

## Academy of Science of South Africa (ASSAf)

### THE NO PARAFFIN! CAMPAIGN: A CALL TO ACTION

#### WIDESPREAD ENERGY IMPOVERISHMENT

Energy poverty is an impediment to health, social and economic wellbeing. In South Africa 47% of households are energy-poor, with 600 000 of these households or 2 million people in extreme energy deprivation<sup>1</sup>. The latter households are primarily reliant on paraffin for their energy needs and face disproportionate risks to health through exposure to toxic fumes, poisoning and burn injuries. These dangers are prominent in informal urban settlements, marked by limited access to safe energy, safe home structures and comprehensive healthcare<sup>2</sup>.

The consequences of energy impoverishment in general, and paraffin use in particular, are far-reaching. Annually, 100 000 burn injuries are reported in South Africa. The contribution of paraffin to this burden is reported as significant, with stove explosions indicated as a common cause of many injuries. Paediatric poisoning is another danger, affecting about 3.6% of paraffin-using households, with 40% of ingestion victims developing chemical pneumonitis due to aspiration. Paraffin emissions may impair lung function and increase susceptibility to infectious illness, including tuberculosis, as well as asthma and cancer. There may be central nervous system effects to acute and chronic exposure to paraffin, these include irritability, restlessness, ataxia, drowsiness, convulsions, coma and even death<sup>2,3</sup>.

Individual treatment costs for serious burns range from R103 000 to R154 000. A R180 million is annually lost in razed structures and R490 million spent to care for those with paraffin burns. There are likely significant indirect costs due to lost wages and the prolonged care for those with consequent ill health<sup>2,4</sup>.

#### TOWARDS SOLUTIONS: ALTERNATIVE SAFE AND CLEAN ENERGY

The United Nations in its 2030 Agenda for Sustainable Development declared the universal access to safe, affordable, sustainable and modern energy a global priority<sup>4</sup>. This declaration is supported by evidence that energy poverty can be largely mediated by policies that substitute hazardous fuels with cleaner and safer alternatives<sup>5,6</sup>. Electricity and liquefied petroleum gas (LPG) are most recognised as clean, safe and sustainable domestic energy carriers with the potential for large-scale diffusion. In South Africa other clean fuel options may include ethanol, solar and biogas<sup>2</sup>.

Internationally, electricity is a preferred energy carrier due to its versatility, ease of use and unrivalled cleanness at the point of use. South Africa has prioritised large-scale electrification with about 90% of households connected to the grid. However, effective access is hampered by current grid constraints and increasing unaffordability which cause on-grid households to maintain or revert to the use of paraffin and other polluting fuels. Electricity is therefore not a panacea for all energy needs, and thus the need for a diversified portfolio of safe and clean energy carriers<sup>3</sup>.

The use of LPG and electricity, each deployed according to relative advantages, is internationally recommended in resource-poor settings<sup>8</sup>, with large LPG dissemination

programmes from Indonesia and India demonstrating reductions in extreme energy poverty and savings<sup>6,9</sup>. South Africa's own exploration of LPG diffusion has provided encouraging results on user satisfaction and the catalysation of local value chains<sup>10</sup>.

Thus, in addition to electrification, LPG is a clean fuel option and one of the best practical replacements for paraffin owing to its performance in terms of technological and usability attributes<sup>2</sup>.

## **A CALL TO ACTION**

The No Paraffin! Campaign, launched in February 2021, calls for an accelerated transition to safe, affordable and modern energy that prioritizes the needs of socioeconomically impoverished communities<sup>3</sup>. The Campaign is directed at:

- The phasing out of paraffin as a domestic fuel in South Africa.
- Strengthened protections for paraffin users during its phase-out.
- The scaled-up implementation of electricity and LPG, or other proven and feasible safer energy alternative.

Political championship, commitment to energy policy transformation, appropriate budget allocations and implementation structures are critical for the scaling up of an alternative energy carrier and safe domestic appliances. The District Development Model coordinates the national response to the interconnected challenges of poverty, unemployment and inequality and offers a small-scale platform for the initial implementation, testing and evaluation of newer energy technologies<sup>11</sup>. A coordinated and phased roll out, initially at a small scale, would serve to 'test' and illustrate the critical supports required for a national rollout over the mid- to long-term.

## **NEAR-TERM INTERIM MEASURES: HAZARD CONTROL AND REMOVAL**

For the immediate term, the Campaign calls on the South African government to implement a range of specific policy and program actions, aimed at strengthening public protection while paraffin is being phased out:

- South African Bureau of Standards, to review and revise existing compulsory paraffin stove standards to address shortcomings and ensure enhanced protection of stove users. The incorporation of a bitterant in paraffin could reduce cases of accidental ingestion.
- National Regulator for Compulsory Standards, to enforce compulsory paraffin stove regulations and curtail the manufacture, distribution and use of sub-standard stoves through strengthened sanctions.
- Safety educational campaigns, to disseminate information on safe stove user behaviour and emergency responses, through partnerships between energy technology and fuel suppliers, civic and community organisations, and government<sup>2,11</sup>.

## **MEDIUM-TERM MEASURES: ENGAGEMENT, POLICY, IMPLEMENTATION AND MONITORING**

The South African Government is called on to prioritise, develop and enact a substantive policy on safe energy provision to impoverished communities, alongside interventions to support regular household incomes and suitable housing<sup>12</sup>. Key elements include:

- A White Paper to specify the milestones and mechanisms for both the phaseout of illuminating paraffin and the introduction and upscaling of the energy alternatives.
- A public engagement strategy to facilitate interest and use of the safe energy alternative and a transition plan for affected communities. This could include a national awareness campaign to highlight energy consumer rights, the attributes of replacement appliances and their safe domestic use.
- The South African Bureau of Standards to set design and construction standards for all domestic energy appliances.
- The development of supportive infrastructure to support energy user access, including distribution networks, financial support and incentive systems for energy acquisition.
- Monitoring and evaluation to determine readiness of local energy users to adopt alternative energy, identify implementation issues, assess household energy technology and usage patterns, and report on safety, health and cost outcomes<sup>2,3</sup>.

This energy campaign is aligned to the United Nations 2030 Sustainable Development Goal on universal access to safe and sustainable energy. Cognisant of the scale and impact of energy impoverishment, the No Paraffin! Campaign calls for: championship and commitment from government, civil society, research and industry; a scaled-up implementation of suitable safe energy solutions; and the adoption of clear milestones to record progression towards a more equitable, safe and healthy society.

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