientiane)	500	Datang International Power Generating Co. (China)	Domestic/ Export to Thailand & China	– MoU signed December 2007.
Xebanghieng 1 (Savannakhet)	65	Song Da Corporation (Vietnam)		– MoU signed November 2008.

Xebanghieng 2 (Savannakhet)	250	Song Da Corporation (Vietnam)		– MoU signed November 2008.
Xebungnuan (Salavane)	80			– MoU signed Aug. 2005, expired March 2008.
Xekaman 4 (Sekong)	155	Vietnam-Lao Power Joint Stock Co. - VLPC (Vietnam)	Export to Vietnam	– MoU signed November 2006; expired February 2009; construction expected to begin in 2009.
Xekong 3 (Sekong)	150	Vietnam-Lao Power Joint Stock Co. - VLPC (Vietnam); Song Da Corporation (Vietnam)	Domestic/Export to Vietnam	– MoU signed January 2008. – Cost approx. US\$280 million (Vte Times 1/30/08). – Song Da Corporation has begun feasibility study (KPL 04/08/09). – According to the original design, the project would inundate the provincial capital of Sekong Province.
Xekong 5 (Sekong)	400 (330?)	Region Oil (Russia); Lao government; others to be invited	Domestic or Export to Thailand or Vietnam	– MoU signed in 2005; expired April 2009; feasibility study submitted early June 2009 (Vte Times 06/25/09). – ESIA being conducted; district and provincial level workshops have taken place; preparing for the ESIA workshop at the national level (Vte Times 03/13/09). – PDA signed mid-June 2009 between Region Oil and Lao government (Vte Times 06/25/09). – According to Region Oil representative, only 32 sq km will be inundated and only 735 people from eight villages, from both the flooded area and the construction site, will need to be resettled (Vte Times 05/15/09). – Norconsult AS (Norway) and National Consulting Company (Laos) contracted to conduct environmental and social impact assessments (Vte Times 05/15/09). – Expected COD 2016 (Vte Times 05/15/09). – Resettle unknown numbers of mainly ethnic minorities; many villagers already displaced from reservoir area. Exacerbate fisheries losses and water quality problems caused by Sekong 4. Bisect Xesap NPA. – More information: http://www.terraper.org/pic_water/Watershed%2012(1).pdf http://www.internationalrivers.org/en/node/3343
Xelanong 1 (Savannakhet)	80	Norpower Co. Ltd (Norway)	Domestic	– MoU signed November 2007.
Xe Neua (Khammouane)	40	Phonesack B. & Road Construction Co.	Domestic	– MoU signed in May 2006; expired November 2007; feasibility study ongoing.
Xepone 3 (Savannakhet)	100	China National Machinery & Equipment Import & Export Corporation (CMEC) (China)	Domestic	– MoU signed April 2008.

^a Norplan. 2004. *Lao PDR – Strategic Impact Assessment*. Annex 1: Project Descriptions

^b Lahmeyer and Worlev. 1998. *Nam Theun 2 – Study of Alternatives*

For more information on hydropower development in Laos, see:

<http://www.internationalrivers.org>

<http://www.terraper.org>

<http://www.probeinternational.org/catalog/Mekong.php>

<http://www.poweringprogress.org>