POWERING PAKISTAN'S FUTURE: REFORMING THE ENERGY LABYRINTH

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Pakistan's energy landscape is marked by immense challenges and untapped potential. The country's economy remains hobbled by crippling energy shortages[22], inefficient pricing and distribution mechanisms, and an overdependence on imported fuels. At the heart of this crisis lies a confluence of structural deficiencies across the oil, gas, and power sectors.

The oil industry grapples with foreign exchange constraints, inconsistent policies, and gaps between regulators and industry stakeholders. The gas sector is encumbered by circular debt, unaccounted losses, and distortionary subsidies. Meanwhile, the power sector is plagued by governance lapses, political interference, electricity theft, and staggering line losses.

However, Pakistan is also endowed with abundant renewable energy resources like solar, wind and hydropower that remain underutilized. Capitalizing on this potential through strategic investments and supportive policies could alleviate the country's import burden and bolster energy security. Furthermore, regional pipeline projects like the Iran-Pakistan and TAPI pipelines hold promise for expanding Pakistan's access to affordable gas supplies.

Overcoming these multidimensional energy challenges requires a concerted effort to reform and modernize the policy, regulatory and governance frameworks across the energy value chain. Addressing issues like unsustainable subsidies, mounting circular debts, electricity leakages, and supply-side constraints is imperative. Only through such comprehensive reforms can Pakistan unlock its energy potential, catalyze industrial growth, and achieve sustainable economic development.

The challenges are daunting, but the new government has a pivotal opportunity to reimagine Pakistan's energy future through bold policies and assertive implementation.

Petroleum Sector

Pakistan's oil industry finds itself at a pivotal moment, balancing the urgent energy requirements of the country against the stark realities of foreign exchange pressures. These pressures not only threaten the sector's potential for growth but also jeopardize future investments that could catalyze broader economic development.

Beyond the significant challenge of managing foreign exchange resources, the industry is beset by the ramifications

[22] "Power Crisis," *Dawn*, July 03, 2023, https://www.dawn.com/news/1762726/power-crisis.

of inconsistent governmental policies and a notable gap in the understanding among regulators and the treasury of their impact on the sector's financial health.

This precarious situation calls for a strategic response from both the government and the oil industry. Ensuring the sector's resilience and its ability to meet the country's energy demands is paramount for sustaining economic growth. Moreover, addressing the foreign exchange issue requires innovative financial strategies and perhaps a reevaluation of import dependencies. To mitigate these challenges, a stable, clear, and forward-looking policy framework is essential, alongside efforts to enhance the regulatory environment's responsiveness to the dynamic needs of the oil industry. Strengthening the synergy between policy-making entities and the industry itself could pave the way for more informed decisions, ultimately securing the sector's future and its contribution to Pakistan's economic landscape.

Recent developments within the industry highlight its potential for transformation and growth:

- Gas & Oil Pakistan Limited (GO) has formed a notable partnership[23] with Saudi Aramco, reflecting Saudi Arabia's interest in Pakistan's oil marketing sector and showcasing the prowess of GO's management. This partnership is set to revitalize GO's prospects, previously hampered by its association with Vitol, and catalyze broader industry benefits. Aramco's move to introduce its brand and Valvoline lubricants in Pakistan marks a significant foreign investment in the sector.
- Shell Pakistan Limited is undergoing a change in ownership, transitioning to the Wafi Group of Saudi Arabia. While this change signals confidence in the company, Shell International's departure raises questions about the sector's attractiveness to global investors.
- Hascol's search for a strategic partner to navigate out of its financial turmoil illustrates the broader challenges within the industry, with banks hesitant to commit to a restructuring plan, thereby prolonging the sector's difficulties.
- The Pakistani government's efforts to deepen ties with Saudi Arabia, including PSO's initiatives to attract Chinese investment in refinery operations with Aramco, underscore the strategic

[23] Ahmad Ahmadani, "Saudi Aramco acquires 40% stake in Gas & Oil Pakistan Ltd. (GO) but why?," *Profit by Pakistan Today,* December 13, 2023, https://profit.pakistantoday.com.pk/2023/12/13/saudi-aramco-acquires-40-stake-in-gas-oil-pakistan-ltd-go-but-why/.

importance of foreign partnerships. The focus on developing a refining complex that produces value-added chemicals rather than solely petroleum products could significantly enhance the industry's value proposition.

- The anticipated policy allowing international oil players to establish storage facilities in Pakistan aims to strengthen the supply chain but faces implementation delays. This Customs Bonded Warehouse policy could be a game-changer for the sector once fully operational.
- BE Energy's agreement with Chevron to reintroduce the Caltex brand signifies a positive trend toward brand diversity and competition within the market, despite the slow pace of new site commissions.
- Pakistan Refinery Limited's (PRL) upgrade program, which promises to increase capacity significantly, alongside the interest from various groups in acquiring a stake in Hascol, points to a sector ripe for investment and innovation.

Despite some of these positive developments, Pakistan's oil industry is navigating through turbulent waters marked by several critical challenges:

- The significant depreciation of the Pakistani Rupee (PKR) has severely impacted the oil industry[24]. The government's decision to transfer the burden of currency devaluation onto the oil sector, with phased compensation plans, has not only introduced substantial inequities within the industry but also led to a severe working capital shortage. This, in turn, has hindered companies' abilities to import necessary products to meet domestic demands.

- The abolition of the Sales Tax, intended as a public relief measure, has inadvertently strained the oil industry, which is currently owed over Rs 60 billion in accumulated input Sales Tax. The industry's efforts to resolve this issue and secure refunds have, so far, been futile, causing further financial strain.

- The margins of the industry, like any other business in the country are facing high inflation due to wages, utilities and overall product losses that are part and parcel of the business. However, only until a few years ago, these losses have grown substantially in absolute terms due to the increase in petroleum prices resulting from a weak rupee and a record high Petroleum Development Levy that currently stands at Rs 60 per liter.

- The industry's longstanding appeal for the reduction or removal of the turnover

[24] Sarfaraz A Khan, "Of rising oil prices and the devaluing rupee," *The Express Tribune,* August 14, 2023, https://tribune.com.pk/story/2430633/of-rising-oil-prices-and-the-devaluing-rupee.

tax on sales remains unaddressed, further exacerbating the financial burden on companies within the sector.

To navigate these challenges and safeguard the future of Pakistan's oil industry, a comprehensive policy overhaul is essential. This would include measures such as implementing a fair and sustainable compensation mechanism for currency devaluation impacts, streamlining tax refund processes to alleviate financial pressures, increasing margins of the marketing companies, and reevaluating the turnover tax to support the industry's viability. Such reforms would not only stabilize the industry but also ensure its contribution to Pakistan's energy security and economic growth.

With the slew of opportunities and issues faced by the industry, it is recommended that the Government should take an approach so the industry can leave its pressing issues behind and move towards a deregulated environment to foster growth not just for the oil companies but also for the betterment of the wider economy. These include:

- A clear Petroleum Policy designed to encourage in the sector.

- Resolution of the issues faced by the industry due to bureaucracy in the systems of FBR, Ministry of Energy, State Bank and OGRA. These include issues related to Sales Tax refunds, resolution of turnover tax, policy matters, remittance of dividends and royalties, resolution of foreign exchange losses, and margins.

- Defining a clear framework for investment in the sector to attract FDI as well as create a level playing field for all players.

- Untangling the issues faced by the PSO and letting it compete on commercial terms rather than using it as a vehicle that is causing it to carry receivables of more than US$2 Billion.

- Defining a clear path for the deregulation of the sector so that the industry is free to compete, that will foster better service, but will also result in lesser political interference.

Pakistan should also promote adoption of electric vehicles, particularly two wheelers. This will not only have an impact on the energy import bill for the country.

Power Sector

The new government is facing the monumental task of addressing power sector's long-standing inefficiencies and structural challenges[25]. The sector's issues, from outdated policies and governance structures to substantial transmission and distribution losses, have culminated in an unsustainable financial burden on consumers and hindered economic growth.

[25] Sakib Sherani, "Power sector challenges," *Dawn,* February 12, 2021, https://www.dawn.com/news/1606884.

The government's initial steps must involve a comprehensive review and revision of the current power policies and plans, emphasizing a shift from mere sustainability to tackling the sector's structural flaws. This requires a consultative approach, bringing together experienced sector practitioners to inform policy development and ensure that reforms address the core issues.

Governance within the power sector, particularly the Power Division of the Ministry of Energy, requires a professional overhaul. Appointing seasoned practitioners across key positions can bring about the necessary expertise to drive reforms. Similarly, enhancing the professionalism and independence of regulatory bodies like NEPRA, PPIB, and CPPA-G is vital for effective oversight and regulation. Failure to reform governance structures will impede the government’s ability to deliver on power sector reforms effectively. Therefore, promoting professionalism alongside policy revision is essential for addressing the sector's challenges.

After resolving governance issues, the focus should shift to the management of public sector entities such as GENCOs, NTDC, and DISCOs. These organizations are overseen by Boards of Directors, including government representatives and independent directors. Recent audits have highlighted concerns regarding the performance and qualifications of these board members, particularly the impact of appointing political nominees in DISCOs.

This situation underscores the urgent need for enhanced accountability and improved performance of the board members, as well as a reassessment of the criteria for independent director appointments. Revitalizing the power sector requires eliminating overt political interference in board appointments and instead selecting highly qualified professionals. Adhering to legal standards will notably enhance the effectiveness of these boards.

The ongoing operational deficiencies, especially within DISCOs, underscore the need for reform. The sector is plagued by temporary leadership and a lack of professionalism, threatening the country's energy stability. Addressing these issues by appointing permanent, competent leadership is crucial for overcoming the sector's challenges and ensuring its success.

The power sector's inefficiencies are compounded by a disproportionate number of high-ranking officers and a significant number of unfilled lower-tier positions, leading to operational challenges. Moreover, the absence of fresh Operations and Maintenance studies hinders addressing these structural issues and the neglect of Human Resource Management exacerbates the situation. Additionally, consumer indiscipline, fueled by ineffective regulatory oversight[26] from NEPRA, demands immediate reforms to ensure NEPRA's effectiveness and the sector's overall improvement.

Electricity theft[27] is a significant issue in Pakistan, contributing to chronic electricity shortages and impacting societal and economic stability. The government has been criticized for not effectively addressing the issue that has led to substantial financial losses. A recent anti-theft campaign in Punjab, underscored the significant challenges the power sector faces due to electricity theft. The campaign recovered a staggering Rs 85.7 billion by December 2023, indicating the scale of the problem and the potential financial benefits of addressing it. This recovery represented mere 10% of the stolen electricity.

In the financial year 2021-22, Pakistan faced significant electricity transmission and distribution losses, totaling 22,298 Gigawatt hours (GWh) with a financial impact of Rs520.3 billion. It is conservatively estimated that almost a fifth of the power generated is lost along the way. The inefficiency in reducing these losses is attributed to outdated infrastructure, necessitating urgent upgrades. As a consequence, to offset the financial impact of line losses, the government finds it necessary to implement subsidies, adjust the base price upward, and elevate tariffs.

To effectively address Pakistan's critical issue of electricity line losses, which significantly impact the cost of power, the new government must prioritize the modernization of transmission and distribution infrastructure. A strategic approach involving the private sector could enhance efficiency and reduce the financial burden of losses, which amounted to significant figures in previous fiscal years. Collaborative efforts should include technical reforms like GIS indexing, network mapping, and automated meter reading, alongside capacity building for employees in the power sector. Emphasizing infrastructure over mere generation and aligning tariff policies with ground realities are crucial steps toward sustainable energy management and economic stability.

The Ministry of Energy's (MoE) active engagement is vital for recovering the power sector's outstanding receivables of Rs 2.50 trillion, owed by various entities including the federal government, AJK, other provinces, special dispensations, and Karachi Electric (KE)[28]. Recovering these receivables, along with public arrears amounting to about Rs. 1.00

[26] Afia Malik, "Effective electricity regulation," *Business Recorder,* August 17, 2023, https://www.brecorder.com/news/40258264.

[27] "PM directs disciplinary action, exemplary punishment to officers involved in power theft," *Pakistan Today,* March 28, 2024, https://www.pakistantoday.com.pk/2024/03/28/pm-directs-disciplinary-action-exemplary-punishment-to-officers-involved-in-power-theft/.

[28] Engr Tahir Basharat Cheema, "Will the power sector ever deliver?—II," *Business Recorder,* February 23, 2024, https://www.brecorder.com/news/40290288.

trillion, is essential for the financial stability of the sector.

The power sector's struggles, marked by government neglect and the Ministry of Energy’s (MoE) inaction, demand urgent measures to mitigate the growing circular debt, now at Rs 2.50 trillion. Key to the new government's agenda should be to make electricity more affordable by addressing the high generation costs, which account for 88% of the total cost, particularly by addressing issues faced by IPPs and revising PPAs. Moreover, unsustainable cross-tariffs burdening the industry and leading to higher consumer tariffs necessitate professional management and the creation of a Power Sector Advisory Council for expert guidance.

Gas Sector

The Oil and Gas Regulatory Authority (OGRA) has significantly raised gas tariffs for domestic and commercial users by nearly 230% from November 1, 2023, aiming to tackle the gas sector's circular debt as part of a plan submitted to the IMF. This move reflects the global trend of increasing gas prices and the challenges of managing circular debt, amidst concerns about inflation and energy costs. With local gas reserves dwindling and alternative energy measures slow to advance, reliance on expensive imported gas is expected to grow. Adjusting gas tariffs closer to LPG prices, especially for higher-income groups, and reevaluating consumption slabs could offer a more balanced approach to addressing these issues.

The gas sector is currently ensnared in a web of circular debt totaling an alarming Rs 3.022 trillion, which represents a significant challenge that threatens the stability and efficiency of the country's energy framework. This issue, deeply rooted in a combination of systemic, regulatory, and operational inefficiencies, requires a nuanced, multi-pronged approach for resolution.

At the heart of the circular debt crisis are several key issues. Subsidies, while intended to make gas affordable for vulnerable segments of society, often lack proper targeting and financial backing, leading to unsustainable fiscal pressures. Compounding this are regulatory delays in tariff adjustments, which prevent gas companies from reflecting the true cost of supply in consumer prices promptly. Additionally, a significant portion of the debt arises from non-payments by public sector entities, further straining the system.

Gas theft and distribution losses, categorized as Unaccounted for Gas (UFG), directly erode revenue, contributing significantly to the accumulation of debt. Moreover, long-term LNG contracts, secured at prices not always reflective of current market conditions, exacerbate the situation by locking the sector into high-cost obligations.

In Pakistan, the issue of UFG has escalated to critical levels, significantly impacting the country's economy and the efficiency of its energy sector. The current UFG rates, alarmingly higher than international benchmarks, with the Sui Southern Gas Company Limited (SSGC) facing a 15% loss and the Sui Northern Gas Pipelines Limited (SNGPL) an 8.23% loss, reveal a systemic problem that extends beyond mere operational inefficiencies. These high UFG rates contribute to a substantial financial burden, exceeding USD 1.1 billion in losses annually, thus eroding gas revenue and imposing an unjust financial strain on consumers. This scenario underscores a broader crisis within the gas sector, affecting the demand-supply dynamics, inflating gas costs, and necessitating the import of costly LNG.

The root causes of such high UFG levels are multifaceted, intertwining political, governance, and infrastructural inadequacies. Issues range from the government's passive engagement in the gas sector's management, despite significant ownership stakes in SSGC and SNGPL, to the utilization of gas as a political tool, where gas supply is often extended as an election incentive without adequate consideration of network viability. This untargeted approach to gas distribution has led to substantial inefficiencies and losses, further exacerbated by security challenges in regions like Balochistan and KPK, where UFG rates soar due to theft and lack of infrastructure protection.

Addressing these challenges requires a comprehensive and multifaceted strategy, emphasizing governance reform, infrastructure investment, and community engagement. The government must actively reassess and reform the existing tariff regime, prioritizing asset expansion based on viability rather than political gains. Modernizing the aging gas infrastructure, including Cathodic Protection (CP) stations, will be crucial in reducing physical losses and preventing pipeline corrosion.

Moreover, enhancing monitoring and enforcement through advanced technologies and stricter penalties for gas theft can deter illegal activities. Public awareness campaigns and community engagement initiatives can transform local populations into stakeholders, contributing to the protection and efficient management of gas resources. Adopting technological solutions like advanced metering infrastructure (AMI) can further minimize commercial losses and improve billing accuracy.

The pricing of gas for the fertilizer sector has also become a focal point of contention[29], revealing a disproportionate benefit skewed towards fertilizer manufacturers at the expense of broader economic equity. This preferential treatment, manifested

[29] "Fertilizer gas pricing: myopic approach to have long-term repercussions," *Business Recorder,* February 22, 2024, https://www.brecorder.com/news/40290132.

through significantly lower gas tariffs for these manufacturers, underscores a systemic anomaly within the sector's regulatory framework. While intended to support agricultural productivity through subsidized fertilizer costs, this policy inadvertently prioritizes corporate profit margins over fiscal responsibility and the equitable distribution of resources. Such a disparity not only questions the sustainability of these subsidies but also the fairness in how resources are allocated, spotlighting the need for a comprehensive review and reform of gas pricing policies within the fertilizer industry.

The gas tariff for the fertilizer sector is currently pegged at Rs. 512 per MMBtu in Pakistan. In contrast, Bangladesh's tariff for the same sector is notably higher at PKR. 1212 per MMBtu – substantially 240% higher when compared to Pakistan. Intriguingly, a premier fertilizer manufacturer enjoys a significantly lower rate of just 0.7 USD (equivalent to Rs. 200 per MMBtu) due to operating under an older contractual agreement. This raises pertinent questions about the longevity of such preferential treatment. Notably, India employs a different strategy, opting not to subsidize the fertilizer sector through gas tariffs but instead utilizing a distinct fertilizer subsidy scheme.

There exists a persuasive case for doubling the gas tariff in the fertilizer sector, given the notable discrepancies arising from the historically low rates extended to fertilizer plants. While the subsidy for fertilizers represents an endeavor to support agriculture, it prompts an essential inquiry into the source of subsidy funding — should it emanate from the agricultural budget or be borne by gas consumers? The practice of subsidizing fertilizer plants through gas tariffs has led to the accumulation of circular debt and elevated tariffs for other gas users.

International financial institutions and global entities typically disapprove of gas subsidies, whereas agricultural subsidies are widely practiced in regions like Europe and are broadly accepted. Transitioning subsidies from the gas to the agricultural sector appears to be a strategic move, aligning with global standards.

Moreover, the issue of fertilizer retail pricing reveals another layer of complexity. Despite the variation in gas tariffs for fertilizer plants, the retail prices of fertilizer bags for farmers remain largely uniform, paving the way for middlemen to exploit these discrepancies for profit. These intermediaries, known for manipulating commodity prices such as sugar, flour, and cooking oil, extend their influence to the fertilizer market, though the beneficiaries of such price manipulations in fertilizers remain unclear.

The current retail price of Urea for farmers stands at Rs 3800 per bag, with official prices set by major producers like FFC/Fatima at Rs 3210, EFFERT at Rs

3600, and RLNG-based and FFBL plants at Rs 3411 and Rs 3600 respectively. It's estimated that intermediaries capture profits ranging from Rs 200 to 700 per bag, highlighting the need for a review of price-setting mechanisms by fertilizer plants, especially amidst fluctuating gas prices. The Ministry of Production, while exerting some influence over fertilizer pricing, does so with less transparency than seen with other regulatory bodies like OGRA and NEPRA.

Amid these discrepancies, the federal government should consider standardizing gas tariffs across fertilizer plants to match the industrial gas tariff, a move that could harmonize pricing without necessarily raising fertilizer prices, provided the subsidy is reallocated to the agricultural sector and prices regulated by OGRA.

Exploring alternative subsidy distribution methods that cater to different farmer categories could lead to a justified increase in fertilizer prices. The stagnant growth in Pakistan's industrial sector, partly attributed to gas tariffs, contrasts with Bangladesh, where industrial gas tariffs are significantly higher. An average increase of 47% in industrial gas tariffs, as determined by OGRA, could be feasible for both the industrial and commercial sectors, potentially leading to a balanced adjustment in commercial tariffs as well.

Addressing this crisis demands a holistic strategy. A starting point could be the rationalization of subsidies, ensuring they are efficiently targeted and financially sustainable. This measure would alleviate some of the fiscal burdens. Prompt tariff revisions, reflecting actual supply costs, are essential to maintaining the financial health of gas companies and preventing debt accumulation.

Improving payment discipline across the board, particularly among public sector entities, is critical. Ensuring these entities adhere to their payment obligations would significantly mitigate liquidity issues. Concurrently, aggressive measures to curb gas theft and reduce UFG losses through infrastructure modernization and enhanced monitoring must be prioritized.

The renegotiation of LNG contracts could provide relief by aligning costs more closely with current market rates.

Strengthening the regulatory framework to make it more adaptive and responsive to changes in the energy market is another vital step. This would include timely tariff adjustments and a more strategic approach to energy planning and infrastructure investment.

Financial restructuring of gas sector entities, along with enhanced transparency in their operations and financial dealings, would help rebuild stakeholder trust and provide a more stable foundation for addressing the circular debt issue.

The process for determining gas tariffs urgently requires an overhaul due to its time-consuming nature, which significantly delays government approval and announcement of tariffs. The consideration of the Weighted Average Cost of Gas (WACOG) offers a potential improvement, though its legal endorsement is yet to be clarified. Should WACOG be adopted, it would be prudent to mirror the methodology used in the power sector, possibly through the creation of an Intermediary Virtual Organization (IVOG), similar to CPPA-G in function. This entity should manage the procurement of gas, including LNG imports, and calculate a monthly WACOG.

Alternatively, the responsibility could be transferred to OGRA, which would adopt a calculation method akin to that of NEPRA, encompassing annual, quarterly, and monthly adjustments. This approach could further be streamlined by adopting simplifications in the NEPRA procedures, such as announcing distribution costs annually as a fixed rate, with separate provisions for UFG (Unaccounted For Gas) and CAPEX adjustments.

Looking ahead, Pakistan's energy landscape is increasingly leaning towards renewable sources[30] like solar, wind, and hydrogen. Despite this shift, the country is expected to depend on gas for the functioning of various sectors for the next two to three decades. The challenge of integrating renewable energy with under-utilized gas-fired plants arises from both pricing and supply issues. The gas sector is experiencing stagnation, hindered by limited new local discoveries and political unrest in regions like Balochistan, while the growing circular debt impacts the liquidity of exploration companies such as PPL and OGDC, even amidst policy advancements like the Tight Gas policies.

Furthermore, the reliance on high-priced LNG and the volatility of spot markets underscore the importance of gas for industrialization and export growth. Projects like the Iran-Pakistan (IP) Pipeline, and the Turkmenistan–Afghanistan–Pakistan–India (TAPI) pipeline offer potential for more affordable gas, subject to successful renegotiations in light of evolving market dynamics and international sanctions. There is optimism for the completion of IP and the realization of TAPI, which could significantly mitigate Pakistan's energy challenges in the foreseeable future.

Conclusion

Facing formidable challenges, Pakistan has no other choice, but to reform its petroleum, power, and gas sectors. Through strategic planning, a steadfast commitment to reform, and an openness to new technologies and partnerships, the country can reshape its energy future

[30] Salman Siddiqui, "Pakistan's foray into renewable energy," *The Express Tribune,* December 28, 2022, https://tribune.com.pk/story/2393075/pakistans-foray-into-renewable-energy.

into one that is secure, affordable, and environmentally friendly.

Achieving this transformation requires a comprehensive approach that encompasses policy revisions, governance enhancements, infrastructure upgrades, financial restructuring, and active stakeholder involvement. Key to this endeavor will be minimizing political interference, instilling professionalism, and encouraging public-private cooperation, which are essential for fostering sustainable growth and efficiency.

Leveraging cutting-edge technologies especially in renewables and establishing strategic alliances, along with tapping into the national reservoir of innovation, holds the promise of propelling Pakistan toward energy security. This shift could significantly reduce the country's dependency on expensive imports and lessen the impact of global market fluctuations. This will not only advance sustainability but also position Pakistan as a frontrunner in the global move towards clean energy.

The urgency to act is heightened by the escalating costs of delay, which threaten Pakistan's energy security and economic future. Neglecting the critical needs of the petroleum, power, and gas sectors risks entrenching inefficiencies, exacerbating debt issues, and squandering potential, thereby stalling national progress.

Embracing this critical juncture with bold reforms and a vision for the future, Pakistan can herald a new era where sustainable energy drives industrial expansion, empowers communities, and enhances living standards. Though the path forward may seem daunting, with strategic foresight, unwavering resolve, and collaborative effort, Pakistan can do it.

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