

A REVIEW AND EXPLORATION OF THE STATUS, CONTEXT AND POLITICAL ECONOMY OF POWER SECTOR REFORMS IN SUB-SAHARAN AFRICA, SOUTH ASIA AND LATIN AMERICA

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Abstract

This paper provides an overview of market-oriented power sector reforms in Sub-Saharan Africa, South Asia, and Latin America over the past twenty-five years. The role of political economy contextualities in driving, constraining or otherwise influencing power sector reform is explored through a review of the essential literature. Though this literature is considered to have considerably expanded the scope of understanding around power sector reform and development, political economy research in the area is found to be lacking in methodological coherence and theoretical substance. Future efforts are needed to systematically bring together the array of insights, methodological approaches and recommendations in this literature, as well as better bound, differentiate and systemise political economy research in the area going forward. Two initial frameworks are advanced through this paper in relation to this dual research imperative.

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Introduction

Over the course of the 1980s and 1990s, a wave of market-based public sector reforms spread across the world. Driven by the progressive globalisation of neoliberalism and the exponential development of private capital markets, these reforms reimagined the state's role in society and development. In the power sector, financial capitalism, energy deregulation in many OECD countries, less-capital intensive generation technologies, and rapid advances in information and communications technology – including computer-based control systems – had reduced barriers to entry in electricity generation and retail, undercutting the 'natural monopoly' status of the electricity supply industry (ESI). As a result, the traditional model of a vertically integrated, state-owned power utility came to be seen as outdated and inefficient (Hunt, 2002; Armstrong & Sappington, 2006). A set of common reform steps to a market-based alternative emerged, evolving from the pioneering deregulation and restructuring reforms in England and Wales, Norway, and Chile in the early 1980s. Together, these steps or milestones led to the culmination of a 'standard model'¹ of power sector reform. At the most general level, the 'standard model' includes the following steps: the corporatisation and commercialisation of national utilities, the introduction of competition through restructuring, privatisation and allowing for the entry of private power producers and distributors, the establishment of independent regulatory institutions, and the creation of power markets (Bacon, 1999; Williams & Ghanadan, 2006; Victor & Heller, 2007; Gratwick & Eberhard, 2008; Jamasb, Nepal & Timilsina, 2015).

For OECD countries, the adoption of the 'standard model' was motivated by the promise of increased efficiency and reduced power costs. In high-income countries, and in the context of excess capacity, strong institutions, and high levels of socio-economic development, the implementation of the 'standard model' has largely been successful (Williams & Ghanadan, 2006; Sen, 2014; Jamasb, Nepal & Timilsina, 2015). This is not to say that there haven't been problems. A number of OECD countries experienced blackouts and untenable price volatility in the early 2000s, including the USA, UK, Canada, Scandinavia and Italy. Some power markets have also not sent the right price signals to attract timely investment in new generation capacity (Sen, 2014). Currently, these countries face a host of new power sector challenges associated with climate change mitigation and the integration of renewables, technology change and regional integration (IEA, 2016). Nonetheless, the 'standard model' can be seen as the most recent, constructive stage in the evolution of these power systems.

For non-OECD countries, the drivers, context and process of power sector reform have been vastly different. By the end of the 1980s, power systems in most low- and middle-income countries had begun to deteriorate under the poor technical and financial performance of state owned utilities (SOUs), underinvestment in electricity infrastructure, chronic institutional inefficiencies, and national

¹ Alternatives include: the 'standard prescription' (Hunt, 2002), 'the textbook model' (Joskow, 2006), 'the standard textbook model' (Victor & Heller, 2007).

fiscal crises (Bacon & Besant Jones, 2002; Besant-Jones, 2006; Williams & Ghanadan, 2006; Gratwick & Eberhard, 2008). At the same time, power sector loans, macroeconomic stabilisation lending, and development aid had become progressively conditional on market-based economic reforms under the sway of Bretton Woods institutions and the proliferation of structural adjustment programmes (SAPs). In 1993, the World Bank issued *The World Bank's Role in the Electric Power Sector: Policies for Effective Institutional, Regulatory and Financial Reform* – considered to be one of the earliest articulations of the ‘standard model’ – firmly establishing the core tenet of ‘commitment lending’ or lending that is dependent on a country’s commitment to improving ESI performance through power sector reforms, specifically: transparent regulatory processes, commercialisation and corporatisation of utilities, and private sector participation (World Bank, 1993, Gratwick & Eberhard, 2008). It became *the* reference point for other development finance institutions’ (DFIs) power sector lending policies throughout the 1990s, including the Asia Development Bank (ADB), Inter-American Development Bank (IADB), and the UK’s Department of International Development (DFID) (World Bank, 1993; ADB, 1995; IADB, 1996; Gratwick & Eberhard, 2008).

By the end of the 1990s, over 70 developing countries had begun implementing power sector reforms in line with the ‘standard model’ under the pressures of high public sector debt, the burden of poorly performing, state-dominated utilities and the demands of conditionality (Besant-Jones, 2006). In these countries, DFIs and domestic actors promoted and supported reforms with the hope that they would ease the national fiscal position, attract private investment, and improve governance and performance in ESI in general. However, in the context of capacity shortages, weak institutions, low levels of socio-economic development and complex political-economy conditions, the implementation of reforms has struggled and stalled (Dubash, 2002; Laffont, 2005; Besant-Jones, 2006; Sen, 2014; Jamasb, Nepal & Timilsina, 2015).

For the most part, power systems in low- and middle-income countries across Sub-Saharan Africa and South Asia have retained state-owned utilities, with varying degrees of unbundling, regulation, competition and private participation, mainly in the form of independent power producers (IPPs) (Dubash, 2002; Gratwick & Eberhard, 2008; Sen, Nepal & Jamasb, 2016; Eberhard et al. 2016). The ‘standard model’ has been particularly inefficacious in Sub-Saharan Africa, where few countries have unbundled their power utilities, and wholesale and retail competition are entirely absent.² The full implementation of the ‘standard model’ has been similarly frustrated in South Asia, though a significantly greater percentage of countries have vertically unbundled utilities and a few pockets of market competition have begun to emerge in India, where the 2003 Electricity Act provides for open access to the grid. In contrast, power sector reforms have been implemented in Latin America with greater success and regulated, competitive power markets are now the norm. However, a second

² While some countries, such as Nigeria, Uganda and Ghana, have fully unbundled and aim to create a wholesale market, they have not yet done so. The Southern African Power Pool manages some electricity trading but the amounts are insignificant and most cross-border sales are on the basis of bilateral contracts.

wave of reforms in the region, beginning in the early 2000s, has highlighted the necessity of least-cost power planning, the value of auctions for long-term contracts with new generators, and the importance of ensuring distribution utilities are financially viable (Antmann, 2012).

The failure of the 'standard model' in much of the developing world has motivated a significant body of research across disciplines, a sizable portion of which focuses on identifying factors of political economy (PE) that might explain the incomplete implementation and disappointing outcomes now widely associated with power sector reform in these contexts (see: Bacon & Besant-Jones, 2002; Besant-Jones, 2006; Victor & Heller, 2007; Scott & Seth, 2013; Barnett, 2014; Masami, Bacon & Trimble, 2014). Suffused with references to various constraining or enabling factors of PE, such as 'weak institutions' and 'political will', the approach adopted in much of this literature treats contextual factors as relatively rigid conditions that can be worked around in such a way that reforms could be successfully implemented (Victor & Heller, 2007). Yet, such an approach is limited in that it mistakes the political economy context and factors of political economy, which are more often than not also the objects of reform (or at least affected by reform), for exogenous obstacles that can be overcome. Instead, reflecting on reform experiences across countries in recent decades, we propose that PE research demands a more dynamic approach, one that takes into account the responsive and resilient nature of PE systems and the agents that work within them, in addition to the constraints or limits that bound them. Further, we suggest that this research can benefit from integrating and building from theoretical and research PE work done in other areas, as much of initial literature is 'stand-alone' in nature. Nonetheless, we look to this literature as a rich resource from which to begin mapping the contextualities³ that have shaped power sectors in developing countries, as well as the challenges encountered in reforming these systems.

PE has also seen a resurgence in the development research and practice community at large, which has led to the inclusion of 'Political Economy Analysis' (PEA) components in donor's development programmes and projects since the mid-2000s (including DFID, WB, ODI, Sida; see: Fritz, Kaiser & Levy, 2009; Edelmann, 2009; Hudson & Leftwich, 2014; Barnett, 2014). However, many of the PEA frameworks advanced over the past decade suffer a certain generality, rarely being sector or issue specific. The demands of multidisciplinary theoretical framework development in donor driven research, where general applicability is important, have tended to favouring either a broad and loose theoretical approach or one that is theoretically myopic, where streamlining has honed a tool only suited to certain contexts or treating certain aspects of political economy (Hudson & Leftwich, 2014). Thus, while the value of a PE approach is now broadly accepted, significant work remains to be done, both in research and practice, to advance a theoretically integrated yet targetable PE approach, as

³ We use the term 'contextualities' to capture the multitude of national, as well as regional, global and temporal, conditions that have shaped and give shape to the political economy of a country and its power sector. We use the term with due acknowledgment of its breadth, which allows us to address points made in different branches of the literature and from different political economy frameworks.

well as sector specific PE. In advancing PE research on power sector reform and development that is theoretically informed and systematic, the many PEA frameworks and associated literature provides a valuable starting point. However, we caution against adopting a streamlined or reductive framework. Instead, we propose that a broad theoretical and analytical framework is developed and then refined inductively through application, in correspondence with a systematic review of existing research in the area.

This state of knowledge provides an initial review of the essential literature on the status and experience of power sector reform in developing countries, with a political economy focus, concentrating on Sub-Saharan Africa and South Asia, but also including brief reference to the Latin American experience. It is organised into four sections. In the first, we reflect on the status of the power sector and the progress of 'market based' power sector reform in the three focus regions. In the second, we go on to explore the key contextualities that have shaped power sector reform experiences. In the third section, we critically explore approaches to political economy analysis (PEA) that have evolved in the development community, tentatively exploring missing links between theory, extant PE research on power sector reform and development and these PEA frameworks. In the final and concluding section, we reflect on the key themes, trends and lessons that have emerged through our paper. We conclude by offering suggestions for future research, identifying research objectives that would contribute to the advancement of political economy research and analysis as a means to understanding the evolution of power sectors in developing countries, and ultimately the development of more effective approaches to reform.

Status of the Power Sector & Reform in Sub-Saharan Africa, South Asia and Latin America

Across Sub-Saharan Africa, South Asia and Latin America, we find that power sector reforms have proven much more difficult than anticipated, and remain a work in progress in some countries while having completely stalled or reversed⁴ in many others. A single-buyer model dominates in most of Sub-Saharan Africa and South Asia, where incumbent state-owned utilities aggregate demand, acting as the counter-party to long term contracts with IPPs, while often still building and operating publically owned generation capacity. Only a small share of countries across these regions have privatised power utilities. Where elements of competition have been introduced, it has been competition *for* the market – through auctioning long-term contracts with IPPs – rather than *in* the market - where generators continuously compete for least-priced dispatch and sales through power exchanges and distribution companies offer competitive retail services to customers.

⁴ For example, a number of countries in Sab-Saharan Africa have terminated or not renewed private management or concession contracts that were undertaken as initial steps toward power sector privatisation and/or restructuring. In reverting to the vertically integrated, state-owned and run model, prior commitments to sector reform are typically deferred or taken off the table completely.

In Latin America, the implementation of reforms has been relatively successful by comparison, and wholesale and retail competitive arrangements are the norm. However, Latin American countries still struggled to deliver credible long-term planning and procurement processes, attract investment, or address short-term energy security risks in the 1990s. This led to a wave of reverse reforms in some and secondary reforms in others – such as the introduction of long-term bidding processes (competition *for* the market), a larger role for government in procurement and regular generation expansion planning. Today, most countries in Latin America combine competition *for* the market with competition *in* the market (mostly in balancing markets), with government playing a key role in planning and procurement processes.

In general, even where components of the ‘standard model’ have been implemented, attracting private investment in power infrastructure, improving energy security and increasing energy access have not necessarily followed. As a result, many of the same conditions that drove reforms in the 1990s still stand and continue to undermine economic growth and development, including: deep operational and financial crisis in utilities; a significant investment gap; insufficient, low quality and unreliable supply; and, inadequate access for residential, public, commercial and industrial consumers. Power sector reform remains a developmental imperative, of which the core challenge remains delivering adequate power at the least-cost while ensuring that utilities are technically efficient and financially sustainable so that they deliver adequate electricity services at competitive prices.

With over twenty-five years of attempted power sector reforms across Sub-Saharan Africa, South Asia and Latin America, what is the current status of power sector reform in these regions? What reforms have been successfully implemented? Have they achieved the expected outcomes? Why or why not? What might we learn from the second wave of reforms in Latin America? In this section we review literature on the status, process and experience of power sector reform in these regions, venturing answers to some of these questions. In the following section, we take a closer look at contextual/PE determinants of reform experiences, before going on to critically explore approaches to PEA that may be instructive in advancing PE research in the area.

Sub-Saharan Africa

Out of the 48 states that make up Sub-Saharan Africa, 34 are among the group of ‘least developed countries’ (LDCs) with some of the lowest indicators of socio-economic and human development in the world, approximately 17 are either in the midst of or recovering from prolonged civil conflict, and 23 are operating under authoritarian regimes (EIU, 2014). The region is characterised by multiple, intersecting crises that short-circuit and undermine socio-economic development. However, this nexus also provides an opportunity for rapid system change, in that improvements in one strategic sector can have far-reaching positive impacts in other sectors and thereby spur economic growth and development. The power sector holds such a strategic position. Yet, reform efforts have been

unsuccessful in too many countries and the past three decades have seen little to no improvement across key power sector indicators in most low-income countries in the region.

In table 1, we can see that while there are a few countries that have shown marked increases in generation capacity and electricity consumption, there are others that have actually lost ground in these areas. The same is true for transmission and distribution losses, though very few have managed to reduced losses significantly. Electricity access has increased in all 48 countries in the region, though not by much and progress has been slow. Less than a third have access rates over 50 per cent. Across these indicators, the region has fallen further behind other developing regions over the past three decades (Eberhard et al., 2008 & 2016).

Table 1 Power Sector Performance: Sub-Saharan Africa

Country	Installed Generation Capacity (MW/ million population)			Electricity Consumption (KWh per capita)			Access to Electricity (% Population)			Transmission & Distribution Losses* (% Output)		
	1990	2000	2013	1990	2000	2013	1990	2000	2013	1990	2000	2013
Vertically Integrated Utilities with no Private Sector Participation												
Benin	—	—	19,38	—	57	—	22	25,4	38,4	—	70	61
Burkina Faso	—	8,61	17,56	—	—	—	6,1	6,9	13,1	—	—	—
Burundi	—	—	—	—	—	—	0,1	3,9	6,5	—	—	—
CAR	—	—	—	—	—	—	3	6	10,8	—	—	—
Chad	—	—	—	—	—	—	0,1	2,3	6,4	—	—	—
Comoros	—	—	—	—	—	—	42	44,8	69,3	—	—	—
DRC	80,09	52,03	35,84	130	95	110	6,3	6,7	16,4	20	3	7
Equatorial Guinea	—	—	250	—	—	—	56,9	61	66	—	—	—
Eritrea	—	—	—	—	—	—	22,9	32,2	36,1	—	18	14
Guinea-Bissau	—	—	—	—	—	—	50,7	53,5	60,6	—	—	—
Liberia	47,62	—	—	—	—	—	0,1	0,6	9,8	—	—	—
Malawi	21,25	17,87	24,71	—	—	—	3,2	4,8	9,8	—	—	—
Mauritania	49,5	36,9	103,36	—	—	—	11,8	14,7	21,8	—	—	—
Niger	—	8,91	5,47	—	33	49	6,2	6,7	14,4	—	19	34
Congo	41,84	32,15	113,9	172	96	234	24,4	20,9	41,6	20	88	44
Seychelles	—	—	—	—	—	—	96,6	99,4	100	—	—	—
Somalia	—	—	—	—	—	—	22,2	25,9	32,7	—	—	—
South Sudan	—	—	—	—	—	39	0	0	5,1	—	—	6
The Gambia	—	—	—	—	—	—	17,7	34,3	34,5	—	—	—
Vertically Integrated Utilities with Private Sector Participation												
Botswana	144,93	57,47	45,87	717	1094	1564	36,7	39,6	53,2	—	18	39
Cameroon	49,71	50,22	49,53	194	171	278	29	46,2	53,7	13	22	10
Cape Verde	—	—	196,08	—	—	—	58,2	58,6	70,6	—	—	—
Cote d'Ivoire	98,6	60,53	69,38	157	173	252	36,5	51,4	55,8	18	15	19
Gabon	315,79	325,2	303,03	917	878	1168	73	73,6	89,3	11	18	20
Guinea	33,17	34,09	41,84	—	—	—	13,7	16,4	26,2	—	—	—
Madagascar	17,32	12,71	21,82	—	—	—	9,2	11,4	15,4	—	—	—
Mali	—	18,1	36,17	—	—	—	12	16,7	25,6	—	—	—
Mauritius	377,36	672,27	874,4	671	1363	2148	96,6	99,4	100	9	9	6
Mozambique	179,51	131,43	94,45	41	122	436	6,4	7,1	20,2	16	10	18
Namibia	141,84	210,53	212,77	—	995	1611	26,4	36,5	47,3	—	14	28
Rwanda	—	—	9,03	—	—	—	2,3	6,2	18	—	—	23
Senegal	26,63	30,43	70,32	104	102	219	26	36,8	56,5	17	37	16
Sao Tome Principe	—	—	—	—	—	—	50,3	52,9	60,5	—	—	—
South Africa	965,91	1045,4	846,02	4431	4681	4326	65	66,1	85,4	6	8	8
Swaziland	116,28	94,34	160	—	—	—	28,8	31,7	42	—	—	—
Tanzania	19,64	26,48	23,9	51	58	89	6,8	8,8	15,3	20	22	20
Togo	—	—	—	91	96	148	10	17	31,5	21	47	87
Zambia	208,85	160,6	124,59	752	588	731	13,3	17,4	22,1	3	3	9
Vertically Restructured Utilities												
Angola	53,92	39,84	89,55	57	82	227	28,2	31,1	37	25	15	11
Ethiopia	8,32	7,53	27,5	23	23	65	10	12,7	26,6	10	10	19
Ghana	82,02	63,76	107,02	327	334	382	30,6	45	64,1	3	19	22
Kenya	34,12	32,19	43,49	125	107	168	10,9	14,5	23	15	22	18
Lesotho	—	—	—	—	—	—	6,4	5	20,6	—	—	—
Nigeria	6,27	48,01	57,29	87	74	142	41,8	44,9	55,6	38	38	15
Sierra Leone	25,45	—	—	—	—	—	5,7	8,6	14,2	—	—	—
Sudan	—	—	—	50	58	159	22,6	25,5	32,6	15	16	23
Uganda	11,51	12,63	24,61	—	—	—	6,8	8,6	15,3	—	—	—
Zimbabwe	190,84	160	147,67	861	853	532	28,1	34,2	40,5	7	20	28
* Losses in transmission between sources of supply and points of distribution & in the distribution to consumers, including pilferage.												
Source: Authors' compilation – World Bank, 2016; IEA, 2016; EIA 2016,												

The Status of Generation, Access & Investment in SSA

Despite abundant renewable and fossil energy resources, Sub-Saharan Africa has a total installed capacity of around 90 GW (IEA, 2014). This drops to less than 50 GW when excluding the South African outlier's 43 GW. Only 13 countries in the region have power systems larger than 1 GW, while 27 have grid-connected systems smaller than 500 MW and 14 have systems smaller than 100 MW (Eberhard et al., 2016). With the exception of South Africa, the region is heavily dependent on hydropower and imported oil. As a result, energy insecurity is further exacerbated by frequent droughts and volatile oil prices.

Sub-Saharan Africa accounts for 48% of the global population without access to electricity (McKinsey, 2015). Almost two thirds of the population, some 600 million people, have no access to basic electricity services – the majority of whom live in rural areas and, to a lesser extent, poor urban slums (Eberhard et al. 2011; Eberhard et al. 2016). This number could increase to 1.2 billion by 2050 given the regions dismal track record in power sector development and current population growth forecasts. To meet access targets and address suppressed demand, the current installed capacity of 83 GW will have to be doubled or trebled - if one accounts for the typically poor technical performance and maintenance issues. Yet only 1-2 GW have been added annually over the past decade (Eberhard et al., 2016).

Rapidly scaling up generation capacity, as well as expanding transmission and distribution networks, will cost an estimated US\$ 40.8 billion a year or 6.35% of the continent's GDP (Eberhard et al., 2011). The magnitude of these infrastructure investment costs far exceeds what can be offered from public coffers. Despite the average price of power being double that of other developing regions, tariffs have long been below maintenance costs and investment needs (Eberhard et al., 2011). Power utilities regularly face revenue deficits, necessitating increasingly unaffordable national budget bailouts. Within this context, attracting private investment is imperative to plugging the investment gap (Eberhard et al. 2016).

In addition to the deep structural and financial deficits, dysfunctional utilities, regressive subsidies, weak institutional capacity, poor governance, widespread corruption, and an unstable policy and regulatory environment commonly afflict power sector development efforts in Sub-Saharan Africa (See: Kojima & Trimble, 2014 and 2016; Barnett, Stockbridge & Kingsmill, 2016). Addressing power sector challenges will thus depend on tactical reforms that meet the triple requirements of techno-economic, administrative and political feasibility (Pritchett, 2005). However, reflecting on the status and experience of power sector reforms over the past twenty years, we see that this has rarely been the case.

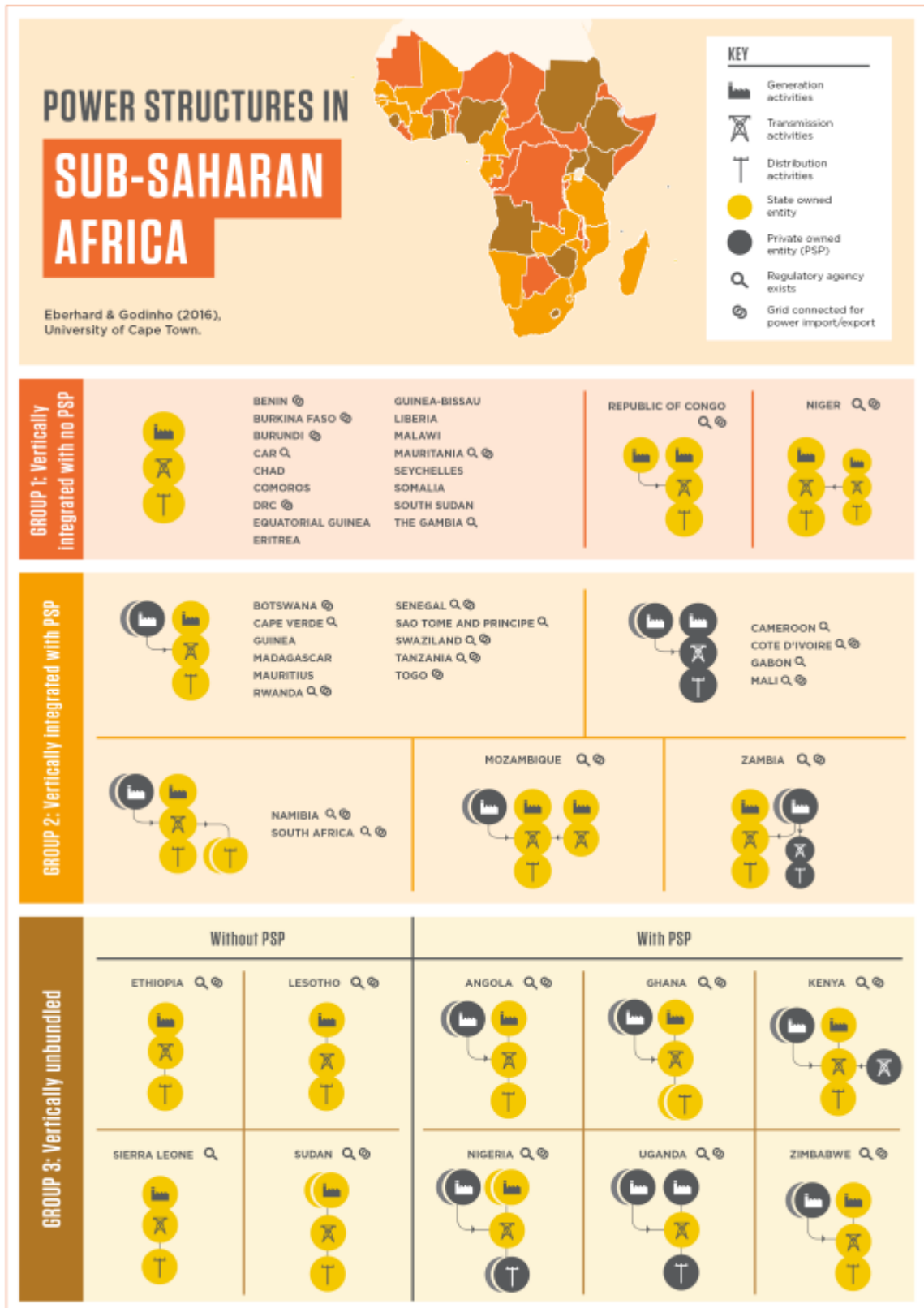
The Status of Power Sector Reform in SSA

During the 1990s, a number of countries in the region made some form of commitment to initiate power sector reform along the lines of the 'standard model'. In many cases, these included hard

commitments such as enacting new electricity laws, corporatizing power utilities, establishing regulatory agencies, and opening generation to IPPs. A minority of countries also initiated utility unbundling. Even fewer privatised their utilities, either through divestiture or, more commonly, through leases or concessions – as has been the case in Cameroon, Cote d’Ivoire, Gabon and Mali. However, reforms began to slow, stall or reverse in the early 2000s. Since then, notable progress has only been made in the establishment of regulatory bodies (there are currently 28 independent - at least nominally - regulators in the region) and the introduction of IPPs in generation (currently operating in 18 countries) (Eberhard et al., 2016).

Across Sub-Saharan Africa, the current status of power sector reform is incomplete and discouraging. Whilst the pace, process and progress of (attempted) power sector reform differs from country to country, in figure 1 we identify three broad groups.

Figure 1 Power Structures in Sub-Saharan Africa



In the first and largest group, the power sector remains largely unreformed and the traditional state-owned, vertically integrated utility model persists. In the second and next largest group, the vertically

integrated utility model remains but allows for private sector participation (PSP) - mainly in the form of IPPs but also through concession agreements or allowing for small, privately owned electricity companies to serve industrial customers directly, specifically mines. For example, the Copperbelt Energy Company (CEC) is a private Zambian transmission and distribution company that primarily serves the mining sector. Where there are IPPs, the utility typically acts as the single-buyer and IPPs make up only a small portion of generation capacity. In the last, smallest and most diverse group, countries have either partially or fully unbundled the utility, and most allow for private sector participation through IPPs and/or concessions. There are a few unusual cases, including Ethiopia where distribution has inexplicably been unbundled, while generation and transmission remain bundled. In all three groups, most utilities – whether unbundled or not - remain under state ownership and control, and privatisation, mostly in the form of a private concession, is present in only a few countries.

The ‘standard model’ orthodoxy comes with the caveat that it may not be viable or beneficial in smaller power systems, specifically with regards to unbundling (Besant-Jones, 2006; Jamasb, Nepal & Timilsina, 2015). In addition, other contextualities - such as the political system and administrative capacity, energy resource endowments, or the macro-economic structure and demographics – have been flagged as possible determinants of the feasibility and value of market-based power sector reforms. However, when comparing the group of countries that have partially or fully unbundled the utility and/or include some degree of private participation with those that have not, no clear macro-indicator seems to capture what has made these core components of power sector reform implementable in some Sub-Saharan African countries and not others. For example, Uganda, with its relatively small power system, did not seem an obvious candidate for unbundling in the early 1990s. Yet, this agenda was successfully implemented by the early 2000s. Meanwhile, Africa’s largest power utility – Eskom in South Africa - remains vertically integrated despite a compelling case for and policy commitment to structural reform. This has drawn attention to the political-economic complexity of power sector reform in the region, yet this area remains under-researched.

This complexity is only increasing with the stabilisation of the partial implementation of power sector reforms - a ‘hybrid market model’ - that is emerging in many Sub-Saharan African countries (Victor & Heller, 2007; Gratwick & Eberhard, 2008). In this model, private and public investment coexist in a sector that continues to be state-dominated. While initial reforms may have contributed to power sector development through enabling private sector participation and attracting private investment, the stabilisation of a ‘hybrid market model’ poses a number of challenges to long-term growth and development in the sector. Specifically, in the ‘hybrid market model’ it is rarely clear who should be held accountable for ensuring (or monitoring) the adequacy and reliability of supply or long-term ESI planning, or how to go about procuring new power, developing institutional capacity (specifically with regards to contracting), and ensuring dispatch is fair and transparent (Gratwick & Eberhard, 2008). In many cases, the incomplete implementation of ‘standard model’ reforms has meant that such

responsibilities fall somewhere between national ministries, the regulator and power utility/ies (Gratwick & Eberhard, 2008; Eberhard et al., 2016). This situation has not only led to unclear lines of accountability, but has also expanded the space available to political interference, conflict, and corruption— all of which contribute to an unstable policy environment and heightened risk for investors. South Africa is a case in point (Box 1).

Box 1. South African Power Sector Reforms

In line with the broader macro-economic and public sector reforms that accompanied South Africa's democratic transition in the early 1990s, the newly elected ANC government's 1998 White Paper on Energy Policy clearly set out to promote efficiency in the power sector through fostering competition and attracting private investment in energy development (Eberhard, 2007). To this end, it set a reform agenda – in line with the 'standard model' – to corporatize, unbundle and partially divest the state-owned utility (Eskom), establish an energy regulator, open generation to IPPs, open access to the transmission grid, and ultimately create competitive retail markets (Eberhard, 2007). Unlike most developing countries, poor utility performance, insufficient capacity and fiscal crisis were not behind reforms. Rather, reforms were driven by an increasing awareness of the hazards of monopoly power in power utilities, the global movement to market-based public sector reform, and the need to address racially structured socio-economic inequality, an apartheid legacy, through Black Economic Empowerment (BEE).

Now, close to two decades since the publication of the White Paper, some components of the reform agenda have taken root, most importantly: the establishment of the National Energy Regulator (NERSA), which took on the responsibilities of the National Electricity Regulator (NER, established in 1992) in 2005, and the successful procurement of renewable energy IPPs from late 2011. However, the reform process has struggled and stalled. Powerful political interests - such as the Congress of South African Trade Union (COSATU), which is against privatisation - and politically connected, economic interests – such as the Energy Intensive Users Group (EIUG), who have long benefited from confidential contracts with Eskom – have lobbied against reforms at the highest level. In addition, market-based reforms have not generated strong support among the political executive, for whom the power sector provides the opportunity to establish and maintain systems of patronage and generate rents.

Eskom has also resisted reform. The utility remains vertically integrated, controls access to the transmission grid, and continues to command monopoly power. However, in contrast to its performance in the 1990s, Eskom now faces a capital and cash flow crisis, which contributed to power outages in 2006, 2007 and 2008, and load-shedding from 2014 to 2015 (Baker et al. 2015). In 2015, its debt was downgraded to 'junk status' by Standard and Poor's. Currently, the utility is mired in political scandal surrounding coal contracts and the prospective procurement of nuclear power, resulting in the recent resignation of CEO Brian Molefe.

Victor and Heller (2007) identify Eskom as a “dual firm” – one that benefits from and thus propagates the uncertainty of ‘hybrid markets’, by being able to a) use political connections to protect and advance their interests, while b) being able to operate sufficiently well by commercial standards (2007). However, the accompanying unstable policy environment, increasing investment risks, and unclear lines of accountability threaten the development and sustainability of the South African power system (Gratwick & Eberhard, 2008; Baker et al. 2015). It is unlikely that Eskom, as it is currently operating within the ‘hybrid market’, will be able to provide adequate, reliable and secure power to the South African economy and population at the least-cost. Instead, electricity prices are set to rise, while the stability of the system, suffering maintenance and expansion backlogs, will become increasingly uncertain.

Further research needs to characterise and analyse the emergent norms of ‘hybrid markets’, as well as the challenges that they pose, from a structural and PE standpoint, as this model is becoming the new norm in many Sub-Saharan African countries.

South Asia

With a combined population of just over 1.74 billion people, the 8⁵ countries that constitute the South Asia region account for 25% of the global population (World Bank, 2016). While many economies in the region are growing rapidly, a host of developmental challenges persist. Almost a fifth of the region’s population live below the poverty line, income inequality is increasing, and fast-paced economic and population growth is pushing environmental pollution and degradation (World Bank, 2016). Improving electricity access, reliability, sustainability and security are common growth imperatives in the region and are seen to be fundamental to addressing inequality, poverty and environmental concerns. However, power sector reform and development over the past two decades has proven challenging and the pace and trajectory of system development has not yet seen the region as a whole converging on international trends.

Looking at table 2, we can see that the power sector has developed differently across countries. Sri Lanka and Pakistan have met or exceeded global averages in transmission and distribution losses and electricity access, respectively, though they still lag behind in terms of consumption and generation capacity, in line with the rest of the region. Both Bangladesh and India have gained ground in access, and the former has made considerable progress in reducing system losses, while the latter has witnessed a dramatic growth in generation capacity. Meanwhile, Nepal has only just managed to maintain and slightly advance generation capacity, consumption and access, but transmission and distribution losses have surged over the period. Keeping up with or accelerating the pace of sector

⁵ South Asia includes the following countries: Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, India, Pakistan and Sri Lanka. For the purpose of this article, we concentrate only on the following countries - Bangladesh, Nepal, India, Pakistan and Sri Lanka. Where possible, we include information on Afghanistan, Bhutan and Maldives as well.

development will remain a key determinant of economic growth and socio-economic development in the populous region going forward.

Table 2 Power Sector Performance: South Asia

Country	Installed Capacity (MW/ million population)			Generation (KWh per capita)			Electricity Consumption (% Population)			Access to Electricity (% Output)			Transmission & Distribution Losses*		
	1990	2000	2013	1990	2000	2013	1990	2000	2013	1990	2000	2013	1990	2000	2013
Vertically Integrated Utilities with Private Sector Participation															
Nepal	16.01	16.85	28.74	35	59	128	69.9	72.8	76.3	19	21	31			
Sri-Lanka	76.12	112.57	160.36	154	297	526	78.3	80.7	88.7	17	21	10			
Vertically Restructured Utilities															
Bangladesh	23.59	27.42	54.72	48	102	293	21.6	32	59	34	15	12			
India	85	106.31	214.93	273	395	765	50.9	62.3	78.7	19	27	18			
Pakistan	71.56	130.2	132.46	278	373	450	59.6	79.5	93.6	21	24	17			
* Losses include losses in transmission between sources of supply and points of distribution and in the distribution to consumers, including pilferage.															
Source: Authors' compilation – World Bank, 2016; IEA, 2016; EIA 2016.															

The Status of Generation, Access & Resource Diversification in SA

South Asia has a total installed generation capacity of almost 350 GW (IRADe, 2016). India accounts for the vast majority, with more than 305 GW (CEA, 2016). The remaining countries have significantly smaller systems. Pakistan has an installed capacity of approximately 23 GW (NEPRA, 2015), Bangladesh 13 GW (BPDB, 2016), Sri Lanka 4GW (MPE, 2015), Bhutan 1.4 GW (BEA, 2015), and Afghanistan, Nepal and Maldives all fall under 1 GW at 522 MW, 765 MW, and 90MW, respectively (IRADe, 2016).

The region accounts for 33% of the world's population still without electricity (Bhattacharyya, Palit & Sarangi, 2015). Almost a quarter of the population has no access to electricity – close to 450 million people (World Bank, 2016). However, access rates differ significantly between countries – ranging from 36% and 40% in Afghanistan and Bangladesh, to around 65% in Nepal and Pakistan, to 72% or higher in Bhutan and India, all the way to 94% in Sri Lanka (IRADe, 2016; Bhattacharyya, Palit & Sarangi, 2015). Similarly to Sub-Saharan Africa, there is a sharp divide and high inequality in electricity access between rural and urban areas, and between high and low-income households (IEA, 2015; CANSA, 2015).

Energy resources vary from country to country. Nepal, Sri Lanka and Bhutan have significant, yet underutilised, hydropower potential, natural gas has an important role in Pakistan and Bangladesh, and there are significant coal deposits in India, Pakistan and Bangladesh (Bhattacharyya, 2007; IRADe, 2016). The region as a whole has huge potential in renewable energy sources, such as wind and solar. Harnessing the potential of these resources is imperative to meeting growing energy demand and continuing to expand access in the region.

The Status of Power Sector Reform in SA

Despite the apparent diversity among power systems, most countries across the region initiated power sector reforms under similar external, and sometimes internal, pressures and have since followed comparable reform paths and encountered common challenges (Bhattacharyya, 2007; Jamasb et al., 2014; Sen, Nepal & Jamasb, 2016).

In most, efforts to reform the power sector began in the early 1990s, typically through the introduction of IPPs. Attracting private investment in new capacity was seen to be the quickest way to introduce competition and address power supply shortages (Sen, Nepal & Jamasb, 2016). However, the introduction of IPPs in the context of high technical and commercial losses, weak or absent regulatory institutions, and non-cost reflective tariffs resulted in high, risk-adjusted costs of capital and prices. Under the pressures of the 1997 Asian Financial Crisis, these IPP contracts were then renegotiated or cancelled, depressing private sector interest- especially in the case of Pakistan and India (Sen, Nepal & Jamasb, 2016).

By the early 2000s, most countries began more comprehensive reforms, introducing new electricity sector policies that established regulatory bodies and instituting power sector restructuring. With the exception of Afghanistan, each country in the region now has an established energy regulator, though de jure and de facto regulatory independence and authority vary from country to country, in addition to IPPs. Power sectors in Bangladesh, Bhutan, India, Nepal, and Pakistan have been vertically and horizontally unbundled to varying degrees. Only privatisation and the creation of competitive power markets have seen little to no progress – with the exception of India, where 27 per cent of generation is privately owned and two state distribution companies, Orissa (now Orisha) and Delhi, were privatised in 1999 and 2001, respectively (Bhattacharyya, 2007; Mukherjee, 2014). However, the Orisha privatisations were overturned and distribution licences revoked in 2015 (Mohanty, 2015). Across the region, the state remains prominent in policy-making, regulation, ownership of power utilities and assets, and investment (Bhattacharyya, 2007). Due to the relative weight of the Indian economy and power sector, in Box 2 we provide an overview of the status power sector reform in India⁶.

Box 2. Indian Power Sector Reforms

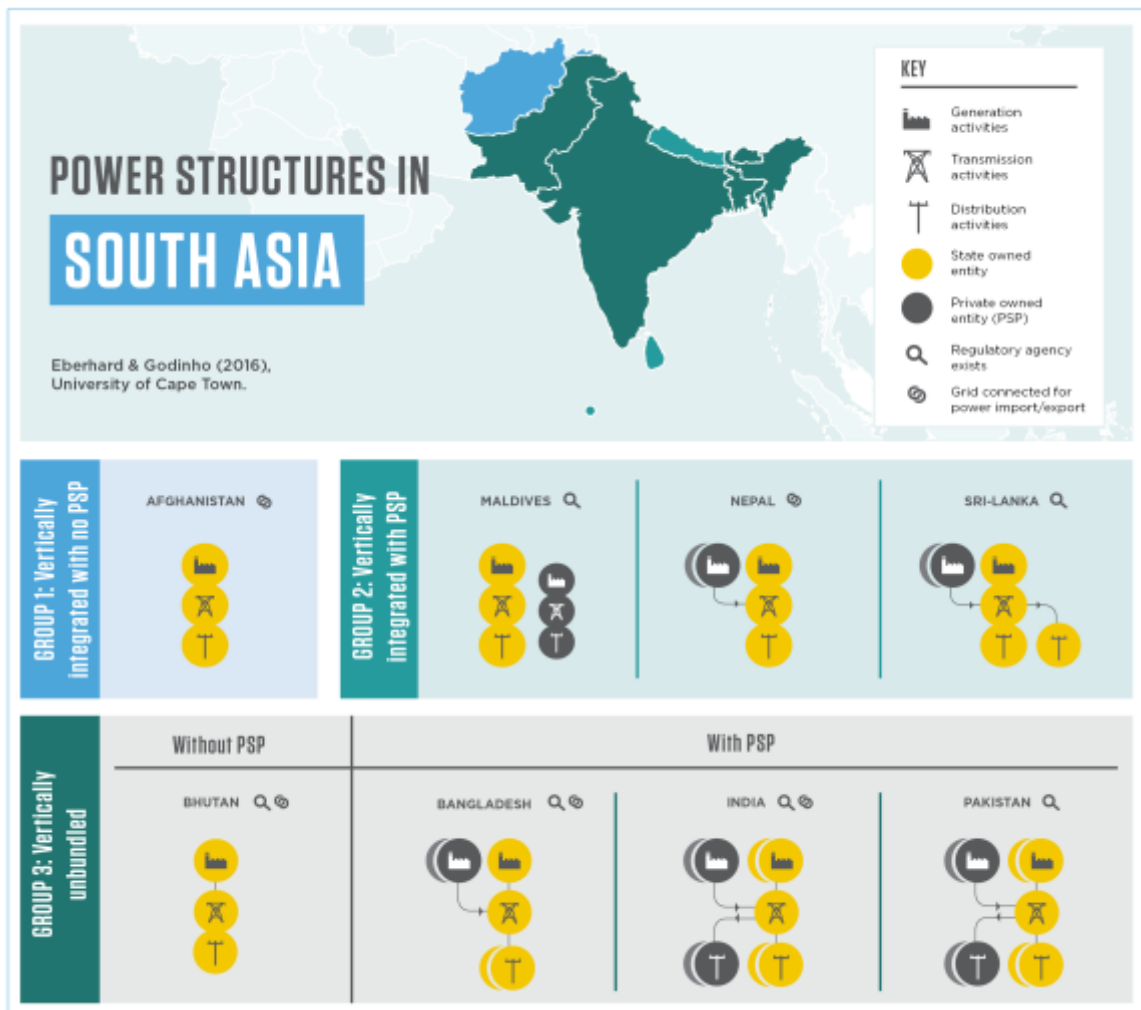
India accounts for 18% of the global population and has the 5th largest installed generation capacity in the world (Mukherjee, 2014). The power sector is especially complex because electricity is under the jurisdiction of both the central and state governments, of which there are 29. This means that there are multiple permutations of sector structure and reform, with considerable variation between states. All 29 states have independent energy regulators, 23 have undertaken tariff reforms, 20 have

⁶ Interested readers should look to Dubash, 2001 *Power Politics: Process of Power Sector Reform in India*, Pargal & Banerjee, 2014 *More Power to India: The Challenge of Electricity Distribution*, & Mukherjee, 2014 *Private Participation in the Indian Power Sector: Lessons from Two Decades of Experience*,

implemented unbundling and/or corporatization, 2 have privatized distribution (Orissa in 1996 and Delhi in 2002¹), and 28 have implemented third party access (Mukherjee, 2014). While there have been considerable advances in generation capacity and electricity access, the reforms have not been successful in meeting all power sector development objectives. There are high levels of power sector theft, technical losses stand at 25% overall and 35% in distribution, and political interference and corruption persists at the state- and national-level (Sen, Nepal & Jamasb, 2016). The sector has accrued massive public debt, as utilities – specifically in distribution - remain unable to cover costs or finance expansion. In addition, there have been two massive, centrally funded ‘no-strings-attached’ bailouts of utilities in the past 15 years (Mukherjee, 2014). Nonetheless, power sector reform and development have steadily progressed by means of a “learning by doing” approach and a steadfast focus on meeting the function, not only form, of market-based reforms (Mukherjee, 2014).

Figure 2 provides an overview of power sector structures in South Asia today.

Figure 2 Power Structures in South Asia



Although somewhat more successful than reform efforts in Sub-Saharan Africa, nowhere in the South Asian region do we find the full implementation of the ‘standard model’ of unbundling, privatisation, and wholesale and retail competition. Nonetheless, meaningful improvements in power sector performance in the region over the past two decades, specifically in electricity access and generation capacity, are evident – as table 2 shows (Sen, Nepal & Jamasb, 2016). Yet the sector still suffers from high levels of theft, transmission and distribution losses (including commercial losses), subsidised tariffs and state level corruption – depressing development and maintaining costly inefficiencies (Jamasb, Nepal & Timilsina, 2015). Looking forward, a number of challenges to power sector reform and development in South Asia are evident (Newbery, 2005; Pargal & Banerjee, 2014; Bhattacharyya, Palit & Sarangi, 2015; Sen, Nepal & Jamasb, 2016).

Firstly, despite improvements in generation and access, distribution continues to be plagued by technical and commercial losses and inefficiencies. This has severe consequences as generating revenue and attracting the investment necessary to expand generation capacity and transmission and distribution networks depends on well-functioning distribution systems.

Secondly, and in relation to the first point, a high level of public debt has accrued due to public sector bailouts, non-cost-reflective pricing and subsidised tariffs. This is detrimental to the financial viability of utilities, which in turn is detrimental to attracting investment or financial assistance or loans in the long term.

Thirdly, the ‘hybrid market model’ that has become a norm in the region poses a host of yet unknown challenges. Similarly to Sub-Saharan Africa, the state has remained dominant alongside private participation, and the power sector continues to be highly politicised. While this model may have facilitated power sector development in the past, it is not clear that the stabilisation of various permutations of the ‘hybrid market model’ will lead countries in the South Asian region to meeting the power sector imperatives to socio-economic development going forward, specifically: fostering competition, improving utility performance, restructuring and decreasing the scope of influence available to political and economic interests (Bhattacharyya, 2007).

Latin America

Latin America is a region in transition, with high growth potential. Recent strides in economic growth and socio-economic conditions have been driven by significant power sector development and associated reforms over the past three decades (Yepez-Garcia, Johnson & Andres, 2010; 2011). However, as economic and population growth push electricity consumption to doubling by 2030, the supply-demand balance will be a challenge to maintain. In order to meet growing demand, required investment in generation capacity is estimated at \$420 billion between 2008 and 2030, at a modest GDP growth rate of 3% per year between 2015 and 2030 (Yepez-Garcia, Johnson & Andres, 2011). In addition to meeting the supply-side investment requirements, demand-side management and energy efficiency policies and measures will also be crucial in balancing supply and demand over the coming

decades. Meeting this challenge will require strong yet flexible energy governance, improved regulations and market design, and better long-term energy planning. The comparatively successful evolution of power sector reform, development and governance in Latin America provides a strong signal that this could be achievable.

Table 3 Power Sector Performance: Latin America

Country	Installed Generation Capacity (MW/1million population)			Electricity Consumption (KWh per capita)			Access to Electricity (% Population)			Transmission Distribution Losses* (% Output)		
	1990	2000	2013	1990	2000	2013	1990	2000	2013	1990	2000	2013
Vertically Integrated Utilities with No Private Sector Participation												
Paraguay	1543.94	1396.23	1360.1	505	887	1473	86	93.2	98.2	0	3	6
Venezuela	956.70	864.91	1056.8	2449	2636	3245	98	99	100	18	24	21
Vertically Integrated Utilities with Private Sector Participation												
Costa Rica	290.32	432.57	594.48	1080	1521	1955	91.3	98	99.5	8	7	11
Cuba	378.07	404.68	572.18	1214	1138	1425	92.9	98	100	14	16	15
Haiti	14.08	23.39	28.76	58	35	49	31.3	31.4	37.9	31	45	54
Honduras	122.45	144.23	254.78	372	514	721	64	67	82.2	7	20	31
Mexico	327.06	389.07	517.21	1162	1717	2057	96	98	99.1	13	14	14
Puerto Rico	1186.44	1286.09	1694.4				81.1	85.4	90.9			
Uruguay	546.62	948.28	997.07	1244	2030	2985	96	97	99.5	14	19	11
Vertically Restructured Utilities												
Argentina	519.40	701.57	846.26	1300	2078	3093	88.2	92.3	99.8	18	15	16
Bolivia	102.04	155.88	201.92	266	420	705	67	66	90.5	21	10	9
Brazil	352.42	420.96	621.76	1447	1887	2529	93	97.4	99.5	14	18	16
Chile	334.86	652.60	1080.7	1250	2528	3879	95	98.8	99.6	11	7	7
Colombia	259.70	321.78	316.86	842	829	1177	92	97	97	21	22	12
Dom. Republic	208.91	292.06	359.92	389	731	1517	78.2	90	98	25	27	12
Ecuador	166.34	269.20	351.21	481	638	1333	89	94	97.2	23	24	13
El Salvador	133.33	189.33	279.15	354	623	915	77	87	93.7	16	13	8
Guatemala	87.34	145.42	229.45	203	329	555	72	78	78.5	15	25	9
Nicaragua	96.62	139.17	235.29	308	348	598	71	72	77.9	17	30	15
Panama	404.86	396.04	682.41	833	1267	2038	81.1	85.4	90.9	26	24	13
Peru	192.40	235.43	359.83	546	680	1270	69	72.9	91.2	14	11	11

*Electric power transmission and distribution losses include losses in transmission between sources of supply and points of distribution and in the distribution to consumers, including pilferage.

Source: Authors' compilation; World Bank, 2016; IEA, 2016; IIA 2016.

2

The Status of Power Sector Reforms in LA

In contrast to the status of power sector reforms across Sub-Saharan Africa and South Asia, most countries in Latin America have successfully adopted market-oriented reforms (Millan, 2006). Following the pioneering reform efforts of Chile in the 1980s, market-based reforms spread across the region during the 1980s and 1990s. The most notable cases include Chile, Brazil, Colombia, Panama, Peru, El Salvador and Argentina (Antmann, 2012). In all these countries, the main driver of reform was deep operational and financial crisis in the ESI. Similarly to the regions discussed above, power sector crises in the region were sparked by insufficient supply, suppressed demand, financially stressed utilities, revenues that fell below cost recovery, inadequate maintenance of and investment

in power infrastructure, and poor sector policy and governance (Antmann, 2012). In these countries however, the separation of policy-making, regulation and utility operation, unbundling generation, transmission and distribution, the establishment of competitive wholesale markets, and the inclusion of private sector participation were, for the most part, successfully implemented. This led to efficiency gains, improvements in utility performance, and healthier national fiscal positions in the best cases.

However, the initial success of reforms also contributed to the conditions that predicated a second wave of reforms in the early 2000s. Power sector planning was 'downgraded' in the early reforms, while the market's ability to send the correct signals for sector expansion and development was overestimated (Antmann, 2012). As a result, underinvestment in energy infrastructure – specifically large-scale hydropower in Brazil, Chile and Colombia- led to power shortages in the region. A second wave of reforms thus reintroduced centralised planning, investment incentives through competitively awarded long-term power purchase agreements and concessions, and assurances around the financial viability of electricity off-takers (Antmann, 2012). While competitive wholesale markets survive, they are used mainly for system balancing. The majority of electricity is traded in long-term contracts. In a few cases, namely Bolivia, Venezuela and Dominican Republic, power sectors were renationalised over the same period. In a select few – Costa Rica, Ecuador and Paraguay – the 'traditional industry model' of a state-owned, vertically integrated power utility has endured through the first and second waves of reform.

Since the second wave of reforms, power sectors across the region have rebounded and are growing rapidly. Latin America is forecast to be the first developing region to achieve universal electricity access, with an access rate of 96.4% in 2012 (Yepez-Garcia, Johnson & Andres, 2011; World Bank, 2016). However, significant challenges remain on the horizon, underscoring the need to improve the technology mix in generation, expand electricity trade, and adopt supply and demand side management to reduce the pace of demand growth. In addition, regulations and market design need to be improved upon and strengthened to support technology diversification, especially renewable energy options (Yepez-Garcia, Johnson & Andres, 2011). This has started to happen, and countries such as Brazil, Chile, Peru and Mexico have conducted highly successful renewable energy auctions that have achieved record low prices.

The comparative success of power sector reform in Latin America offers some important lessons for both Sub-Saharan Africa and South Asia, specifically on the importance of least-cost planning, linking planning to the timely initiation of competitive tenders or auctions for new power generation capacity based on long-term contracts, the crucial role of effective regulation, the value of a smaller market for balancing the system, and a strong emphasis on technically efficient and financially viable distribution utilities that are able to support new investment while delivering sustainable electricity services (Antmann, 2012). Lastly, a sense of political ownership over market-based reform agendas in the region – as opposed to capitulation to externally imposed 'standard model' reforms explicit in the

South Asian, and to a lesser extent Sub-Saharan African, experiences – is worth noting. Although public sentiment around privatisation remains persistently negative in many countries, ‘political will’ to reform – even through periods of financial crisis and public backlash – has meant that the region is now reaping the benefits (Millan, 2006; Balza, Jimenez & Mercado, 2013). This is likely attributable to the greater attention paid to PE contextualities in the design and implementation of reforms, which meant that – with the exception of Chile, which followed the ‘standard model’ - the sequence and progression of reforms was negotiated among key stakeholders, and compensatory measures for ‘losers’ were incorporated into the design (Millan, 2006). On-going reform efforts in countries across Sub-Saharan Africa and South Asia would thus do well to pay specific attention to regional and national PE contextualities, and the ways in which these can be included and accounted for in the design and implementation of reforms going forward.

Two key questions arise from this review of the status of power sector reform and development in developing countries and emerging economies. Firstly - where those steps associated with the ‘standard model’ have been *successfully* implemented, is there evidence of improvements in sector performance and development? There is a growing literature – primarily econometric, but including qualitative studies – that addresses this question. This literature has been comprehensively surveyed elsewhere⁷. For the purposes of this paper, it is simply important to note that the answer is typically in the affirmative - facilitating competition, opening ESI to private sector participation, and establishing regulatory institutions generally leads to increased efficiency, improved technical, commercial and financial performance of utilities, and the expansion of generation capacity and, to a lesser extent, transmission and distribution networks (Erdogdu, 2014; Jamasb, Nepal & Timilsina, 2015). However, these outcomes are contingent on other factors, especially national PE contextualities (discussed in the next section) and the starting position of the country and sector. Positive outcomes are not a given and depend on the extent to which the instruments of reform – commercialisation, legislation, restructuring, regulation, privatisation and competition – alter dysfunctional power systems, especially the PE systems within which they are nested.

This links to the second question. Given the heterogeneity of country- and sector-level contextualities among low- and middle-income countries and regions, is the normative and prescriptive ‘one size fits all’ approach of the ‘standard model’ appropriate? Reflecting on the status of power sector reforms across Sub-Saharan Africa, South Asia and Latin America, the answer seems to be in the negative. Similarly to the first question, there is a significant literature – primarily qualitative – that provides a more comprehensive and nuanced response, which highlights the determinative nature of

⁷ Interested readers should look to Nepal, Jamasb & Timilsina (2015) *A Quarter Century Effort Yet to Come of Age: A Survey of Power Sector Reform in Developing Countries* for a comprehensive treatment of this literature, as well as practical suggestions on the sequencing of reforms, concrete proposals for linking the form of reform components with the desired function (eg. privatization or regulation), and recommendations for increasing the social and environmental benefits of reform.

contextualities, specifically around the macro-economic circumstances, socio-political conditions, institutional environment, and initial sector structure. Through the remainder of this paper, we consider this question and the associated literature, arguing that: a) prescriptions for reform should not be constrained to a normative 'standard model' given the heterogeneity among developing countries, b) that the design and implementation of reforms thus needs to be done through inclusive and integrated processes that account for and work within the dynamic structures of national and sectoral (PE) contextualities, and c) that a PE and/or PEA approach to power sector reform and development is crucial to this endeavour but requires systemisation, refinement and theoretical improvement.

Accounting for the Experience of Power Sector Reform in Developing Countries

Sub-Saharan Africa, South Asia and Latin America each provide examples in the persistence of the 'traditional industry model', the proliferation of 'hybrid market models', and the (mostly) rare cases where restructuring, privatisation and liberalisation are near complete and, in the case of some Latin American countries, the power sector is competitive in both wholesale and retail markets. In accounting for the varied experience and outcomes of market-based reforms across these regions, the determinative nature of a broad range of contextualities – for which vast differences between OECD and non-OECD countries exist, as well as a considerable range across and between developing countries and regions - has been explored in the core literature (Bacon & Besant-Jones, 2002; Jamasb et al. 2005; Jamasb, Newbery & Pollitt, 2005; Jamasb, 2006; Besant-Jones, 2006; Williams & Ghanadan, 2006; Victor & Heller, 2007; Gratwick & Eberhard, 2008; Kessides, 2012; Barnett, 2014; Sen, 2014; Jamasb, Nepal & Timilsina, 2015; Eberhard et al., 2016).

Initially underestimated or overlooked in the propagation, design and implementation of the 'standard model', these contextualities – specifically PE contextualities - have proven pivotal to the success or failure of reforms. In table 4, we organise these into four broad categories: macro-economic circumstances, socio-political conditions, institutional environment and power sector context. Column one provides a general overview of the pre-reform economic, political, institutional and sectoral 'starting position' of low- and middle-income countries. In the second column, we collate findings from core PE texts on some of the ways in which these contextualities have shaped the path, process and progress of reforms in developing countries. Though the list of PE contextualities that have been identified in the core literature as determinative of the success or failure of reforms is long, we maintain that a comprehensive and systematic review is necessary to mitigate the risk of misrepresenting the complexity of the PE of power sector reform and development. In the sub-section that follows, we briefly discuss some conclusions and lessons drawn from this literature.

Systematically mapping these contextualities and lessons onto regions or countries is beyond the scope of this paper. However, we propose that this be a clear research objective and recommend this table and that in the following section on integrated PE studies/ PEA as possible points of departure.

Table 4 Contextualities of Power Sector Reform in Developing Countries

	Pre-Reform Contextualities 1980s-1990s	Contextualities as Determinative Factors of Reform 1990s-
Macro-economic Circumstances: Crisis, Reform and Underdevelopment.	National fiscal shortfalls/crises common, high dependence of foreign investment and loans, frequent incidence of debilitating national debt.	Fluctuating DFI, regional financial crisis (eg. Asian Financial Crisis '98) and high interest debt undermine success of reforms, even where implemented → failure to attract investment = failure to develop power sector.
	Era of structural adjustment programmes (SAPs) and conditionality (1980s), and economy wide liberalisation and reform programmes.	Economy wide SAPs or reforms in other key sectors increase the transaction costs and complexity of power sector reform, sometimes detrimentally. In some cases, successful market-based reforms in other sectors (within the country or region) provide legitimacy to those in the power sector, in others the opposite occurs.
	Low levels of socio-economic development, high income inequality, pervasive poverty & high population growth forecast. Economic growth hampered by lacking infrastructure and basic services.	The interdependence of power sector development and economic growth is either mutually reinforcing of growth or creates a trap of suppressed demand and insufficient supply, often depends on external conditions – especially the ability to attract foreign investment or loans.
	Subsidies across public service sectors - tied to national budget.	Subsidies are substantial, hard to remove and informally protected by vested political and/or economic interests ⁸ . This had undermined some of the key objectives of reform: improving financial situation of utility, reduce pressure on public coffers, and fostering efficiency through competition. India is a prominent example in South Asia.
	Key macro-economic priorities include: economic growth, industrialisation (including in agriculture), diversification of the economy, creating jobs and tackling inflation.	Where 'standard model' reforms do not explicitly serve these priorities, public and political backlash can hamper reform efforts. Eg. Labour unions/parties can oppose reforms that effect jobs – often the case where reforms aim to tackle bloated and inefficient state-owned utilities.
	Private sector, including finance/equity markets, underdeveloped.	National private sector not always able to meet investment needs or to step up to private utility ownerships/management. This has been detrimental to the success of market-based reforms. Government has typically maintained a dominant position in situations where private sector is underdeveloped, or foreign companies step in – often fermenting public/political discontent.
Socio-Political Conditions: Political Instability, Corruption & Inequality.	Recent/existing civil strife/war, including: military coup's, political revolution, Cold War era proxy wars, and ethnic conflict.	Political instability is inimical to attracting investment, increases the risk associated with unpopular reforms and transaction costs of policy implementation. The experience of countries like Chad, DRC, and Somalia provide classic examples.
	Authoritarian systems or nominal democracy (dominant/single party system or dictatorship) common, yet third wave of democratisation (1974-1990s) spreads to Latin America (1980s) and Sub-Saharan Africa (1990s) increasing the number of democratic regimes in these regions.	Authoritarian leadership can enable or constrain reforms depending on whether or not they serve the interests of incumbents. This either provides the necessary commitment for reform in situations of political instability and weak formal institutions (such has been the case in Uganda), or blocks reforms for political reasons through use of de jure and de factor power.
		Democratisation (political regime transition) typically leads to wide reaching transformation across society, frequently as a means to gaining legitimacy by 'breaking with the past'. Success depends on political cohesion, de facto power of old elites, dependence on public support. A clear example is provided in the South African experience.

⁸ See Kojima, Bacon & Trimble (2016) *Political Economy of Power Sector Subsidies: A Review with Reference to Sub-Saharan Africa*.

	Strong communist, socialist, anti-colonialist and labour movements/political parties/civil society groups.	The legitimacy of market-based power sector reform, specifically privatisation, incongruent with popular ideological beliefs of public and key actors in many developing countries. In Latin America, strong 'political will' has been able to push reforms through despite negative public sentiment to privatization, in South Asia the opposite was the case for much of the 1990s and early 2000s.
	High levels of socio-economic inequality (often reflecting historical ethnic, urban/rural, class divides) coalesce with the distribution of political power and status	Incumbent elites, new or old, depend on strong relations between political and economic power (and the means of gaining/maintaining both). Where government, state owned enterprises (SOE's) and strategic resources used to secure/maintain power, reforms that decrease this power are opposed. This in part explains the difficulty experienced in privatising utilities across Sub-Saharan Africa and South Asia.
Institutional Environment: Weak formal Institutions & 'Political Will'.	Key formal institutions/ rule of law (importantly property right & contract law) often relatively new, weak and unreflective of the means through which economic and political power are distributed.	Inadequate legal foundation for contract law and enforcement deters investors, poorly understood and uncharted informal institutions obscure the real distribution of power and networks.
	Formal institutions often lack broad public support/ legitimacy due to perceptions around the source of such institutions (external/colonial/previous regime) or due to poor performance and rampant corruption through such institutions.	Low support/legitimacy of formal institutions undermines efficacy of reforms. Eg. Cost-reflective tariffs, if not viewed as legitimate, not paid. High T&D losses – examples of which can be found in table 1 and 2 – are a common yet detrimental outcome.
	Institutional capacity weak due to limited financial, human and material resource and the 'political' distribution of such resources.	Implementing complex and politically unfavourable reform under conditions of weak institutional capacity near impossible. Success of reforms depend on capacity to implement. Sub-Saharan Africa's LDCs a case in point.
	Strong linkages commonly exist between political and economic power, facilitating corruption, clientilism and nepotism.	Corruption, rent seeking and clientilism deters investors, delegitimises government in the eyes of the public, and undercuts the possible benefits of reform. Eg. Bribes/corruption in procurement contrary to competition and least-cost planning.
	Informal institutions maintain and reinforce the distribution of economic and political power – typically concentrating power in the hands of executive members of government, with strong links to the productive sectors of the economy.	'Political will' ⁹ is frequently used to describe cases where those in power persistently pursue reform agendas in line with the 'standard model', and is commonly identified as a key to implementing reforms. This is somewhat intuitive, however greater attention needs to be paid to what it is that underlies 'political will' – specifically interests, ideas, power and institutions.
Power Sector: Finance, Structure & Performance -	Finance tied to national budget, direct subsidies and access to foreign loans - public debt financing of capital projects common.	For the most part, poor collection, non-cost reflective tariffs, and transmission and distribution losses have prevented utilities from becoming financially viable and undermined investment/privatisation. Finance continues to depend of government budget, including through entrenched subsidies and recurrent utility bailouts. An example is provided by India.
	Tariff setting and subsidies highly politicised, commonly below cost recovery, effecting utility and national fiscal position.	Cost-reflective tariffs ultimately determine the long-term success of reforms, yet this has been one of the most challenging aspects to implement due to political interference.

⁹ Though 'political will' is frequently used throughout the literature, it is an essentially problematic term. Similarly to the use of 'political economy', 'political will' is a catchall term that, through its use, avoids dealing with the "actual processes of politics, the role of power and ideas, and the interaction of agency and political context" (Hudson & Leftwich, 2014). In effect, 'political will' is a place keeper that "fills a vacuum where political analysis should be" (Hudson & Leftwich, 2014).

	'Traditional industry model' – vertically integrated, highly bundled state-owned utility. In some cases, distribution and smaller generation facilities falls to local government.	Persistence of the 'traditional industry model' evident in all regions, including those where 'hybrid market models' have maintained key elements such as state ownership or, as is the case in most Sub-Saharan African countries, vertically bundled utilities.
	Insufficient generation capacity, limited transmission and distribution networks, low electrification rates/access, suppressed demand, aging and poorly maintained infrastructure, high transmission and distributions losses & theft.	In most cases, the 'starting conditions' of the power sector has determined the pace and momentum of sector development. Comparing Latin America, South Asia and Sub-Saharan Africa – the 'starting position' of each region is aligned with the progression of reforms and reform outcomes, from best to worst.
	Performance reflective of utility financial conditions, national technical capacity, physical and geographic endowment, national economic conditions and management practices.	The same conditions that caused poor performance in the 1980s and 1990s frequently endure, and performance remains problematic in all regions – particularly T&D losses, theft, and commercial losses. There are links between reform and improved performance, however these are contingent on other factors as well. Renewable energy technologies have recently provided an opportunity for leap frogging. Eg. Electricity access in remote, rural areas.
	System modernisation required.	System modernisation slow and piecemeal, linked with economic growth and development.
Source: Developed by author, with reference to key texts - Dubash, 2002; Besant-Jones, 2006; Williams & Ghanadan, 2006; Victor & Heller, 2007; Sen, 2014; Jamasb, Nepal & Timilsina, 2015.		

Practical Lessons & Recommendations from the Literature

Reflecting on the status of market-based power sector reform in Sub-Saharan Africa, South Asia and Latin America, together with the corresponding literature on contextualities and the varied experience of reform efforts and outcomes, it is clear that the prescriptive approach of the 'standard model' has not been the hoped for panacea to power sector challenges in the developing world. Instead, the need for a "with-the-grain" approach – "a middle-ground between 'one-size-fits-all' best practices and the view that every country is unique, so needs an entirely unique set of policies" – is now more widely accepted (Levy, 2014). Nonetheless, with over twenty years' experience in the (attempted) application of the 'standard model', there are a number of practical lessons and recommendations that have been drawn across the literature, which are of relevance to the development of such an approach to power sector reform and development. In this section, we provide a brief summation of these, offering lessons from what hasn't worked and recommendations for what could work.

What hasn't worked – Lessons from the 'best practices' approach

For those low- and middle-income countries that began power sector reform processes in the 1980s and 1990s, reform policies were frequently designed through a closed process led by a team of technocrats within a specialised unit or a single ministry, and under the guidance of international consultants from DFIs that typically promoted a 'best practice' approach in the form of the 'standard model' (Williams & Ghanadan, 2006; Gratwick & Eberhard, 2008). This meant that key members of the general public, civil society, various stakeholders in the power sector, political actors and groups,

and the private sector were rarely consulted and regularly excluded. These closed policy processes critically undermined the political, social and techno-economic feasibility of implementing reforms through: discounting the importance of broad based support and perceptions of legitimacy from key actors and groups; underestimating the structural constraints that weak formal institutions, dependence on international investment, and low levels of economic and sectoral development pose; and, overlooking the inertive yet dynamic character of enmeshed political and economic power in highly unequal societies (Besant-Jones, 2006; Williams & Ghanadan, 2006). In addition, fundamental contextualities - such as a country's resource base, economic structure, and even national power sector objectives (such as electrification targets) – were neglected due to the focus on 'standard model' steps and outcomes (Williams & Ghanadan, 2006). As a result, the path to implementing power sector reforms in low- and middle-income countries has been a game of snakes and ladders where constraining and enabling factors, unmapped and poorly understood, determine the pace, progress and outcomes of reform, while global macro-economic and geopolitical conditions set the fate of the dice.

What could work – Recommendations for a 'with-the-grain' approach

Now twenty plus years since these reform processes began, and in many cases have since stalled or reversed, there is broad agreement that no 'one-size fits all' approach exists for power sector development - that national contextualities need to be considered at each stage through a transparent and open process (Besant-Jones, 2006; Williams & Ghanadan, 2006). This means that reforms need to be "reality-based" - designed and implemented with due consideration of the starting conditions of the power sector, the complexities of the political economy context, and the larger macro-economic and social conditions within a country (Williams & Ghanadan, 2006). This includes setting realistic objectives and timelines, choosing appropriate measures and reform steps, and identifying politically feasible paths to reform. More generally, the case for each reform step should be measured against the likelihood that it will contribute to meeting the ultimate objectives of reform in any given country (Besant-Jones, 2006). Typically, these include increasing the quantity and reliability of supply, improving the technical and financial performance of utilities, attracting investment into the power sector, and increasing electricity access to support socio-economic development, but should also include other context specific objectives, such as social, environmental or welfare goals (Bacon & Besant-Jones, 2006; Nepal, Jamsab & Timilsina, 2015).

It is also now widely acknowledged that the choice between a market-based or state-led approach to power sector development in countries where human, financial, technical and organisational resources are limited – as is the case in many low- and middle-income contexts – is a false one. Instead, whatever capacity exists across the private and public sector needs to be harnessed to meet the ultimate power sector development goals. This does not discount the necessity of reducing dependence on the national budget and finding new sources of finance, fostering competition and increasing efficiency, tackling political interference and corruption, or advancing private sector

participation and investment. Instead, a “reality-based” approach accepts and works within the limits presented in resource-constrained contexts. This means that the broader technical and financial capacity constraints within government still need to be addressed, as well as the complexities of political economy that may constrain or facilitate sector reform and development. In the development practice community, the ‘governance’ or ‘good governance’ agenda looks at the way in which this can be done, with a specific focus on the distribution of and constraints on power, bureaucratic, legal and regulatory institutions (including capacity, independence and the extent to which they are respected), corruption, and socio-political stability (World Bank, 1989; World Bank World Development Report Series; Hudson & Leftwich, 2014). For power sector reforms and development efforts, improving ‘governance’ is especially relevant for attracting investment, specifically in: facilitating long-term, credible policy, improving regulatory capacity, increasing transparency in competitive bidding for IPPs, and enforcing resource, generation and distribution contracts (Williams & Ghanadan, 2006).

It has also become clear that reform process need to be sustainable over time. Experience has shown power sector reform and development to be a slow and demanding process in developing countries (Besant-Jones, 2006). In order to be successful, reform efforts thus need to be flexible yet durable, suitably paced and sequenced, and seen to be broadly legitimate by public, private and political actors (Millan, 2006; Nepal, Jamasb & Timilsina, 2015). Key recommendations to achieving this include: regular processes that contribute to the formulation of up-to-date policy and reaffirming commitment to reform; advancing regulatory capacity and independence to facilitate a smooth transition to cost-reflective pricing while balancing welfare maximisation and equity considerations; explicitly prioritising public benefits – especially increasing electricity access- to foster public support; addressing ‘governance’ issues which undermine legitimacy by increasing transparency and including the public and stakeholders in policy processes; and, identifying strategic reform components that will contribute to the momentum of sector reform in general – the competitive procurement of IPPs provides one such example (Besant-Jones, 2006; Bhattacharyya, 2007; Jamasb, Nepal & Timilsina, 2015; Williams & Ghanadan, 2006).

Altogether, the extensive literature that this section draws on provides a strong empirical foundation from which to understand the largely disappointing though varied experience of power sector reform across our focus regions, as well as offering some concrete lessons and recommendations. Significantly, PE has gained considerable salience, currency and traction through its use in the treatment of political, social and institutional structures and processes in core texts. This parallels the resurgence of PE in the broader ‘development and reform’ literature, especially prominent in the proliferation of country- and sector-level PEA in major DFI’s development programmes (Stiglitz, 1999; Besley, 2004; Adam & Dercon, 2009; World Bank, 2008; DFID, 2009; Edelman, 2009; Acemoglu & Robinson, 2012; Barnett, 2014; Hudson & Leftwich, 2014). However, the value of PE– though widely

lauded – has been constrained by a relative dearth in the corresponding theoretical literature and a related incoherence and lack of clarity in its use and conceptualisation in research and practice. This has only recently begun to change, and significant work remains to be done. In the following section, we reflect on how PE has been and can be used to advance understanding of power sector reform and development in low- and middle-income countries, with due consideration of the contextualities, lessons and recommendations considered here.

A Political Economy Approach to Power Sector Reform and Development Research

There is a considerable research literature that has begun to think about the PE of power sector reform and development in low- and middle- income countries (Barnett, 2014). Research in this area has typically adopted a case study method, either individual or comparative, and follows a loose formula - beginning with the historical development of the sector, pre-reform power sector performance and drivers of reform, and a chronological description of the reform experience, which then leads to an analysis of technical, political and institutional constraints or enabling factors, and concludes with recommendations for future reform efforts. Though PE is not always explicitly identified as a framework, approach or theoretical basis, key PE concepts and focus areas invariably run through the analysis¹⁰. In some, the focus falls on power sector reform more generally, while others look at specific issue areas, such as subsidy reform, IPPs or regulation. Prominent examples include: Dubash (2002), Bacon & Besant-Jones (2002), Newbery (2005), Woodhouse (2005), Besant-Jones (2006), Williams & Ghanadan (2006), Eberhard (2007), Bhattacharyya (2007), Victor & Heller (2007), Scott & Seth (2013), Jamasb, Nepal & Timilsina (2015).

This literature has considerably expanded our scope of understanding around power sector reform and development in low- and middle-income countries and provides a wealth of reference points for future research and theory development. However, findings and principles are not easily transferrable from one context to another because research is rarely systematic, suitably comprehensive, or appropriately nested within extant research and theory. Significant work is thus necessary to bring together the array of insights, methodological approaches and recommendations that this literature already offers, and to better bound, differentiate and systemise PE research and theory in the area going forward.

¹⁰ For example, two seminal texts in the area - Williams & Ghanadan's 2006 article *Electricity reform in developing and transition countries: A reappraisal* and Victor & Heller's 2009 book *The Political Economy of Power Sector Reform: The Experience of Five Major Developing Countries* – both reflect on power sector reform efforts in developing countries, nested within the broader global experiment of market-orientated public sector and economic reforms. Williams and Ghanadan do not take an explicitly PE approach, while Victor and Heller do – yet in both, PE contextualities lie at the centre of their analysis. Both depend primarily on literature review and similarly structured case studies, though in neither are the case studies easily comparable. Nonetheless, similar themes emerge across case studies and there is a high degree of correlation between their conclusions and recommendations. This approach is typical in other comparative and individual case studies, and similar points frequently emerge.

This challenge is not unique to research on power sector reform and development. PE has seen a resurgence across the development research and practice community over the last 10 or so years. However, there is broad consensus that PE research remains theoretically underdeveloped and disparate, and that sector-level and sector-specific PE research and analysis is a critical area to advance – the imperative of which is part academic and part practical: to systematically advance our understanding of the PE of development, specifically with regards to strategic sectors such as power, as well as contributing to the advancement of more strategic and effective policy, interventions and strategies (Edelmann, 2009; Barnett, 2014; Hudson & Leftwich, 2014; Levy, 2014).

Nonetheless, the considerable work that has gone into systemising PE – specifically PEA approaches¹¹ advanced by DFIs and recent theoretical work on PE - provides an abundance of practical wisdom and “conceptual breakthroughs” around the essential features and core components of PE research and analysis, both at the country-level and sector-level (Levy, 2014; Edelmann, 2009; Hudson & Leftwich, 2014). In this section, we offer an initial framework from which to advance PE research and analysis in power sector reform and development. This initial framework is in no way prescriptive. Rather, we use it as a means to collate what has been learnt about how to do PE research in such a way that findings and principles can be identified and compared across cases, and offer it as a starting point from which to systemise research in the area going forward – both academic and practical.

We present the framework in table 5 and the elaboration that follows, outlining a set of interdependent PE components, core focus areas, and links to relevant theory that are intuitively and practically compelling, and which we consider foundational to integrated, sector-level PE studies/analysis¹².

Table 5 Components of an Integrated PE Approach

PE Component	Core Focus Areas	Relevant Authors/ Theory
<i>National structural characteristics</i>	<ul style="list-style-type: none"> • State formation, • History, • Geopolitics, • Natural environment & resources, • Macro-economic status/structure, • Demographics, 	<ul style="list-style-type: none"> • Dryzek & Dunleavy, 2009 → state Formation, top-down and bottom-up perspectives, evolving priorities of the state, theories of the state. • Collier, 2007 → conflict trap, natural resource trap, landlocked with bad neighbours, bad governance in small

¹¹ Interested readers should look to Edelmann’s 2009 *Analyzing and managing the political dynamics of sector reforms: A sourcebook on sector-level political economy approaches* and Hudson and Leftwich’s 2014 *From Political Economy to Political Analysis*, which together provide a valuable overview and critique of PEA.

¹² This list draws heavily on Edelmann’s 2009 *Analyzing and managing the political dynamics of sector reforms: a sourcebook on sectoral-level political economy approaches*, in which he provides an extensive comparative review of the following PEA approaches: poverty and social impact analysis (World Bank), an analytical framework for understanding the political economy of sectors and policy arenas (ODI), rethinking governance in the water sector (ODI), the political economy of policy reform (World Bank), the sector governance analysis framework (European Commission), the policy engagement framework (ODI), the political economy and political risks of institutional reform in the water sector (World Bank), water pricing in Honduras: a political economy analysis (Strand), drivers for change in Zambian agriculture (ODI), Drivers of Change approach (DFID), Power Analysis (Sida), the capability, accountability, responsiveness framework (DFID), the politics of policies approach (IADB), the context, evidence, links framework (ODI) & From drivers of change to the politics of development (DFID).

	<ul style="list-style-type: none"> • Socio-economic conditions, • Culture, religion, ideologies 	<ul style="list-style-type: none"> country • Althusser, 1970 → state ideology
<i>Political and economic institutions (formal and informal)</i>	<ul style="list-style-type: none"> • Regime, • Structure, • Distribution power and resources, • Incentives, • Responsiveness, • Accountability, • Inclusive/exclusive, • Transparency & legitimacy (level and source of legitimacy), • Capacity & capability 	<ul style="list-style-type: none"> • North et al. 2013 → ‘closed vs access orders’ • Acemoglu & Robinson 2012 → inclusive vs exclusive institutions, see-saw effect, institutional equilibrium • Khan 2010 → political settlements • Norad, 2010 → sources of legitimacy • Fukuyama, 2011 → origins of political order • Levy, 2014 → political settlements
<i>Sector analysis</i>	<p>Sector and policy/reform arena:</p> <ul style="list-style-type: none"> • Historical evolution of sector, • Structural features & organisation, • Relevant institutions & policies, • Stated sector objectives, • Performance, • Transparency/ Information 	<ul style="list-style-type: none"> • Rees, 1985 → principal-agent theory, information asymmetries between utility, regulator, state, other (see: Victor & Heller, 2007 for examples) • Christensen, Laegreid, Roness & Rovik, 2007 → public sector, organisation theory • Lowi, 2009 → arena’s of power
	<p>Stakeholder analysis of public, civil society, traditional, media, private, political, state and external/foreign actors:</p> <ul style="list-style-type: none"> • Power (type, distribution & source), • Mode and degree of Influence, • Interests, • Incentives, • Ideas/ ideology, • Networks and relationships, 	<ul style="list-style-type: none"> • Tsebelis, 2002 → veto players/power • Khan, 2010 → holding power • Evers & Solvay, 2009 → strategic groups • Grindle, 1999 → institutional/ stakeholder analysis • Sabatier, 1998 → Advocacy Coalitions
	<p>Policy analysis:</p> <ul style="list-style-type: none"> • Content, • Viability (political, techno-economic and organisational), • Impact on sector organisation/performance, • Impact on stakeholders, interests and incentives, 	<ul style="list-style-type: none"> • Meltsner, 1972 → Political Feasibility Analysis • Grindle & Thomas, 1991 → Winners and losers • Cochran & Malone, 2005 → policy analysis • Nagel, 1999 → Policy Analysis Methods • Schnell, 2015 → issue of isomorphic mimicry
<i>Policy/reform process</i>	<ul style="list-style-type: none"> • Policy making and implementation processes, • Incentives and capacities of actors working in policy formulation, negotiation and implementation • Past policy process timelines and experiences (of relevance) 	<ul style="list-style-type: none"> • Lasswell, 1956 → policy cycles • Kingdon, 1995 → agenda setting, policy windows • Rodrik, 2008 → second-best reform/policy environment • Brinkerhoff, 2016 → agency and strategic actions • Andrews, 2013 → problem-driven iterative adaptation • Barma et al., 2014 & Levy, 2014 → islands of excellence • Levy, 2014 → with-the-grain approach
<i>Situational/ temporary factors</i>	<ul style="list-style-type: none"> • ‘Focusing events’ (eg. crises, news, regime transition, technological breakthrough, etc.), • Policy/reform/issue champions and/or coalitions, • External actors, donor agencies • Stability/volatility across the political economy system • International political economy conditions (eg. commodity price fluctuation, shifting geopolitical alliances/dynamics, ideological shifts etc.) 	<ul style="list-style-type: none"> • Downs, 1972 → issue attention cycles • Birkland, 1998 → focusing events • Gulranja, 2015 → political economy donor agency organisations
Source: Developed by author, with reference to Edelman, 2009 and Hudson & Leftwich, 2014.		

We consider the alignment of PE research in the area – particularly the explicit treatment of all the components that we identify and the use of established tools, such as stakeholder analysis – essential to facilitating theory generation, the identification and dissemination of key findings and lessons, and

the development of a cohesive body of PE work that looks at power sector reform and development. Though extant research explicitly offers lessons and recommendations, the applicability or transferability of these to other contexts is uncertain where the analysis does not address all of the primary components of PE analysis, a clear PE framework is lacking, or established tools are not used or unnecessarily reinvented. For example, in Victor and Heller's (2007) *The Political Economy of Power Sector Reform: The Experiences of Five Major Developing Countries*, the case studies (which make up the bulk of the book) are essentially descriptive, narrative accounts of reform experiences. In order to extract principles or lessons - beyond the analysis that Victor and Heller offer - these case studies would have to be put into a PE framework, established tools (such as stakeholder analysis and policy analysis) would have to be applied, and missing information identified and sourced. From here, an expert analysis of the transferability of the lessons would then have to be undertaken. This process may be feasible (if time consuming and possibly fruitless) for case studies where the depth of analysis is sufficient, however PE case studies are rarely as comprehensive as those contained in Victor and Heller's book. The refinement and application of a PE framework is thus essential to actually moving our understanding of the PE of power sector reform and development forward, to realise the ultimate goals of theory development and the advancement of appropriate, effective and feasible reforms.

Below we discuss the components of PE research and analysis that we outlined in table 5. Following from this, in the final and concluding section, we consider key priorities for the research agenda going forward, including the refinement and propagation of a PE framework for research on power sector reform and development.

National Structural Characteristics

According to our framework, PE research and analysis should begin with an overview of the macro-context of the country in focus. This is typically a relatively straightforward and descriptive exercise, where social, political and economic structural characteristics are reported. However, it is crucial that this is pursued in some depth and with due attention to relevant elements of political economy, specifically in terms of the history and evolving role of the state, geopolitical positioning, socio-economic conditions and ideological/cultural traditions.

In most developing countries, electric power was first introduced by colonial powers to serve urban centres and extractive industries. In many, especially those burdened with the 'resource curse', this contributed to highly enmeshed relationships between postcolonial political and economic elites in the power sector and extractive industries. In these cases, political support and legitimacy is often still dependent on the ability of political elites to provide dominant economic interests with subsidised power and preferential contracts, extract rents and establish patron client networks through the public sector and productive segments of the economy. The power sector has thus not only been an integral component in the process of state formation, but continues to play a key role in the current macro-PE system.

Because of the lasting effects of the intertwined processes of state and power sector development, we identify the vast literature on state formation – a critical area in political science – as a valuable resource for this component of PE research (Dryzek & Dunleavy, 2009). Drawing on core theoretical perspectives on how states can, do and should operate – including the ‘super structure’ of culture and ideology – can provide a theoretical and conceptual grounding for deeper analysis of political and economic institutions (Althusser, 1970; Dryzek & Dunleavy, 2009). In addition, Collier’s recent work that focuses on state formation and structure - as linked to development - provides a useful resource to identify common structural constraints, including: the conflict trap, the natural resources trap, the case of landlocked countries with bad neighbours, and the case of bad governance in small countries (Collier, 2007).

Political and Economic Institutions

Institutional analysis, alongside stakeholder analysis, is perhaps the most common approach taken in PE research. A standard approach typically involves mapping formal (and sometimes informal) institutions and incentive structures, or the ‘rules of the game’ (Hudson & Leftwich, 2014). However, there is considerable room to systemise and advance our treatment of political and economic institutions by augmenting the current focus on static formal institutions and incentive structures with recent “conceptual breakthroughs” from institutional economics and political analysis (Hudson & Leftwich, 2014; Levy, 2014). Critically, institutional analysis needs to account for the institutional structure as a relatively stable context *and* as a dynamic and evolving equilibrium that is responsive to de jure and de facto power, as well as external forces (World Bank, 2008).

For PE research on power sector reform and development, the way that (often) informal institutions facilitate mutually supportive relationships between political and economic elites in the power sector are critical. The work of North et al. (2013), Khan (2010), Fukuyama (2011), Acemoglu & Robinson (2012), and Levy (2014) is highly relevant, as each author provides a set of largely consonant concepts and frameworks from which to analyse both formal and informal institutions in developing countries. Of particular value is the analysis of the relationship between formal and informal institutions, and the exploration of how these either facilitate or constrain actors access to power, decision-making, and resources - Acemoglu and Robinson distinguish between ‘inclusive’ and ‘exclusive’ institutions, North et al. explore ‘open’ and ‘limited access orders’, and Khan considers whether the ‘political settlement’ is ‘dominant’ or ‘competitive’ (2012; 2013; 2010). Levy provides an initial synthesis of these theoretical developments in *Working with the Grain: Integrating Governance and Growth Strategies in Development* by offering a comparative typology that looks at whether countries have dominant or competitive polities, and whether the ‘rules of the game’ centre around personalised deals or the impersonal application of the law (each treated as a continuum) (2014). In addition, Hudson and Leftwich’s *From Political Economy to Political Analysis* provides a key reference text to the more ‘political’ aspects of institutional analysis – specifically the role of power, ideas and actors in sustaining or challenging institutions (2014).

Sector Analysis

Sector analysis, as set out in our framework, consists of three interrelated sub-components. The first involves a structural and institutional analysis of the sector, which may coalesce or diverge with the country-level PE. As a counter point to the dominance of economic assumptions in sector analysis (where the public sector is treated with the same tools of analysis as the private sector), we suggest Christensen, Laegreid, Roness and Rovik's *Organization Theory and the Public Sector: Instrument, Culture and Myth* for a political science-oriented treatment of the public sector that considers power, culture and norms (2007).

The second comprises stakeholder analysis, where key actors in the sector are identified and their interests, ideas, networks, and access to power and influence are mapped. Stakeholder analysis is an established approach, of which there are multiple frameworks that can be used. Whatever framework is adopted, we highlight the value of explicitly addressing the type of power that stakeholders wield, including the source of power. For example, Tsebelis' theory of veto players or Khan's concept of 'holding power' both provide a platform from which to explain or predict how the monopoly power of state utilities has or may be used to block reforms, as has been the case with South Africa's power utility Eskom (2002; 2010). In contrast, Evers and Solvay's theory of strategic groups offers insight into the ways that strategic coalitions, for or against reforms, can alter power dynamics to prevent or bring about institutional change – such as coalitions between renewable energy associations that may lobby for reforms that open generation to IPPs (2009).

The third sub-component involves policy analysis of extant policy and the way that it shapes PE (Lowi, 2009), and of specific policy/reform proposals - with a view to identifying 'winners' and 'losers' (Grindle & Thomas, 1991), politically feasible or second-best policies/reforms (Meltsner, 1972; Rodrik, 2008), and the policy/reform's likely impact on the sector. The reform experience in many Latin American countries highlights the value of identifying 'winners' and 'losers' early in the reform process, so as to negotiate politically feasible policies (Miller, 2006). Policy analysis is an established tradition in political science, from which theoretical and methodological approaches should be explored (Cochran & Malone, 2005; Nagel, 1999).

Policy/Reform Processes

To use a metaphor that has become unavoidable in PE and institutional analysis, the preceding components centre on analysing the 'rules of the game', the characteristics of the 'playing field' and positions, strength and weaknesses, and strategies of 'players'. However, the outcome of 'game' itself is not predetermined. The policy/reform process (problem identification/ agenda setting - design and formulation - adoption and implementation – evaluation) is rarely linear or coherent (Lasswell, 1956; Kingdon, 1995; World Bank, 2008). Instead, policy/reform processes are typically complex, fragmented, multi-directional and take place in 'fits and starts'. Analysis of policy processes thus demands an awareness of the agency and creativity of 'players' within the structures of the 'game'

(Hudson & Leftwich, 2014; Brinkerhoff, 2016). Reflecting on past policy processes can provide valuable insight, especially contrasting successful with failed attempts at reform. In trying to bring about certain policies or reform, actors need to think strategically and act politically (Booth, 2015). Looking at examples of successful transition countries, politically feasible reforms have been crafted through inclusive processes, involving negotiation and compromise between key stakeholders where political and economic power is less centralised and more competitive (eg. Latin America, Millan 2006), or top-down ‘persuasion’ where political and economic power are centralised and there is little competition (eg. Uganda, Eberhard et al. 2016). In this component of PE research and analysis, the primary question is around how strategic, politically savvy reforms have been and can be designed, and then pursued. Aware of the need to work politically, recent research suggests thinking in terms of ‘second-best policies’ (Rodrik, 2008), taking a ‘problem driven iterative approach’ (Andrews, 2013) and ‘working with the grain’ (Levy, 2014). Through our review we find that reforms, whether ambitious or not, are only achievable where politically strategic approaches that work within the dynamics and constraints of the existing PE system have been adopted.

Situational and Temporal Factors

The final component is our PE framework is an analysis of situational and temporal factors, specifically ‘focusing events’, policy/reform ‘champions’, and external forces (Birkland, 1998). It is crucial that PE research and analysis take these factors into account, as these can catalyse or constrain reforms. For example, a natural event such as a drought may open a policy window that allows for the next reform step to be taken, a powerful actor may unexpectedly become a policy/reform champion or a financial downturn in OECD countries may redirect investors to developing markets. Understanding how these situational or temporal factors have affected reform processes in various contexts is crucial to identifying whether principles or lessons are transferrable, while thinking about how to use such factors to catalyse reforms – for example, through identifying and supporting reform champions- has become common among DFIs PEA approaches. Equally important is an understanding of situational or temporal factors that may constrain reforms, and how these effects may be mitigated or managed to protect the reform agenda and sector development.

To close this section, and before going on to our conclusion and suggestions for future research, we cite the following from Hudson & Leftwich (2014) – as an operational point, a caveat and recommendation:

“Work of this kind is neither easy nor quickly done. Moreover, [it] requires multidisciplinary work and is best done by teams that cover the necessary range of disciplinary, technical, and managerial skills and that draw on both local and international analysts. For example, an anthropologist, an economist, a legal scholar, a political scientist, a sociologist and a geographer are probably all necessary to map

and understand the full range of formal and informal institutions, processes and the structures of power they are embedded in.”

Discussion and Conclusion: Themes, Trends and Lessons on the PE of Power Sector Reform

In this state of knowledge paper, we have provided an initial review of the essential literature on the status and experience of power sector reform in Sub-Saharan Africa, South Asia and Latin America, identified emergent themes, trends and lessons within this literature, and offered practical suggestions to advance PE research and analysis in the area.

In the first section, we provided an up-to-date overview of the status and progression of power sector reform and development in the focus regions, Sub-Saharan Africa and South Asia, as well as reflecting on the Latin American experience. We showed that power sector reform in these regions has not been the uniform progression toward a common outcome predicted in the ‘standard reform’ model, but an irregular process that involves complex interactions between state and market elements, and political and economic power, interests and ideas. Some countries have completed the transition to market-based systems, but in the vast majority reform is a work in progress, often moving much slower or in a different direction than originally anticipated. There is now broad agreement that no ‘one-size-fits-all’ solution exists for power sector reform and that there is no ideal power sector model. Rather, targeted solutions to power sector challenges should be based on a detailed understanding of structural, institutional, macroeconomic and political conditions, and should be informed by national objectives, capabilities, and political realities. Nonetheless, there is untapped potential for country-to-country learning across and within developing regions. We suggest that advancing the empirical literature on power sector reform across these countries and regions in a systematic manner and with appropriate reference to previous research and theory - so as to develop and maintain a comprehensive review of the status and experience of power sector reform in developing countries from which to identify common principles and lessons – is a necessary component of the research agenda going forward. This should include supporting the development of country-to-country networks and joint process of knowledge development on how best to do this.

In the second section, we went on to review the core literature on power sector reform and development. With over twenty years of experience in attempted power sector reform across a sizeable and diverse set of low- and middle-income countries, there is a considerable literature that offers insight into and lessons from reform experiences. We discussed a broad array of contextualities, a term we use to capture the multitude of conditions that have shaped and give shape to the PE of a country and its power sector, thereby providing an initial review framework. We suggested that this be a point of departure for a more systematic review of the core and peripheral literature, from which ‘good fit’ strategies to power sector reform and development for low- and middle- income countries might be developed. However, we stress that this is not simply a case of extracting lessons from extant literature in order to compile another set of ‘best practices’. Because much of the literature is country or region specific, and the evolution of PE research in the area has

been driven by the intuitive appeal of PE rather than a systematic and theoretically informed approach, any lessons identified in the literature should be treated with care. Nonetheless, through applying and mapping contextualities and lessons within a more comprehensive PE framework and with a more cohesive understanding of PE, we should be able to identify patterns and begin to develop an understanding around what is possible, appropriate and sustainable – ultimately contributing to the identification ‘good fit’ strategies.

In the final section, we reflected on how research on power sector reform and development has been done and how it can be advanced. We built on recent developments in PE research and analysis in the DFI community, to assemble an initial framework. From here, we explored links to contemporary “conceptual breakthroughs” in political economy, institutional economics, and development economics, as well as more established research traditions, primarily from the political science field. Through this section, we considered how PE research and analysis could be designed in such a way as to facilitate the identification, comparison and dissemination of key principles and lessons on power sector reform and development in low- and middle-income countries. Linking more systematic PE research and analysis to the practice of reform design, implementation and evaluation is crucial. We recommend that this is taken further in future research, with a view to developing a body of work on the PE of power sector reform and development that is methodologically coherent, theoretically informed, and empirically based. However, it also is crucial that the initial PEA type framework that we advanced is refined, with a view to developing a rich, thoughtful and theoretically strong PE research framework. This would be best done through an in-depth, inductive and explorative application of this framework in a small selection of countries, in order to streamline, sift out the overambitious theoretical framing, and bound a PE research approach to power sector development and reform. Ultimately, the development of a PE framework that has more theoretical force is vital to the propagation of a more effective and credible approach to reform.

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