THE LIMITS OF CONCENTRATED POWER: BUREAUCRATIC INDEPENDENCE AND ELECTRICITY CRISES IN RWANDA

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ABSTRACT

Rwanda is a posterchild of economic success in 21st Century Africa. Dominant explanations for the country's growth use the political settlements framework, asserting that concentrated political power enabled long-term planning. In contrast, this article uses the case of Rwanda's impressive boom in electricity generation to demonstrate that such concentrated power also distorts policymaking processes, creating a fiscal crisis that jeopardises Rwanda's economic transformation. The article therefore questions a central premise of the political settlements framework. Concentrated political power in Rwanda enabled rapid and ambitious construction of power plants but resulted in an oversupply crisis, plunging the sector into significant debt and raising the cost of electricity. Rwanda's settlement prevented experts from challenging unrealistic targets set by top politicians, which lead to a headlong pursuit of electricity generation capacity. To understand this process, we assert the importance of focusing on the bureaucratic/politician relationship, which we label 'bureaucratic independence', rather than on the oft-used concept of 'bureaucratic autonomy' usually associated with the concentration of power.

OVER THE LAST DECADE, in political economy scholarship on Africa, the political settlements framework (PSF) has gained prominence as a theory for understanding countries' development trajectories. This is welcome. The framework counters new institutional economics that underpins the 'good governance' policy school, which narrowly focuses on reforming formal institutions in a depoliticised manner. In contrast, the political settlements framework asserts the importance of underlying political power in shaping a country's political economy and

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thereby its governing institutions, since 'if powerful groups are not getting an acceptable distribution of benefits from an institutional structure, they will strive to change it.'[2] The framework emphasises the importance of pressures faced by ruling elites in maintaining power, tracing how this affects their ability to conduct institutional change and thereby direct development. The framework tends to theorize concentrated political power, generally labelled 'dominant party settlement', as most conducive to development: rulers, feeling secure, can focus on longer-term outcomes and discipline rent-seeking. Conversely, when power is largely contested and dispersed, rulers may use clientelist deals, and allow corruption, to cement short-term support and co-opt opposition. Overall, 'from the East-Asian developmental states to more recent successes of newly industrializing countries like China and Malaysia, the emerging consensus is that dominant party settlements, all things being equal, may be most conducive to industrial policy.'[3]

We question a core premise of the political settlements framework, namely the causal link between highly concentrated political power and development. Rather than the primary enabler of effective decision-making and transformative economic investment, we demonstrate how the concentration of ruling power can also prevent rulers from receiving necessary critiques and technical inputs, thereby hindering policy course corrections to the point of endangering structural transformation. This underlines how the concentration of political power is a double-edged sword. While it enables the discipline to secure long-term goals, it can also suppress the key challenging function of the civil service. Concentrated power unlocks rapid change, but does not determine the positive or negative economic outcomes of such transformation.

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[2] Mushtaq Khan, 'Political Settlements and the Governance of Growth-Enhancing Institutions,' (Research Paper Series on Governance for Growth, SOAS, University of London, 2010), p.4.
[3] Matthew Tyce, 'The Politics of Industrial Policy in a Context of Competitive Clientelism: The Case of Kenya's Garment Export Sector,' *African Affairs* 118, 472 (2019), pp.553-579, p.554.

We demonstrate this argument with the case study of Rwanda and its electricity sector. Rwanda is emblematic of the rise of political settlements within academia, touted for its ruling elite's commitment to development, management of rents and, thanks to a degree of authoritarianism, ability to make longer-term decisions. As a result, Rwanda 'is perhaps the most commonly cited example of supposed new African 21st century 'developmental states'.[4] Beyond critiquing this premature label, we detail a key policy failure in the electricity sector to shed light on the limitations of the political settlements literature's key premise that centralised, dominant political power is a simple boon to development.

The electricity sector is an especially interesting case study as it presents a puzzle. It has been at the forefront of Rwandan elites' developmental ambitions for two decades, identified as a key source for economic growth, with significant international technical support, and domestic and international investment. On the surface, there is a success story: Rwanda's generation capacity rose exponentially from 39.95MW in 2003 to 218.9MW in 2017 (Figure 1) whilst the percentage of the population with access to electricity grew from 6% in 2009[5] to a reported 24% in 2017[6]. This is remarkable for a country emerging from a genocide and years of war, with both events causing total societal, and state collapse, also entailing near total debilitation of the country's electricity system.[7] However, a closer study of the energy boom reveals substantive mistakes damaging the country's long-term growth. Rwanda is producing too much power, with installed generation capacity far exceeding annual demand. Additionally, projects are poorly attuned to Rwanda's daily energy-demand profile and were often ill-conceived. Such over-production is wasteful at the very least, but the state's policy choices

[4] Graham Harrison, 'Rwanda and the Difficult Business of Capitalist Development: Focus: Rwanda and the Difficult Business of Capitalist Development,' *Development and Change* 48,5 (2017),pp. 873-898, p.873.
[5] Ministry of Infrastructure Republic of Rwanda, 'National Energy Policy and National Energy Strategy 2008-2012' (Government of Rwanda, Kigali, 2009).
[6] World Bank, 'Rwanda - Energy Sector Development Policy Loan Project' (World Bank Group, Washington, D.C., 2017).
[7] Bonfils Safari, 'A Review of Energy in Rwanda,' *Renewable and Sustainable Energy Reviews* 14, 1 (2010): pp.524–29.

increase its deleterious significance. Two-thirds of electricity production was contracted through 20-year private-sector agreements with a ‘take-or-pay’ clause, meaning that ninety percent of electricity provided must be paid for, even when not consumed. Consequently, increased electricity generation has locked the country into high-energy costs and spiralling debt for a predicted two decades, checking efforts of poverty reduction and economic transformation.[8] Wider economic malaise was only prevented by Rwanda’s small size, which allowed the World Bank to quickly step in with grants and loans. Why did such significant failures occur despite the Rwanda case exhibiting so many gold standard preconditions for development?

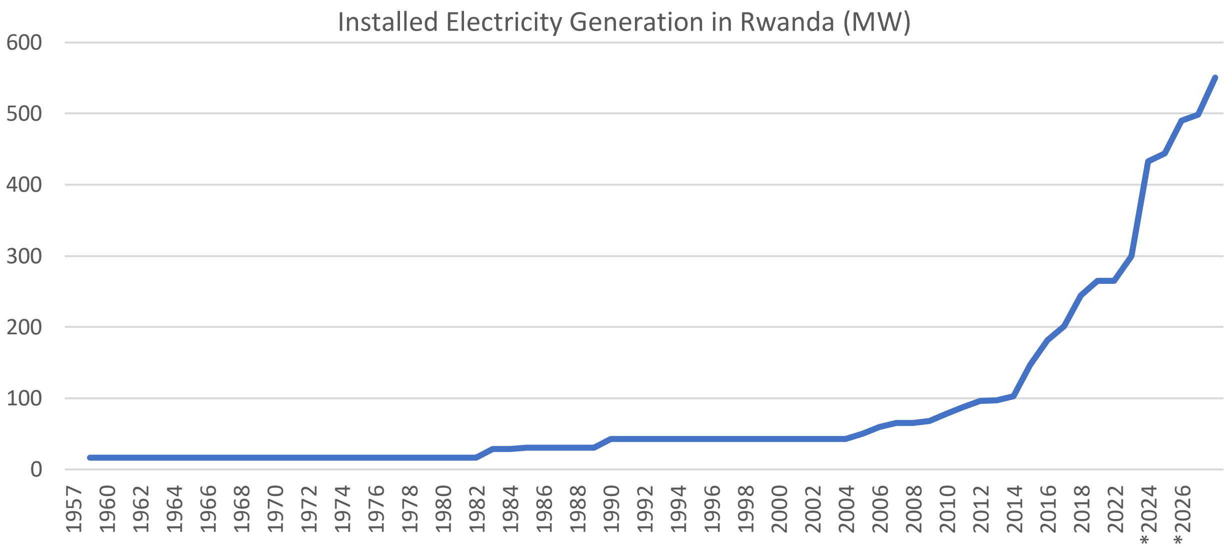

Figure 1: Installed electricity generation in Rwanda (MW)

Note: *Projections based on projects under contract.
Source: Authors’ statistics gathered from Mininfra press releases and ministerial strategy reports (e.g. Republic of Rwanda, M. of I., 2018), from the Rwanda Energy Group’s published statistics and news articles between 2014-2023.

[8] Barnaby Joseph Dye, ‘Ideology Matters: Political Machinations, Modernism, and Myopia in Rwanda’s Electricity Boom,’ *Energy Research & Social Science* 61 (2020): pp.1–11; World Bank, ‘Rwanda - Energy Sector Development Policy Loan Project.’

This article argues that the political settlements framework misses the crucial role of the politician-bureaucratic interface, which reflects the broader absence of the state in the original PSF work. Typically, political settlement-type analysis, regarding the bureaucracy, highlights how a 'dominant party settlement' can give technicians autonomy from societal pressures and drive a degree of 'Weberian-ness' within the state, or at least in some key 'pockets of effectiveness' seen as crucial for economic transformation.[9] We advance this discussion by introducing the concept of 'bureaucratic independence', which highlights the importance of the distribution of power between politicians and bureaucrats and the way this enables or disables the latter's ability to offer crucial critique and technical inputs.

Overall, the article makes three key contributions. First, our empirical analysis deepens understanding of the political economy of Rwanda, its electricity sector and elite-level decision making. Second, we contribute to theorising the under-conceptualised relationship between the civil service and top politicians. The Rwandan case evidences why the popular concept of 'bureaucratic autonomy' should be unpacked to distinguish between autonomy from society and autonomy from political leadership. This allows conceptualisation of the ideal balance of power between officials and the state that best supports developmental outcomes. Third, theoretically we question political settlements' premise that concentrated power in a ruling group generates conditions directly conducive to development.

This article draws on qualitative research conducted between 2013 and 2018 during repeated fieldwork by the two authors. It involved 90 semi-structured interviews with a variety of actors selected purposively due to their knowledge of policies, decision-making processes, and infrastructure projects. They included Rwandan current and former PRF officials, especially former ministers, civil servants, advisors in the Ministry of Infrastructure (Mininfra)

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[9] Sam Hickey, *Pockets of Effectiveness and the Politics of State-building and Development in Africa* (Oxford University Press, Oxford, 2023); Lindsay Whitfield et al., *The Politics of African Industrial Policy: A Comparative Perspective* (Cambridge University Press, Cambridge, 2015).

and in the Energy Utility, employees from private companies, as well as donor organisations and consultancies involved in the electricity sector. This rich data underpinned process tracing, the tracing of the 'decision process by which various initial conditions are translated into outcomes'.[10] Following Fairfield, we tried to improve the transparency of process tracing by including quotes of people directly involved in the decisions being analysed as well as considering alternative explanations in a dedicated section.[11] A key challenge in this research is the sensitivity of the topic. It required to be able to understand top decision-making about a crucial sector in a closed regime devoting significant resources to protect its reputation. This potentially creates self-censorship from informants, especially towards foreign researchers. While aware of these limits, we followed others working in authoritarian contexts,[12] considering that analytical rigour stems from the authors' deep and long-lasting empirical engagement with the country, which allows time to build trusted contacts, alongside triangulation that pieces together different types of sources (internal/external of government) and evidence (interviews, documents). Because of the need to protect sources, quotes are anonymised.

The blind spots of political settlements framework and bureaucratic autonomy

Mushtaq Khan's PSF[13] has become increasingly popular in the last decade. The framework's core premise is that 'the distribution of power across organizations [is] usually the most

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[10] Alexander George and Timothy McKeown, 'Case Studies and Theories of Organizational Decision Making', in Robert Coulam and Richard Smith (eds.) *Advances in Information Processing in Organizations*,(JAI Press, Santa Barbara, 1985), p.35.
[11] Tasha Fairfield, 'Reflections on Analytic Transparency in Process Tracing Research,' *Qualitative and Multi-Method Research* 13,1 (2015): pp.47–51.
[12] David Art, 'Archivists and Adventurers: Research Strategies for Authoritarian Regimes of the Past and Present: Research Strategies for Authoritarian Regimes,' *Social Science Quarterly* 97, 4 (2016), pp.974–90.
[13] Khan, 'Political Settlements and the Governance of Growth-Enhancing Institutions'; Mushtaq Khan, 'State Failure in Weak State: A Critique of New Institutionalist Explanations,' in John Harris, Janet Hunter, and Colin

important determinant of the path of institutional change, and the effectiveness of particular institutions'.[14] Political settlements theory assumes that concentrated political power in a ruling coalition creates the most conducive conditions for development.[15] These conditions, given insulation from societal, or democratic, pressures gives a 'level of regime security [that] can encourage those in power to adopt a longer-term time horizon, and reduces the transaction costs involved in implementing policies.'[16] Such ruling coalitions, generally labelled 'dominant party settlements', can insulate their bureaucracies from societal pressures, allowing supposedly technically-optimum decisions. Conversely, when power is fragmented, with groups vying for supremacy and the population multiplying demands on the centre, 'the prospects for developmental governance over the long term are diminished. […] elite incentives are loaded towards the use of public institutions in securing short-term political gains.'[17]

These insights are not wholly new. The PSF owes much to the older 'developmental state' literature that explained the economic transformation of East and South-East Asian states. It echoes this literature's identification of the state's centrality to development, the crucial role of politics-business relations and the importance of concentrated power in directing rents in generating industrialisation[18] However, the developmental state literature does not provide a systematic model to explain how developmental states emerge, what the PSF does by identifying peculiar configurations of power conducive to economic transformation. In this

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Lewis (eds.), *The New Institutional Economics and Third World Development* (Routledge, London 1995), pp.71-86.

[14] Mushtaq Khan, 'Political Settlements and the Analysis of Institutions,' *African Affairs* 117, 469 (2018), pp.636-655, p.638.

[15] Pritish Behuria, Lars Buur, and Hazel Gray, 'Studying Political Settlements in Africa,' *African Affairs* 116, 464 (2017), pp.508–25; Khan, 'Political Settlements and the Governance of Growth-Enhancing Institutions.'

[16] Abdul-Gafaru Abdulai and Sam Hickey, 'The Politics of Development under Competitive Clientelism: Insights from Ghana's Education Sector,' *African Affairs* 115, 458 (2016), pp. 44-72, p.51.

[17] *Ibid*.

[18] e.g. Peter B. Evans, *Embedded Autonomy: States and Industrial Transformation* (Princeton University Press, Princeton, 1995); Adrian Leftwich, 'Bringing Politics Back in: Towards a Model of the Developmental State,' *The Journal of Development Studies* 31, 3 (1995), pp.400–427.

respect, the framework has the most crossover with Kohli's comparative analyses of a series of countries and the importance of a cohesive state and low political fragmentation in explaining industrialisation.[19] The original framework has since developed into variety of directions. Originally PSF was used by Khan to understand economic growth but was later adapted to understand state-building and public policy outcomes.[20] Some works have pointed out the limit of a purely material approach to interests in PSF, highlighting the importance of ideas in shaping the mobilisation and cohesion of coalitions, as well as in explaining specific policy choices.[21] The most hotly debated change with the original framework, including in the pages of this journal[22], contests whether a settlement should be understood as a structural feature of a polity or an agency-based agreement. Kelsall and others[23] emphasize the latter against PSF's original theorists, integrating a settlement's social foundation into analysis to account for the identity of the ruling group, its supporters and opponents, to understand why a developmental policy is pursued or not, and how inclusive it may be. For a similar objective, others have tried to include the ruling group's degree of vulnerability to strengthen the PSF's explaining power.[24] Another active debate contests the PSF's intellectual purpose, pitting academics advocating for an open-ended, descriptive use of the framework[25] against others operationalising PSF for predictive purposes, even pioneering the inclusion of quantitative data. [26]

[19] Atul Kohli, *State-Directed Development: Political Power and Industrialization in the Global Periphery* (Cambridge University Press, Cambridge, 2004).
[20] e.g. Tim Kelsall et al., *Political Settlements and Development: Theory, Evidence, Implications* (Oxford University Press, Oxford, 2022); Jonathan Di John and James Putzel, 'Political Settlements: Issues Paper,' (GSDRC Issues Paper, University of Birmingham, Birmingham, 2009); Hickey, 'Pockets of Effectiveness'
[21] Tom Lavers, 'Taking Ideas Seriously within Political Settlements Analysis,' (ESID Working Paper 95 University of Manchester, Manchester, 2018).
[22] Mushtaq H Khan, 'Power, Pacts and Political Settlements: A Reply to Tim Kelsall,' *African Affairs*, 117, 469 (2018) pp.670-694; Tim Kelsall, 'Towards a Universal Political Settlement Concept: A Response to Mushtaq Khan,' *African Affairs* 117, 469 (2018) pp.656–694.
[23] Kelsall et al., *Political Settlements and Development*.
[24] Whitfield et al., *The Politics of African Industrial Policy*; Benjamin Chemouni, 'The Politics of Core Public Sector Reform in Rwanda,' (ESID Working Paper n°88, University of Manchester, Manchester, 2017).
[25] Behuria, Buur, and Gray, 'Studying Political Settlements in Africa.'
[26] Kelsall et al., *Political Settlements and Development*.

These debates are important, but none address two major weaknesses. First, they all consider the concentration of power an unreservedly enabler (yet not necessarily sufficient) condition for development. Second, these approaches have not much to say on the role of the civil service. An exception is the works of Hickey, Whitfield and others, who find that concentrated power is likely to create so-called pockets of effectiveness in the bureaucracy. They give technicians degrees of policymaking autonomy and support a Weberian culture, but are underpinned by concentrated power which 'endows the political elite with […] the enforcement capabilities required to develop state capacity.'[27] In contrast to these favourable analyses, we demonstrate how highly concentrated political power can also imbalance relations between politicians, technical advisors and civil servants, to significant, negative effect.

As Dasandi and Esteve observed, 'there has been very little attention given to the relationship between politicians and top bureaucrats in developing countries, and how this relationship might shape the development process.'[28] This is surprising, as it contrasts with the volume of literature on the politics–bureaucracy interface in industrialised democratic countries.[29] The wider political-economy analysis on bureaucratic effectiveness that does exist is heavily influenced by selective East-Asian developmental states. It typically stresses the benefits of autonomy from societal pressure in parallel with capacity to access information from society and business circles (its 'embedded autonomy'), as well as its Weberian characteristics: formal, impersonal hierarchical, career-oriented functioning and merit-based

[27] Matthew Tyce, 'The politics of industrial policy in a context of competitive clientelism: The case of Kenya's garment export sector, *African Affairs*, 118, 472 (2019), pp.553–579, p.553. Hickey*, Pockets of Effectiveness*; Whitfield et al., *The Politics of African Industrial Policy*.
[28] Niheer Dasandi and Marc Esteve 'The Politics–Bureaucracy Interface in Developing Countries.' *Public Administration and Development* 37, 4 (2017), pp.231–245, p.231.
[29] Ion Georgiou, 'Seeing the Forest for the Trees: An Atlas of the Politics–Administration Dichotomy,' *Public Administration Review* 74, 2 (2014), pp.156–75; James H. Svara, 'The Myth of the Dichotomy: Complementarity of Politics and Administration in the Past and Future of Public Administration,' *Public Administration Review* 61, 2 (2001), pp176–83; James H. Svara, 'Introduction: Politicians and Administrators in the Political Process—A Review of Themes and Issues in the Literature,' *International Journal of Public Administration* 29, 12 (2006), pp.953–76.

recruitment.[30] Overall, the focus is on the conditions creating separation from society, viewed as the best antidote to clientelist pressure, corruption, or state capture.[31] More recently, Fukuyama has revived this argument, stating the vital importance of bureaucratic autonomy in the quality of states. Autonomy is conceived as a shield 'from certain influences of social actors' which would otherwise prevent civil servants from having 'room for discretion or independent judgment' and being 'completely bound by detailed rules set by the political' principal. At worst, a lack of autonomy would mean 'los[ing] control over internal recruitment and promotion to the political authorities [resulting in the bureaucracy being] … staffed entirely by political appointees'[32]. However, such a conception of autonomy is problematic as it mixes autonomy from societal forces and autonomy from political masters, leaving an inadequate description of the nuances and distribution of policymaking power within the state. Evans similarly conflates autonomy from society and from political power when he writes in the introduction of his famous book that 'predatory states [i.e. those missing autonomy] lack the ability to prevent individual incumbents from pursuing their own goals' and that in this context, the state's 'ties to society are ties to individual incumbents, not connections between constituencies and the state as an organization.'[33] This understanding of autonomy cannot account for Rwanda's situation: the Rwandan bureaucracy then appears both autonomous, given its ability to resist political appointees, corruption, and interest groups' pressure, and simultaneously not autonomous, given its subordination to political leadership, and often to the president's wishes, with little room 'for discretion or independent judgment'.

The empirical evidence presented in key works on the developmental state is at odds with this literature's apparent lack of theorising about the relationship between bureaucracy

[30] Evans, *Embedded Autonomy*.
[31] *Ibid*.; Francis Fukuyama, 'What Is Governance?: Commentary,' 26, 3 (2013), pp.347–68. Samuel Huntington, *Political Order in Changing Societies*, (Yale University Press, New Haven, 1968).
[32] Fukuyama, 'What Is Governance?', p.357–358.
[33] Evans, *Embedded Autonomy*, p.12.

and politicians, and its tendency to conflate autonomy from society with autonomy from politicians. A number of texts highlight the centrality of the bureaucracy's protection from political power. Chalmers Johnson in his seminal book on Japanese industrialization, argues that Japanese state's effectiveness partly lies in the power of bureaucrats in 'a political system in which the bureaucracy is given sufficient scope to take initiative and operate effectively.'[34] This was famously encapsulated in his phrase that in Japan 'politicians reign and the bureaucrats rule'.[35] Johnson specified a key condition for this that is not, as we have demonstrated, present in the Rwandan case: 'it must be understood that the bureaucrats cannot rule effectively if the reigning politicians fail to perform their positive tasks, above all, to create space for bureaucratic initiative unconstrained by political power.'[36] Similarly, in the case of South Korea and Taiwan, Cheng et al argued that public agencies and ministries involved in economic transformation tended to be insulated from political and societal pressures but were also made relatively independent from the presidency.[37]

Bureaucratic 'independence', coined by Svara, enables disaggregation of the politician/bureaucracy relationship, unpacking concepts like the 'autonomous state' whilst conceptualising an alternative ideal politics-bureaucracy interface. Svara, observing empirical evidence that autonomy of civil servants in policy-making and implementation rarely occurs, asserts an alternative framework premised on the 'interdependence and reciprocal influence between elected officials and administrators'.[38] Our concept of bureaucratic independence develops this insight. Low independence involves political dominance of policymaking and the confinement of the civil service to narrowly-defined implementation. Conversely, high

[34] Chalmers Johnson, *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975* (Stanford University Press, Stanford, 1982), p.315.
[35] Ibid., p.316.
[36] Ibid., p.316.
[37] Tun-Jen Cheng, Stephan Haggard, and David Kang, 'Institutions and Growth in Korea and Taiwan: The Bureaucracy,' *Journal of Development Studies* 34, 6 (1998), pp.87–111.
[38] Svara, 'The Myth of the Dichotomy,' p.179.

independence incorporates ‘professional perspectives in policy formation and adhering to professional standards in implementation’[39] with rulers respecting administrative competence and commitment. Bureaucratic independence does not imply the absence of political control over bureaucrats or an insistence on the merits of bureaucratic isolation. Rather, independence conceptualises the distribution of decision-making power that allows bureaucrats to undertake their technical roles and freely express their professional insights, and critiques, in what is a *de facto* shared policymaking process.

Whilst studies on the political economy of development have hardly focused on the politics/bureaucracy interface, recent works on ‘pockets of effectiveness’ in both ‘dominant party’ and ‘competitive clientelist’ settlements provide an empirically grounded case for the importance of such research.[40] Besides the usual benefits attached to ‘bureaucratic autonomy’, this recent literature highlights the importance of ‘technopols’, actors who combine both political resources and technical skills, in driving effective institutional change. They ‘embody’ bureaucratic independence since they can use their political acumen to deploy their technocratic expertise. For example, even in a more competitive clientelist settlement as in Ghana, the independence of the bureaucracy thanks to ‘technopols’ was key to explaining pockets of effectiveness in an otherwise dysfunctional state. In the economic sector, ‘the [Ministry of Finance] succeeded in reversing the decades-long economic decline because the design and implementation of macroeconomic policies were left in the hands of a small set of competent technopols who enjoyed significant operational autonomy’.[41]

Building on these insights, our argument has direct relevance to broader academic and practitioners’ debates in development studies. Since the 1990s, going beyond the analysis that “institutions matter” for development, works have explored how political incentives emerge to

[39] Ibid., 179.
[40] Hickey, *Pockets of Effectiveness*.
[41] Abdul-Gafaru Abdula, ‘Political settlement dynamics and the emergence and decline of bureaucratic pockets of effectiveness in Ghana’ (ESID Working Paper No. 173, The University of Manchester Manchester, 2021), p.26.

build development-oriented institutions. Many analyses now converge in identifying the role of threats ruling elites face in incentivising them to build robust states and economies.[42] Although highlighting the role and origin of commitment to development is indispensable, less attention has been paid to how such commitment materialises. We show that how such commitment takes shape is also crucial. This resonates with recent works in development studies that point out that state capacity *cum* political will might not be enough. Stefan Dercon for example identify the ability to take advice and learn from mistakes as a supplementary key ingredient for success.[43] This more generally echoes a literature more practitioner-oriented that emphasizes the need for trial, iteration and adaption in implementing development.[44] We now turn to our empirical case study for illustration.

A Developmental State in Rwanda?: Creating a Strong Bureaucracy

The current Rwandan political settlement is characterised by an extraordinary concentration of power in the ruling Rwandan Patriotic Front (RPF), possibly unparalleled in Africa. The RPF not only has complete control of the state and the military, but also has strong influence over much of the private sector.[45] Political opposition is exiled abroad. It therefore has near-total control over public, and some private, financial resources and over the

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[42] For example, Richard F. Doner, Bryan K. Ritchie, and Dan Slater 'Systemic vulnerability and the origins of developmental states: Northeast and Southeast Asia in comparative perspective.' *International organization* 59, 2 (2005), pp.327-361, Dan Slater, *Ordering power: Contentious politics and authoritarian leviathans in Southeast Asia* (Cambridge University Press, Cambridge, 2010), Kelsall et al., 'Political Settlements and Development'. On the case of Rwanda, see Benjamin Chemouni, 'Explaining the Design of the Rwandan Decentralization: Elite Vulnerability and the Territorial Repartition of Power,' Journal of Eastern African Studies 8, 2 (2014), pp.246–62, Laura Mann and Marie Berry. "Understanding the political motivations that shape Rwanda's emergent developmental state." New Political Economy 21, 1 (2016), pp.119-144.
[43] Stefan Dercon, *Gambling on development: Why some countries win and others lose* (London: Hurst, 2022).
[44] E.g. Matt Andrews. T*he limits of institutional reform in development: Changing rules for realistic solutions* (Cambridge University Press, Cambridge, 2013), Matt Andrews, Lant Pritchett, and Michael Woolcock, *Building state capability: Evidence, analysis, action* (Oxford University Press, Oxford, 2017).
[45] Filip Reyntjens, *Political Governance in Post-Genocide Rwanda* (Cambridge University Press, Cambridge, 2013).

formulation and implementation of long-term plans. The concentration of power doesn't end with the ruling RPF but extends to President Paul Kagame. Ascending to the presidency in 2000, Kagame has reinforced his power by side-lining several senior RPF members over the 2000s. Furthermore, a generational shift in the party over its two decades in power has benefited the president, entailing the loss of all senior 'historical' RPF members in the executive branch by 2013. The new guard of RPF members, politicians and top civil servants, often composed of well-educated diasporic returnees, are fiercely loyal to Kagame, not least given the way they owe him their careers. On paper, this combination of highly concentrated power and in a dominant ruling group can be conducive to development by reducing pressures to redistribute or pay-off particular interest groups, enabling the centralisation of rents and unchallenged implementation of long-term investment in productive economic activities.[46] Without opposition, complex policy reforms and project implementation can be rapidly implemented, regardless of social impacts.[47] New power plants that displace large numbers therefore face little to no resistance. Rwanda's biggest hydropower-plant, Nyabarongo Dam, for example, removed over 4000 households, including a number who did not receive compensation, and yet the project faced no widespread protest.[48]

The political settlements framework has been repeatedly mobilised to explain Rwanda's strong performance in different sectors such as social protection,[49] education,[50] and economic upgrading.[51] The bureaucracy's capability is often praised, with its ability to

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[46] David Booth and Fred Golooba-Mutebi, 'Developmental Patrimonialism? The Case of Rwanda,' *African Affairs* 111, 444 (2012), pp.379–403.
[47] E.g. An Ansoms, 'Re-Engineering Rural Society: The Visions and Ambitions of the Rwandan Elite,' *African Affairs* 108, 431 (2009), pp.289–309.
[48] Barnaby Dye, 'The Return of 'High Modernism'? Exploring the Changing Development Paradigm through a Rwandan Case Study of Dam Construction,' *Journal of Eastern African Studies* 10, 2 (2016), pp.303–24.
[49] Tom Lavers, 'Understanding Elite Commitment to Social Protection: Rwanda's Vision 2020 Umurenge Programme,' ESID Working Paper (Manchester: University of Manchester, 2016).
[50] Timothy P. Williams, 'The Political Economy of Primary Education: Lessons from Rwanda,' *World Development* 96 (2017), pp.550-561.
[51] Pritish Behuria, 'The Domestic Political Economy of Upgrading in Global Value Chains: How Politics Shapes Pathways for Upgrading in Rwanda's Coffee Sector' *Review of International Political Economy* 27, 2 (2020), pp.348–76.

implement continuous and far-reaching public sector reforms under the RPF.[52] Even authors critical of the government recognise that 'the regime's achievements in this field are undisputable'[53]. This is not to say that the Rwandan bureaucracy is perfect. Its heavily top-down governance produces a form of 'coercion rather than choice.'[54] Its capacity, although good given the level of development of the country, is still limited, leading to coordination issues and policy failures.[55] Nonetheless, the centralisation of political power has underpinned systematic efforts to limit corruption in the civil service and expand merit-based recruitment.[56] In 2018, Rwanda was ranked 48 (out of 180 countries) for control of corruption in Transparency International's Corruption Perception Index, which places it fourth in Africa.[57] Rwanda scores higher than comparative countries with similar incomes on indices of bureaucratic quality: according to the World Bank's data, Rwanda has the most effective bureaucracy out of low-income countries.[58] The bureaucracy is generally considered isolated from society. Popular pressure and particular socio-economic interests are largely unable to influence decision-making.[59] Autonomy from the citizenry, professionalization and implementation focus are bolstered by performance contracts, called *Imihigo.* Created in 2006 and inspired by Rwandan pre-colonial traditions of pledging war objectives to the king, *imihigo* take the form of a set of performance targets to be achieved by civil servants and institutions. They are pervasive

[52] Chemouni, 'The Politics of Core Public Sector Reform in Rwanda.' Jean-Paul Kimonyo, *Transforming Rwanda: Challenges on the road to reconstruction*. (Lynne Rienner Publishers, Boulder 2019).
[53] Reyntjens, *Political Governance in Post-Genocide Rwanda*, p.xv.
[54] Malin Hasselskog, 'Rwandan Developmental 'Social Engineering': What Does It Imply and How Is It Displayed?,' *Progress in Development Studies* 15, 2 (2015), pp. 154-169, p.157.
[55] Pritish Behuria, 'Examining Effectiveness and Learning in Rwandan Policymaking: The Varied Outcomes of Learning from Failure in Productive Sector Policies: Effectiveness and Learning in Rwanda,' *Journal of International Development*, 30 (2018) pp.1023–1043.
[56] Chemouni, 'The Politics of Core Public Sector Reform in Rwanda'; Jean Paul Kimonyo, *Transforming Rwanda: Challenges on the Road to Reconstruction* (Boulder: Lynne Rienner, 2019).
[57] Transparency International, 'Corruption Perceptions Index' (Berlin: Transparency International, 2018).
[58] Chemouni, 'The Politics of Core Public Sector Reform in Rwanda,' 4.
[59] Ibid.

throughout the central and local-level bureaucracy[60] and played a key role in driving Rwanda's electricity-infrastructure construction.

The Mistakes in Rwanda's Electricity Generation Boom

The Rwandan electricity sector, at first sight, appears to be a straightforward success. After the 1994 genocide, the national grid was in disarray and the two main hydropower stations, dysfunctional. Electricity generation was identified as a major economic-growth issue, and, given the country's development ambitions, increased energy-generation became a justifiable priority.[61] As one consultant explained, there was a 'focus on energy [because it was] clear that without it [there] could not be industrialisation'.[62] The cancelling of $1.9 billion of Rwanda's debt in 2005–06 gave the government greater leeway to prioritise investment expenditure. As explained by an official from the Ministry of Finance and Economic Planning, after the debt cancellation, there was an understanding that the 'budget for electricity production should be ring-fenced from year to year'.[63] Power plants then became a major focus, and the result has been a rise in installed generation, from 39.95MW in 2003 to 218.9MW in 2017, due to be 433MW in 2023[64].

The electricity boom, featuring 30 Rwandan and international companies, is undoubtedly impressive. It contrasts with others, like neighbouring Tanzania, who have been unsuccessful in making such projects 'bankable'.[65] However, the boom in power has also created glaring financial issues. First, the increase in electricity production has not addressed

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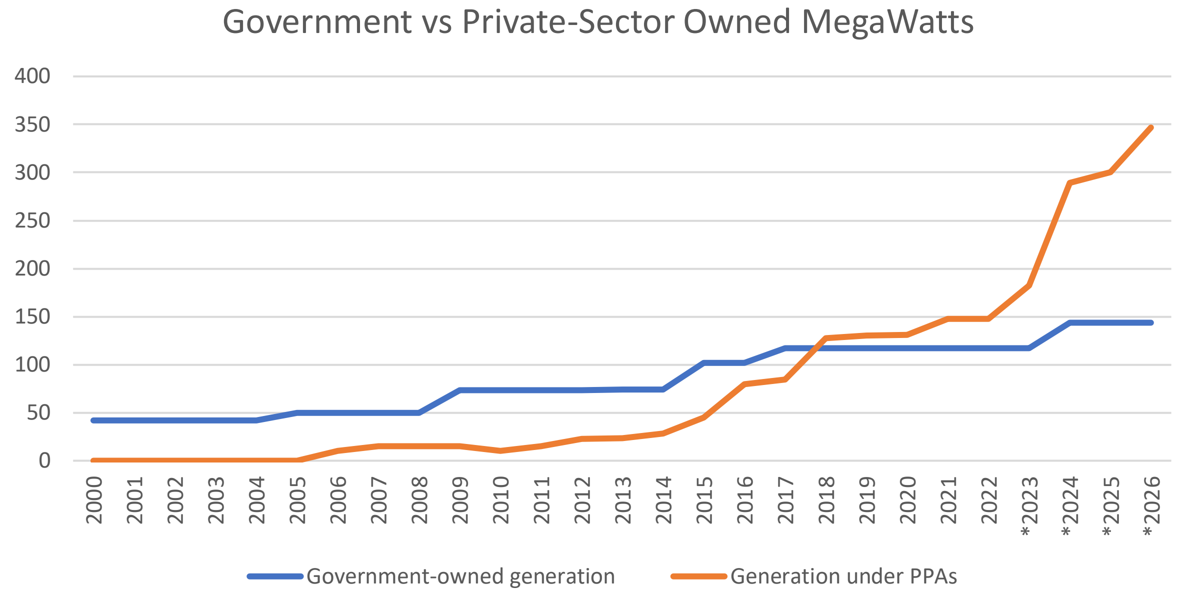
[60] Benjamin Chemouni, 'Explaining the Design of the Rwandan Decentralization'.
[61] Safari, 'A Review of Energy in Rwanda.'
[62] Interview, consultants, Kigali, 2016
[63] Interview in June 2018.
[64] Author's statistics collated from official reporting.
[65] Dye, 'Ideology Matters: Political Machinations, Modernism, and Myopia in Rwanda's Electricity Boom.' Rwanda is more comparable to Uganda, who has successfully brought in private-sector finance for a major electricity expansion, although Kampala's efforts are primarily focused on hydropower rather than Rwanda's diversification.

the equally important and similarly long-standing problem of the price of electricity. Even before the boom in power plants had fully taken effect, in 2018, Rwanda was ranked 41 out of 190 countries for the ease of doing business, but only ranked 119 in access to reliable and affordable electricity.[66] In the 39 Sub-Saharan African countries surveyed by Kojima and Trimble,[67] Rwanda was the second least affordable for households' subsistence-level electricity. Consumption remains expensive despite the government's heavy subsidy. For example, the state spent US$57 million in 2016 on reducing tariffs by more than 37% of 'real' electricity costs yet this still left them far higher than in the majority of East Africa and the 12th highest on the continent [68]. Contrary to expectations, prices also increased during the government's electricity-construction drive. Non-low-income residential electricity tariffs in 2004 were $0.10 (in 2018 prices), and $0.21 from 2018, whilst being higher still for businesses.[69] High tariffs are a major bottleneck for the private sector, especially industrial users, and, according to a senior government official, represent a major 'cost to attract investors'.[70] In a 2018 business survey, investors most frequently cited access to affordable electricity as the factor limiting their activities.[71]

[66] World Bank, *Doing Business 2018: Reforming to Create Jobs* (World Bank, Washington, D.C, 2018), p.188.
[67] World Bank, *Making Power Affordable for Africa and Viable for Its Utilities* (World Bank, Washington D.C, 2016), p.21.
[68] World Bank, 'Rwanda - Energy Sector Development Policy Loan Project,' p.19.
[69] Author's calculation in 2018 US dollars, based on adjusted exchange rates of the residential tariffs (42RwF/kWh in 2004) and for the 15–50 kWh tariff in 2018 (182 RwF/kWh).
[70] Interview, Senior government official, Kigali, 2015
[71] World Bank and Rwanda Development Board, 'Rwanda Investor Perceptions Survey 2018' (World Bank, Kigali, 2018), p. 46.



Note: *Projections based on projects under contract.
Source: Authors' statistics gathered from Mininfra press releases and ministerial strategy reports (e.g. Republic of Rwanda, M. of I., 2018), from the Rwanda Energy Group's published statistics and news articles between 2014-2023.

Figure 2: Increased private sector ownership of electricity production

Despite longstanding recognition amongst some parts of the civil service, donor agencies and consultants,[72] the construction of so much additional generation (see Figures 1 and 2) worsened the power-system in three interrelated ways: Firstly, too many plants have been constructed, causing power over-supply. Secondly, oversupply is particularly deleterious given the predominance of expensive and inflexible private-sector contracts which are also ill-suited to the country's daily energy-demand profile. Thirdly, costs are compounded by poor implementation practices.

Oversupply has occurred for around five years, with the latest forecasts suggesting that, by 2024, peak demand will be 228 MW, in contrast to a projected installed capacity of 444MW brought by an additional 144.4MW under construction. If Rwanda was able to export this power to neighbours, such oversupply would be less of a problem. Indeed, interviewed officials

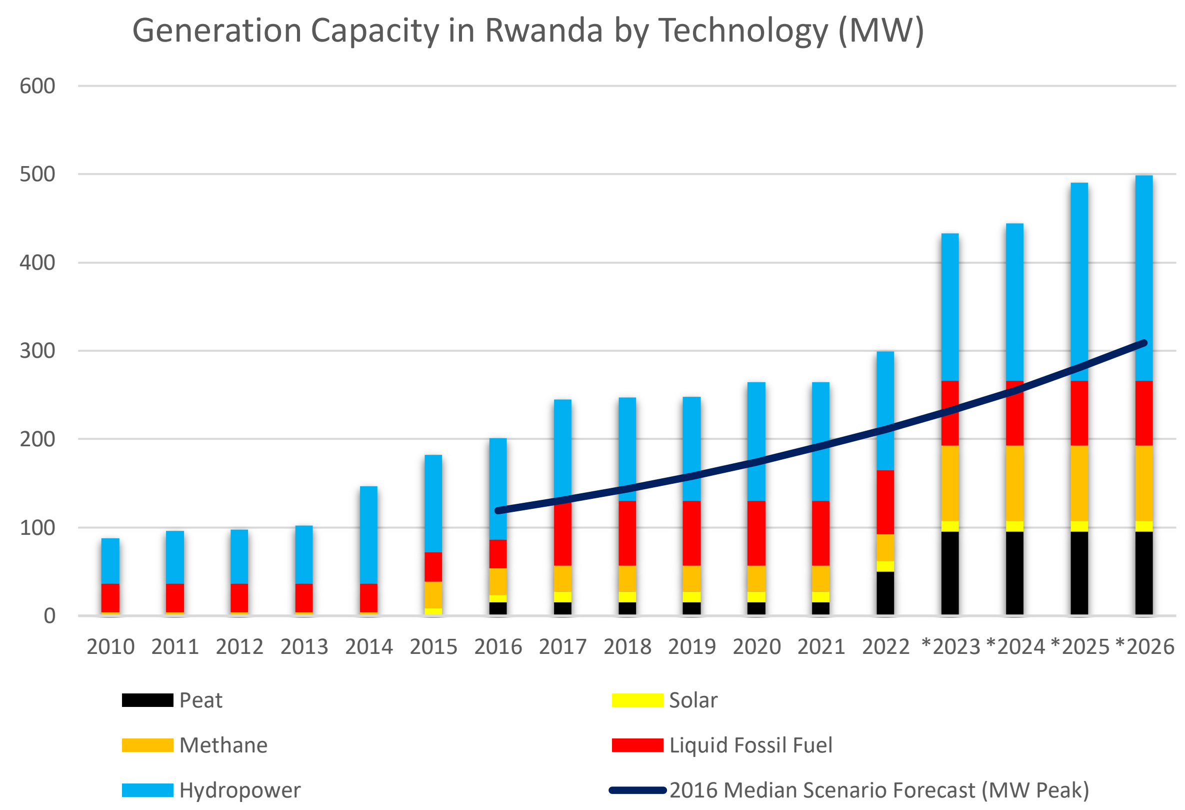
[72] Interviews with donors and consultants, 2013–18, and with a former senior official 2014.

and government documents referred to such plans, whilst international transmission infrastructure is under construction.[73] However, such exports face insurmountable barriers. Rwanda has the region's highest tariffs and all East African states' have an aversion to external dependency and are pursuing similar plans to export, not import, power.[74]

The types of contracts signed with the private sector worsen the financial cost of oversupply. As Figure 2 shows, the private sector plays the predominant role in Rwanda's electricity boom and contracts follow standardised Power Purchasing Agreements (PPAs) where the price of electricity is fixed for 25 years. Additionally, the contracts stipulate that the state-owned energy utility company, the Rwanda Energy Group (REG), must pay for 90% of the power made available, even if this electricity is not used. Additionally, Power Purchase Agreements with the private sector for electricity generation are agreed in dollars, whose value has risen relative to the Rwandan franc. Compounding these issues are the contract's poor fit with Rwanda's demand profile, which is dominated by domestic consumers on the national grid, a characteristic of economies with little industrialisation. They cause a daily peak in the evenings between 5-10pm, with demand typically increasing by 25%.[75] This profile could be met by specific peaking power plants or batteries. In contrast, Rwanda only pursued baseload (meaning constant power output) plants, or worse, for only daytime energy generation (e.g. the Rwamagana solar plant). Collectively, these issues inflame the fiscal consequences of oversupply, jeopardising Rwanda's debt sustainability and macro-economy.

[73] Ministry of Infrastructure Republic of Rwanda, 'National Energy Policy and National Energy Strategy 2013-2014' (The Government of Rwanda, Kigali, 2013); Ministry of Infrastructure Republic of Rwanda, 'National Energy Policy and Strategy' (The Government of Rwanda, Kigali, 2011).
[74] E.g. Uganda: Christopher D. Gore, *Electricity in Africa: The Politics of Transformation in Uganda* (James Currey, Oxford, 2017), Kenya Britta Klagge et al., 'Cross-Scale Linkages of Centralized Electricity Generation: Geothermal Development and Investor–Community Relations in Kenya,' *Politics and Governance* 8, 3 (2020): pp.211–22; and Tanzania: Barnaby Joseph Dye, 'Unpacking Authoritarian Governance in Electricity Policy: Understanding Progress, Inconsistency and Stagnation in Tanzania,' *Energy Research & Social Science* 80, 102209 (2021).
[75] Republic of Rwanda, 'National Energy Policy and National Energy Strategy 2013-2014.'

Moreover, Rwanda has pursued expensive generation technologies. It developed the world's first lake-methane extraction plant, an impressive but inevitably costly operation, and pursued peat fuel, a technology whose rarity adds cost (it is only used extensively in a small number of countries including Turkey and Finland). Furthermore, Rwanda's energy-generation drive has not followed the state's official adherence to least-cost rationales.[76] Rather, it appears that the main rationale was to maximise all possible generation sources, regardless of cost. One study commissioned by the government found that the new methane and peat plants' operating costs would be more than $500 million between 2015–16 and 2030 compared to a scenario where diesel and hydro constituted the main electricity generation technologies.[77]



Note: *Projections based on projects under contract.
Source: Authors' statistics gathered from Mininfra press releases and ministerial strategy reports from the Rwanda Energy Group's published statistics and news articles between 2014-2021. The demand cure is taken from statistics published in Republic of Rwanda, M. of I. (2018).

Figure 3: Installed generation capacity by technology against the 2016 demand forecast (MW)

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[76] e.g. Republic of Rwanda, 'National Energy Policy and Strategy,' p.6.
[77] Amnon Katz et al., 'Assessment of the State of the Electricity Generation System in Rwanda: Least Cost Planning until 2030 Interim Report' (Israel Electric, 2017).

Consequently, Rwanda's electricity sector faces major financial pressures. As summarised by one donor official, such conditions amount to the government 'digging a fiscal hole'.[78] In 2017, the World Bank stated that by 2020, 4% of GDP would be required to sustain these payments.[79] Heavy penalties limit possibilities of cancelling or changing these contracts. Furthermore, analysis above evidences major hurdles to the oft-proposed solution of selling power to neighbouring countries.[80] Therefore, while achieving a remarkable increase in electricity generation, Rwanda's scramble for megawatts carries a major fiscal cost and endangers the country's investment attractiveness, given electricity's expense.

How was such a flawed system planned? As discussed above, the political-economy literature on Rwanda suggests that the country has, on paper, the conditions for long-term economic development generally, and for adequate long-term planning in the electricity sector specifically. Furthermore, actors in and outside the state knew about the electricity system's key problems and discussed them in interviews dating back to 2013. We argue that, far from being antithetical, the political-economy underpinning Rwanda's dramatic boom in infrastructure construction also explains the planning process's short-sightedness: centralised political power stymied bureaucratic independence. As a result, top-down decision making prioritised speed and the maximisation of installed megawatts over other concerns.

Planning poorly: RPF interference and target setting

The most evident way in which Rwanda's concentrated distribution of political power upset bureaucratic independence regards target setting. Table 1 depicts, the increase in ambition in the electricity sector over the 2000s and early 2010s. Informed by the RPF's 2010

[78] Interview with donor, June 2018.
[79] World Bank, 'Rwanda - Energy Sector Development Policy Loan Project.'
[80] An argument made by several donor and consultant interviewees, Kigali, 2015–16.

presidential election manifesto, the 2011 energy strategy adopted the colossal target of generating 1,000MW by 2017. This figure was not based on any demand forecast: it contrasted with an analysis funded by the Japanese Aid Agency (JICA) and the World Bank, which predicted that Rwanda would need around 200MW by 2017–20.[81] Interviewed officials confirmed that the target was not based on electricity demand assessments. One consultant involved in the policymaking process stated that the government's number was plucked from an investigation on 'how much do citizens in middle-income countries consume',[82] whilst other interviewees suggested that it came from a study of China's electricity expansion during its record-setting economic growth period in the 2000s.[83] This confusion, and the contrast between the 1000MW figure against externally-commissioned demand forecasts, suggests that the government was primarily influenced by fulfilling a vision of development, centred on the goal of reaching middle-income status by 2020.[84] High-modernist ideology can also help explain these ambitions. It rationalised a leap-frog theory of development that would change a supposedly backward irrational country through engineered top-down, technological interventions that symbolically perform scientific modernity as well as delivering material progress.[85] From a high modernist lens, rapid increases in Megawatt targets symbolically projects modernity and will necessarily deliver promised material development. Faith in the ability of technology therefore helped side-line evidence-based forecasts of lesser electricity demand increases. An advisor to the government suspected that a four-digit round figure was chosen as a statement of the RPF's development ambition.[86]

Table 1: The ambition of electricity production targets

Planning document	Year	Electricity production target	Installed megawatts

[81] Interviews, JICA staff and consultants, Kigali, 2016.
[82] Interview, consultant, Kigali, 2018.
[83] Interviews, consultants to the Ministry of Infrastructure, donor official, JICA, Kigali, 2015-16
[84] Republic of Rwanda, *Rwanda Vision 2020* (Ministry of Finance and Economic Planning, Kigali, 2000).
[85] Dye, 'Ideology Matters: Political Machinations, Modernism, and Myopia in Rwanda's Electricity Boom.'
[86] Interview, advisor, Kigali, June 2018.

Poverty Reduction Strategy Paper (PRSP)	2004	Additional 42.3MW between 2004 and 2006	50.05
Economic Development and Poverty reduction Strategy (EDPRS) 1	2004	From 45MW to 130MW by 2012	65.15
Energy strategy	2008	Additional 150MW by 2012	68.45
Energy strategy	2011	1000MW by 2017	96.26
Energy strategy and EDPRS II	2013	563MW by 2017	102.49

The setting of unrealistic targets was the result of the RPF's role in ministerial planning. The ruling party has an internal structure to mirror the government, matching the cabinet's ministerial clusters around social affairs, good governance, and the economy with thematic commissions. Although often lacking technical knowledge, these commissions have become influential in the policy-making process, limiting bureaucratic independence. They shape policies through pre-cabinet meetings that convene politicians, civil servants, RPF commissioners and top regime cadres. This structure provides the ruling party with a tool to direct government policy and apply pressure on Mininfra.[87] The RPF commissioners were a significant source of the state's narrow energy-sector focus, as they wanted to please the President and feared admitting failure. As summarised by a former civil servant involved in planning in the infrastructure Ministry:

> 'these people [senior RPF officials] are well-meaning, very ambitious. They push for a lot and want to please the President. This creates a problem when it cannot be delivered. So, then, it is about hiding the embarrassment. The problem is that they are not technicians. They are old people with their ideas but their capacity to understand constrains [is limited]. So, they promise a lot and it is a mess'.[88]

This ascendency of the party over the civil service demonstrates an unequal power dynamic within the Rwandan state that undermined the ability of bureaucratic expertise to

[87] Interviews, former civil servants, Kigali, June 2018.
[88] Interview, former civil servant, Kigali, June 2018.

influence policymaking. It suggests that party officials helped set, and then enforce, overly-optimistic objectives whilst suppressing debate about the energy system. The Presidency's dominance over decision-making further constrained space to challenge target-setting and think strategically. Interviewees reported that critiques about the electricity generation plans carried considerable personal risk. One advisor reportedly 'nearly got fired' for criticising electricity-generation targets.[89] As a consequence, many interviewees from government admitted to self-censoring in policy discussions because they feared speaking out. Meanwhile, external consultants and donors mentioned the deafness of top officials when they raised concerns over projects' financial risks.

The 1,000MW target was eventually revised to 563MW in 2013 at a National Leadership Retreat, the annual meeting of governmental top officials. An internal demand forecast conducted the year before predicted that demand would reach about 200MW by 2020, but the figure was subsequently massaged upwards to 563MW[90]. Although lower than 1000MW, this new target did not reflect demand predictions either, something later recognised by a 2017 government-commissioned report forecasting that peak demand would only reach this level in 2032.[91] The new 563MW 'political number' (as an interviewed consultant put it[92]) was likely chosen because it was still more than half of the initial target and had a certain technocratic cachet given that it was not a round number. One informant described how the energy minister, after eventually accepting this new figure, tried to get it approved but received an 'absolute bollocking' from the prime minister, who insisted on following the presidentially-decreed 1,000MW target. A senior official involved then described how 'on a retreat in 2013 … the President asked, 'where did you get the 1,000MW and why? … [do] some simple

[89] Interview, advisor, Kigali, June 2018.
[90] Interview, advisor, Kigali, June 2018.
[91] Katz et al., 'Assessment of the State of the Electricity Generation System in Rwanda: Least Cost Planning until 2030 Interim Report,' p.18.
[92] Interview, Kigali, 2018.

research in the ministry' … [it forecast] 563 [and so this was decided on]'.[93] Although a separate ministry is officially responsible for policymaking, the 1,000MW target could only be changed with the President's involvement.

This episode is instructive of the structure of power within the state. The president appears as an absolute monarch, able to override normal processes of planning. Civil servants' and most ministers are primarily restricted to implementation roles; they are not treated as providers of expertise or strategy. This underlines the lack of bureaucratic independence, as even highly technical tasks like electricity demand forecasts, could only be revised after presidential questioning. The short-sightedness and overreach of the ambitious targets were eventually realised. For the first time, in 2018, the electricity generation capacity target was based on a demand-led forecast, with a 15% buffer margin:[94] the 'moving target' was estimated to reach between 282MW and 376MW by 2024.[95] Yet this arguably came too late given that under-construction plants will push installed generation above 500MW.

Implementing poorly: 'Because of the pressure people are stupid'

Theoretically, such unrealistic target setting can be mitigated against during implementation: relying on technocratic expertise, bureaucrats could engage in ex-post negotiations with politicians, watering down implementation, or quietly shelving targets. Conversely, in Rwanda the nature of the political-bureaucratic interface reinforces, rather than cushions, the negative effects of poor planning. Targets, systematically integrated in the performance contracts, or *imihigo*, resulted in formidable pressure on bureaucrats. The frustration of the presidency in slow progress translated into the frequent replacement of senior

[93] A narrative confirmed by observations in 2013.
[94] Ministry of Infrastructure Republic of Rwanda, 'Energy Sector Strategic Plan: 2018/19-2023/24' (The Government of Rwanda, Kigali 2018), p.10.
[95] Ibid., p.10.

officials. The presidency replaced the minister of infrastructure four times, whist cycling through three energy ministers and three heads of the Energy Utility between 2009 and 2014, chiefly for failing to increase installed capacity quickly enough. Pressure was also conspicuous at annual national leadership retreats; they often served as a venue for Kagame to berate officials for their delivery failures. In 2012, the President complained that the budget for the electricity sector had not been increased enough before asking 'do you need to attend thousands of seminars about the lack of electricity in Rwanda? I always read, in newspapers, officials saying 'we are going to have so much electricity in 30 years'; no, I want it now'.[96] The revised target of 563MW in 2013 did not lessen the pressure. As summarised by a civil servant, 'the RPF said [to ministers] that they accepted the lower commitment of 563MW, but 'don't come back, no more excuses', that was the message'.[97] As a result, the planning process, until at least 2016, appears to have been driven by the narrow goal of building plants to meet generation-capacity targets, with financial efficacy or the energy system's reliability taking a backseat.

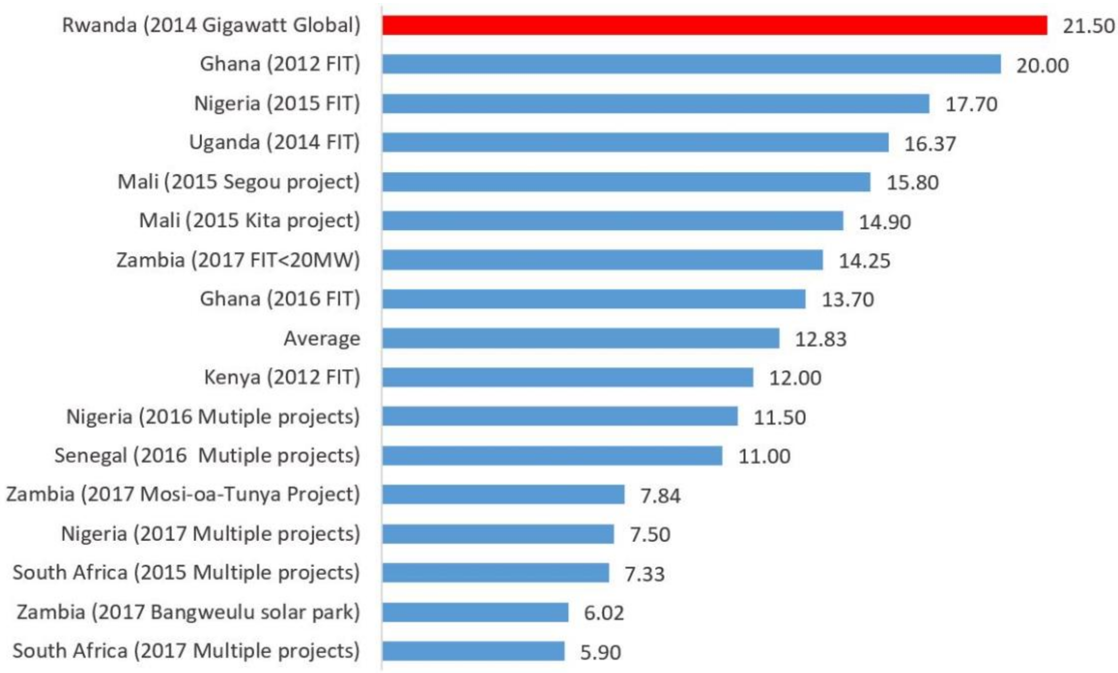
This pressure effected project screening. A former adviser described how the government 'would jump on any possibility [of investment] to get more megawatts'.[98] The pressure meant that 'you can't say no [to investors, even] if you don't need their project'.[99] Given the pursuit of all potential power-plants, proposals were not compared with alternatives and, except for the new Symbion methane plant, PPA contracts with investors followed bilateral negotiations, not competitive tendering.[100] The eagerness to attract investors also created coordination issues. Interviewees expressed frustration that potential investors would be welcomed by top officials, including the President, who might promise a range of subsidies without consulting the relevant authorities handling energy policy and investor negotiations:

[96] 'Retreat targets growth', *The New Times*, 5 March 2012.
[97] Interview, Kigali, June 2018.
[98] Interview, consultant, Kigali, 2018.
[99] Interview, consultant, Kigali, 2018.
[100] Following the 2016 law change, interviews in Kigali (2014-18) and reviews of secondary sources.

the Energy Utility, infrastructure ministry or Rwandan Development Board (RDB). As explained by an RDB official, during the negotiation process, 'the Presidency was undermining us on things like the price of PPAs'. This stemmed from rulers' insistence that 'they just wanted the megawatts'.[101]

Recalling negotiations for the Gigawatt Solar power plant (8.5MW), one of Rwanda's first major energy sector PPPs, an official stated that 'we got the price of the electricity too high partly because we wanted to go quickly and accept the conditions offered too rapidly'.[102] The project was completed in just five months, being dubbed in *The Guardian* as 'Africa's fastest solar power project'.[103] Nevertheless, as Figure 3 demonstrates, it was also the most expensive in Africa. While PPA tariffs need to respond to context-specific criteria such as site conditions, ease of grid connection and country risk, many of which are likely to be high in Rwanda, informants emphasised that the unflattering comparison shown in Figure 3 was primarily produced by the government's poor negotiating and its desire 'to demonstrate quickly that they could do PPP'.[104] Unplanned decisions taken by President Kagame on international trips also affected technical assessments. One such trip to Turkey, arranged to bring investment to Rwanda, initiated a deal for peat-based electricity generation before technical teams had a chance to assess project viability.[105] These issues were eventually recognised. The electricity act, adopted in 2016, stipulated that the state should initiate all electricity generation projects, as opposed to the previous practice of accepting private investors' unsolicited bids.

[101] Interview, Kigali, 2018.
[102] Interview, RDB official, Kigali, 2018.
[103] *The Guardian*, 'How Africa's Fastest Solar Power Project Is Lighting up Rwanda,', 23 November 23 2015.
[104] Interview, RDB official, Kigali, 2018.
[105] Interview, consultant, 2016.



Note: FIT refers to 'feed-in tariff' – long term contracts to buy electricity offered to energy producers.
Figure 4: PPAs and FITs prices (in USD¢/kWh) of recent solar power plants in Sub-Saharan Africa. Source: compiled from public data.[106]

The rush to increase electricity production also resulted in poorly-planned plants. The most telling example here is the $45 million Gishoma peat power plant. Construction started in 2013, completing after a three-year delay. Once operational, the plant functioned at half capacity (5MW) before stopping four months later. Although technical problems contributed, the shutdown was principally caused by insufficient quantities of peat.[107] Initial rapid studies by the investor made over-optimistic peat calculations and, to hasten the process, no further counter-studies were completed. By the time construction started, 'it was known from day one that there was not enough peat',[108] with technicians and consultants stating in interviews that they had routinely raised these issues before construction started.[109] Furthermore, to save time,

[106] We thank Alvaro Lara and Sidney Wakaba for sharing these data.
[107] OAG, 'Report of the Auditor General of State Finances for the Year Ended 20 June 2017' (Office of the Auditor, Kigali, 2018).
[108] Interview with former civil servant, June 2018.
[109] Multiple interviews with consultants and civil servants, June–July 2018.

there was no study of the peat's power-generation quality, which later proved to be poor. The case of Gishoma is representative of wider shortcuts. For example, the Nyabarongo Dam project did not involve detailed topography or sedimentation studies, contributing to the reservoir being several kilometres longer than planned and unexpectedly filling up quickly with sediment.[110] Furthermore, the implementation of targets involved insufficient anticipation of transmission needs. Given the location of Lake Kivu's methane, the geography of peat fields and the western mountains' hydropower potential, Rwanda's major new electricity plants are in the country's West. However, this area was only served by one high-capacity transmission line. This insufficient transmission capacity caused plants to function below their potential.[111] Several consultants mentioned the refusal of officials to listen to their reservations. One explained that, by raising questions, he was accused of going 'against the vision of Rwanda'.[112] Megawatt targets were essentially the only metric dictating ministers and civil servants' policymaking.

Competing explanations

We find competing hypotheses insufficient in explaining the creation of Rwanda's electricity-sector problems. First, it could be argued that the sector's fiscal issues stem primarily from poor technical and financial bureaucratic capacity, not from a lack of bureaucratic independence. Planning electricity systems, managing private-sector negotiations and executing large projects is undoubtedly difficult, especially for poorer states like Rwanda. However, there is substantive evidence of bureaucratic strengths. To begin with, donors provided significant general-budget support, commissioned numerous studies, and funded an

[110] Interviews, Senior Officials, Rwanda Environmental Organisation, 2016
[111] Republic of Rwanda, 'Energy Sector Strategic Plan: 2018/19-2023/24,' p.24.
[112] Interview, Kigali, June 2018.

army of seconded advisors and consultants. For example, the EU's 2015-2020 'Sector Reform Contract' gave €177 million for the electricity sector, with 88% dedicated to direct budget support and the remainder paying for technical assistance.[113] Additionally, the World Bank, pledged $95 million for a 2015–21 'Electricity Sector Strengthening Project'.[114] Furthermore, as proved by our interviews, civil servants and national and international consultants had the capacity to identify issues and, behind closed doors, voiced critiques and advocated for alternative, demand-based forecasts. Capacity was therefore present, but the political space to utilise this capacity was not. Process-tracing shows that policy inputs flowed entirely in one direction, in a top-down manner from a small circle within the ruling party around the President.

Moreover, the concentration of power almost eliminated critique from the press and civil society. The latter never took up the issue while the former served as an echo chamber for presidential frustration over lack of progress in electricity generation.[115] The press hardly criticized high electricity prices, low electricity access or projects' quality, or did so only after the government. For example, negative stories on the Gishoma peat power plant only appeared after issues were raised by the president and the Office of the Auditor General.[116] Similarly, bureaucratic performance contracts (*imihigo*) created strong incentives for civil servants to narrowly focus on building electricity generation capacity and thus reinforced implementation capabilities and autonomy from societal concerns. Paradoxically, in this context of a lack of bureaucratic independence, state capacity indicators, usually associated with developmental effectiveness, worsened the electricity sector's performance by facilitating the speed of

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[113] EU, 'Annex 1 of the Commission Decision on the Annual Action Programme 2015 in Favour of Rwanda to Be Financed from the 11th European Development Fund: Action Document for 'Sector Reform Contract (SRC) to Increase Performance of Rwanda's Energy Sector and Develop the Corresponding Institutional Capacities'' (European Union, Brussels, 2015).
[114] World Bank, *Rwanda - Electricity Sector Strengthening Project* (World Bank, Washington DC, 2015).
[115] E.g. 'Businesses count losses as erratic power supply takes toll', *The New Times*, 26 February 2013.
[116] E.g. 'Editorial: Rwanda can't afford another Gishoma-like saga', *The New Times*, 05 March 2015.

infrastructure construction. If the bureaucracy had more leeway to deploy its expertise and shape policymaking, it could have changed electricity planning and managed project negotiations.

Second, our argument could be undermined if Rwanda's electricity issues are merely temporary, a blip that will iron out through learning and adaptation. Indeed, adaptation occurred: policy changes between 2016 and 2018 publicly acknowledged issues with contracting and demand forecasts and the need to centralise contracting of PPAs to ensure strategic coherence. However, these, as well as the revision of the 1000MW targets, only occurred when top politicians, and crucially the President, finally realised the issue and questioned targets, not because of continuous civil-service concerns. Moreover they came too late to prevent a fiscal and oversupply crisis set to last until 2030 at the earliest. Delayed adaptation did not therefore resolve the sector's crisis revealing how a lack of bureaucratic independence creates fragility in Rwanda.

A third competing explanation could be that Rwanda's strategy, although imperfect, was simply to create the supply of electricity before demand to spur growth. Whatever the relevance of such a strategy (and evidence shows that it might be a bad one),[117] process-tracing of key decisions shows that targets ran counter to technical inputs and even the most optimistic industrialisation forecasts. High modernist ideology, highlighted above in the literature on Rwanda, appears relevant here. Top politicians, unchallenged by the professional opinion of bureaucrats, had confidence in electricity technology's ability to singularly overcome structural constraints and wanted to project modernity through ambitious targets[118].

A fourth counter argument could claim that the electricity sector is not representative. However, we find the opposite. Williams shows, in education policy, that a 12 Years Basic

[117] Charlie Robertson, *The Time-Travelling Economist: Why Education, Electricity and Fertility Are Key to Escaping Poverty*, (London, Palgrave Macmillan, 2022), p.66-81)
[118] Dye, 'Ideology Matters.'

Education policy, and the switch from French to English language use in 2008, emanated directly from the presidency in 2010, with little bureaucratic input or consultation.[119] This has had impacts on educational quality: the 'strong political will of the President and political elite, coupled with a lack of real opposition or pushback, has enabled it to introduce transformative educational policies—but in a way that has evidently prioritized access and expansion over quality.'[120] Similarly, the headlong pursuit of monocropping in the agricultural sector, despite expert warnings, led to crop production stagnation and the manipulation of data to hide it. As Heinen notes, 'the ruling elite's unrealistically high expectations coupled with its uncompromising enforcement [of monocropping and land consolidation] may have encouraged agronomists to command peasants to report high yield growth results' in a context were agricultural production in reality stagnated.[121] Overall, as noted by an external observer, "Rwanda goes about implementing every aspect of its development bargain [...] the only way it knows: command and control —the military system in which all problems are addressed using strict hierarchical structures, all the way to the top."[122] Thus, a decade of problematic prioritisation and target-setting in the electricity sector appears representative, not exceptional.

Conclusion: the fragility of the Rwandan model and beyond

Why, then, did such a major failure occur in the electricity sector, despite Rwanda having the conditions suggested by the political settlements framework to deliver development? We demonstrate that concentrated political power, especially in the Presidency, supported rapid policy implementation and a long-term planning horizon, but also created a policymaking

[119] Williams, 'The Political Economy of Primary Education,' p.555-557.
[120] Ibid., p.559.
[121] Sebastian Heinen, 'Rwanda's Agricultural Transformation Revisited: Stagnating Food Production, Systematic Overestimation, and a Flawed Performance Contract System,' *Journal of Development Studies* 58, 10 (2022), pp. 2044-2064, p.2058.
[122] Stefan Dercon, *Gambling on development*.

process that undermined technical inputs, expert challenge, learning and adaptation, i.e. factors necessary for structural transformation. Consequently, Rwanda undertook an overzealous and misguided construction boom that created too many power plants, with ill-suited contracts. An ongoing fiscal crisis ensued.

It could be argued that the dynamics analysed in this article are not distinctive to dominant party settlement but can be found everywhere. After all, in an authoritarian regime with extremely concentrated political power or in a liberal democracy where power is more fragmented, there are always civil servants willing to please politicians or not daring to speak truth to power, or politicians ready to ignore experts' sobering analysis on some ill-conceived, yet politically important, policies. The recent book by Nicholas Westcott on the failure of the East African Groundnut Scheme in Tanganyika (now Tanzania), a large-scale project covering 2.5 million acres of land and aiming to fill shortages of vegetable oils in post-war Britain, is a case in point.[123] Developed under the Labour Government in 1946, it spectacularly failed largely because politicians and top executives systematically dismissed experts' inputs, such as those of colonial officials. Yet, the Rwandan case shows that authoritarian regimes are more likely to intensify the political override of bureaucratic caution. Lack of political opposition and media scrutiny creates an information asymmetry, preventing governments from accessing reliable information, and shelters it from immediate civil society's pressure. To return to the Groundnut Scheme, as soon as failure became known, "the public eye was firmly focused on the scheme. Every move was scrutinised and dissected. [….] It was an irresistible subject."[124] The Scheme's problems were mocked in newspapers and used by the Conservative political opposition in the 1950 general elections campaign. It is hard to imagine similar public and political scrutiny in Rwanda.

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[123] Nicholas Westcott. I*mperialism and Development: The East African Groundnut Scheme and Its Legacy* (Rochester: Boydell and Brewer, 2020).
[124] *Ibid.*, p.165

Consequently, supposed contradictions between more open political space and economic development, often implied by the political settlement's framework, might not be so contradictory. In Rwanda, a less authoritarian political leadership may have allowed meaningful debates in the bureaucracy and a more open policy-making process that could have benefited from the critiques of external consultants, a more vibrant civil society and the press.

This is not to say that Rwanda's trajectory is doomed to failure. Yet, lack of bureaucratic independence inevitably makes this development fragile when nuanced policy processes are required. As the Rwandan economy and society grow in complexity, insufficient bureaucratic independence is likely to detrimentally impact the delivery of long-term development beyond surface-level success, such as GDP growth or rapid infrastructure construction. At worst, an excessive concentration of decision-making power may result in 'USSR-style' problems, most famously captured by the Chornobyl nuclear disaster, where no one dares to adjust course, or speak truth to power, before it is too late. This article consequently demonstrates a weakness in the political settlements framework and its application to the bureaucracy, which assumes the beneficial effect of a 'dominant party' settlement creating autonomy and Weberian-ness, thereby overlooking the significant costs of rendering the state subservient.