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Department of Transport and Planning
1 Spring St,
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7 March 2025

Dear DTP,

Re: Building Electrification Regulatory Impact Statement (RIS)

The Australian Institute of Architects (The Institute) welcomes the opportunity to respond to the Victorian Government's *Building Electrification* Regulatory Impact Statement (RIS). We commend efforts to develop an electrification pathway in line with its legislated net-zero emissions target for 2045. As architects we recognise that buildings are central to achieving these climate goals and improving public health. Through our work and industry influence we recognise the role we can play in supporting the transition, optimising energy demand, providing integrated and adaptable design strategies, promoting grid responsive technologies, and through climate conscious specification. We strongly support the phase-out of fossil gas in buildings and the rapid scale-up of efficient, all-electric building systems. In this submission we outline our position and provide policy recommendations for the Victorian Government's consideration.

Key Policy Recommendations

The Institute supports the proposed building electrification regulations through the introduction of Option 2 with an amendment to *include commercial kitchens* such be replaced with electric appliances when the current appliance reaches end-of-life. To strengthen the Building Electrification policy, we recommend the following actions. Refer attached Position Paper for detailed justification.

1. **Mandatory Electrification** – A clear and managed timeline for phasing out fossil gas appliances is important. The planned retirement of the gas network will prevent stranded assets and rising costs for remaining users. Additionally, by allowing flexibility in policy timelines - such as accelerating gas bans if voluntary uptake is slow - will ensure effective implementation.

2. **Considerations and exemptions** – To minimise delays and ensure an equitable transition, we recommend limiting exemptions to a minimum, with targeted financial and technical support for challenging cases, such as low-income households and heritage buildings. This could include rebates, no-interest loans, or engineering support.

3. **Indoor Air Quality & Health** – Electrification of cooking appliances brings significant health benefits by eliminating indoor combustion. We recommend that no broad exemptions be allowed for gas cooking in the long term - instead, the transition can be supported through incentives.

4. **Demand-side management and grid-aware design –** We advocate for smart energy management systems in new buildings and retrofits to ensure grid responsiveness and urge the Victorian Government to incentivise "grid-interactive" design and demand-side management programs. These measures will

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enhance grid stability, optimise renewable energy use, and benefit both consumers and the broader energy system.

5. **Planned upgrades and development** – We emphasise the need for the Government's roadmap to include a plan and funding for incremental network upgrades to support new all-electric loads. Additionally, energy infrastructure upgrade support should be embedded to ensure reliable grid capacity and prevent infrastructure barriers for building owners.

6. **Align with Industry & Net-Zero Goals** – Strengthening building energy efficiency standards alongside electrification will reduce demand on the grid and improve long-term resilience. Government policies should support industry-led initiatives and professional guidelines for all-electric, high-performance buildings and learn from local and international leaders like ACT and New York to refine building codes and grid management strategies.

The positions and recommendations we present are backed by a robust foundation of research and represent the collective insight of Australia's sustainable building experts. The evidence is clear that building electrification, paired with efficiency and demand management, is beneficial on economic, environmental, and health grounds. Our submission aligns with these expert views and aims to translate them into practical, forward-thinking policy advice for Victoria.

By adopting these recommendations, the Victorian Government can ensure that the Building Electrification RIS translates into effective regulation and action on the ground. The Institute firmly believes that an all-electric, net-zero carbon building stock is not only achievable but will deliver a safer, healthier, and more sustainable Victoria. We have included the accompanying position paper for your further consideration.

We stand ready to assist in this transition – through our expertise in design and planning, and our collaboration with policymakers and industry partners.

Yours sincerely,

David Wagner FRAIA
Victoria State President
Australian Institute of Architects

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Position Paper

1. Mandatory Electrification

The Institute strongly supports the introduction of mandatory electrification policies for new buildings, and a managed timeline for electrifying existing buildings. We applaud Victoria's recent ban on new gas connections for homes, which prevents locking in new gas infrastructure that would later require costly removal. Going forward, policy settings should commit to the total phase-out of fossil gas use in buildings on an ambitious but achievable schedule. ASBEC's research confirms that 100% electrification is the lowest-cost, fastest emissions reduction pathway for Australia's built environment. In line with this, we urge the Government to formally commit to phasing out all gas appliances, including in existing buildings within a manageable timeframe. This should include not only space heating and hot water (already addressed in the RIS proposals) but also gas cooktops, which are currently excluded from the preferred RIS option. We acknowledge the complexity of including gas stoves at this stage, but they should be eventually phased out including for their well-documented health risks and ongoing costs. Retaining any gas appliance – even a cooktop – leaves households partially dependent on gas infrastructure, exposing them to rising gas prices and network charges for a diminishing service.

2. Considerations and exemptions

Limits on Exemptions

The RIS proposes some exemptions (e.g. where physical space is insufficient for heat pump systems, heritage overlay conflicts, or disproportionately high connection upgrade costs. While some case-by-case exemptions may be unavoidable, we encourage the Government to keep the number of exemptions to a minimum[RN1][RN2]. Every exemption risks creating a loophole that delays the transition or leaves certain occupants with inferior outcomes. In principle, *"nobody should be put in the 'too hard' basket"* when it comes to electrification. If certain buildings are hard to electrify or require expensive network upgrades, this is precisely where policy should focus targeted support – not permanent exclusion. We caution that granting exemptions based on upfront cost concerns would lock in long-term financial harm, as occupants continue to face high gas prices and future retrofit costs, ultimately paying more down the track. A far better approach is to provide financial and technical assistance to overcome the barriers. For example, low-income households or owners of older apartment buildings might receive extra rebates, no-interest loans, or engineering support to facilitate electrification, rather than being exempted outright. We recommend the Victorian Government pair its regulations with a robust Electrification Support Program to help difficult cases comply (covering both single homes and strata buildings). This could include co-investment in switchboard or wiring upgrades, bulk procurement of heat pump systems for apartment complexes, and grants for heritage-sensitive solutions. By prioritising support over exemptions, the policy ensures no group is left behind and that the benefits of electrification (lower bills, better comfort, improved IEQ) are equitably shared.

Enforcement

To bolster the effectiveness of mandatory electrification, strong compliance and enforcement measures are needed. The Institute supports the introduction of clear compliance pathways (e.g. through building permit sign-offs confirming no new gas fixtures, audits of renovations, and penalties for non-compliance). Ensuring that builders, developers, and installers adhere to the all-electric requirements will maintain a level playing field and public confidence in the transition. We also encourage coordination with industry training – [RN3]all relevant trades (plumbers, HVAC technicians, builders) should be upskilled in installing and maintaining electric alternatives. By coupling minimal exemptions with solid enforcement and education, Victoria can successfully implement a "no new fossil gas" regime and pave the way for a managed phase out the planned use of gas entirely.

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3. Indoor Air Quality & Health

Eliminating gas appliances is not only a climate and cost issue, but also a significant health and indoor environmental quality improvement. Mounting evidence shows that cooking with gas produces hazardous indoor air pollutants (nitrogen dioxide, carbon monoxide, fine particulate matter, formaldehyde) that can lead to respiratory illnesses. Nearly half of Australian households (48%) use gas cooktops, meaning a large share of families are exposed to these pollutants daily. Medical research has linked gas stove use to roughly 12% of childhood asthma cases in Australia, comparable to the asthma risk from passive smoking. In light of these findings, replacing gas stoves with modern induction cooktops will greatly improve indoor air quality and health outcomes. We recommend that no broad exemptions be allowed for gas cooking in the long term – instead, the transition can be supported through incentives (such as rebates for induction cooktops, which Victoria has already initiated via the VEU program and public education on the health benefits. By moving to all-electric kitchens and heating, Victorian homes will enjoy safer, healthier indoor environments free of combustion by-products.

4. Demand-side management and grid-aware design

Integrate Smart Energy Infrastructure

Building electrification must be pursued in tandem with smart, grid-aware design strategies to manage increased electrical loads. Research by the Energy Efficiency Council emphasises that managing energy demand is just as critical as expanding supply for a fast, reliable, and affordable transition. *Clean Energy, Clean Demand* (2023) outlines how energy efficiency, demand response, and electrification together can enable rapid decarbonisation while minimising costs for businesses and households. In practice, this means deploying demand response programs, smart appliances, and controls so that buildings can shift or shave electricity usage during peak times. Grid-interactive buildings that use power when it is cheapest and cleanest help alleviate strain on overburdened networks and cut energy costs. According to the Green Building Council of Australia (GBCA), shifting even a portion of building energy use away from peak periods could reduce Australia's annual electricity supply costs by $1.7 billion and avoid significant emissions. We strongly advocate that new buildings and major retrofits incorporate smart energy management systems (such as automated controls and thermostats, smart EV chargers, and thermal storage) to make them *grid-responsive* from the outset.

5. Planned upgrades and development

Plan for Transmission and Distribution Upgrades

As Victoria electrifies heating, hot water, and cooking, the electrical transmission and distribution infrastructure will need upgrading to handle increased loads. The implementation strategy must include investments in local network capacity (transformers, substations, and feeder lines) as well as in "last mile" connections within neighbourhoods and apartment complexes. Importantly, embracing demand-side measures can significantly reduce the scale and cost of these upgrades. For example, integrating solar PV, batteries, and virtual power plant (VPP) programs in communities can flatten peak demand by storing midday solar energy for evening use. The *Clean Energy, Clean Demand* report finds that efficient electrification and active demand management will *"reduce the amount of supply-side infrastructure that needs to be built, accelerating decarbonisation while reducing costs."* In other words, by making buildings *grid-aware* and flexible, Victoria can avoid unnecessarily over-sizing the power network. We note that failing to integrate smart load management would result in higher capital costs for equipment and larger-scale network upgrades than necessary. Therefore, we urge the Victorian Government to foster "grid-interactive" building design – for instance, through incentives or requirements for demand-responsive appliances, smart meters with time-of-use tariffs, and participation in demand response or VPP programs. Such measures will improve grid stability and optimise the use of renewable energy, benefiting both consumers and the broader energy system.

Upgrades at Neighbourhood and Building Scale

Fully electrifying the building stock will require significant upgrades to energy infrastructure at both the neighbourhood level and within multi-unit developments. Many legacy electrical distribution networks, especially in older suburbs, were not designed for every home to have high-capacity electric heating, hot water, and vehicle charging. Local distribution transformers and circuits may become overloaded without strategic augmentation. We emphasise that the Government's roadmap must incorporate a plan (and funding mechanisms) for incremental network upgrades to support new all-electric loads. This includes augmenting street-level transformers, reinforcing distribution feeders, and ensuring adequate substation capacity in areas expected to see rapid electrification uptake. Early identification of upgrade "hotspots" (for instance, suburbs with many simultaneous gas-to-electric conversions or clusters of new apartments) will allow utilities to reinforce infrastructure proactively rather than reactively. It is far more cost-effective to upgrade in a planned way than to respond to frequent overloads or customer complaints after the fact. We note that some international jurisdictions have faced delays in electrification precisely because local grids were not upgraded in time, placing the burden back on governments to invest heavily in catch-up upgrades. Victoria can avoid this by making distribution upgrade planning an integral part of the electrification rollout.

Within buildings, electrical systems will also need enhancement. Older apartment buildings and mixed-use developments may have undersised main switchboards, risers, and meters that cannot handle added electrical appliances. These should be assessed and upgraded as part of the transition. The RIS should explicitly recognise that electrifying existing high-rise residential buildings can be complex: many have centralised gas hot water boilers, limited space for heat pump units or thermal storage, and constrained roof area for solar PV. Converting such buildings will often require creative engineering (e.g. splitting central systems into distributed heat pumps per floor, or using shared thermal storage) and coordination among all unit owners and the body corporate. We recommend embedding energy infrastructure upgrade support into the roadmap – perhaps through a dedicated program or taskforce for multi-residential electrification. By planning for and investing in both neighbourhood grid upgrades and in-building electrical upgrades, the Government can ensure the grid reliably meets new demand and that building owners are not deterred by infrastructure hurdles.

Embed Smart Energy Management Systems

Alongside physical upgrades, we urge the incorporation of smart energy management system (EMS) upgrades at every scale. This means equipping neighbourhoods and buildings with technology to actively manage and optimise energy use. For example, community-level battery storage can be installed to buffer peak loads, and building-level energy management systems can control when water heaters or EV chargers draw power (shifting usage to off-peak times). As noted above, integrating such smart solutions can substantially reduce the need for costly network augmentation by shaving peak demand. The goal should be to *"optimally size"* infrastructure and equipment for the new electric loads, rather than simply over-building capacity.

Avoiding Unnecessary Costs

We caution that without a focus on integrated design and energy management, electrification could impose higher upfront costs than necessary. As ASBEC notes, if systems are not optimised holistically (e.g. plumbers, HVAC engineers, and solar installers all working in silos), the result may be over-sized equipment and avoidable electrical upgrade costs. A holistic, systems-thinking approach is needed – one that considers building fabric efficiency, peak demand reduction, and load control alongside equipment replacement. *Efficiency first* can reduce the size (and

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cost) of heat pumps or electrical upgrades needed. We endorse the RIS's acknowledgement that improved energy efficiency (through building fabric and insulation) will "decrease the space requirements and size of equipment, minimise the need for purchased energy, and enable a higher share of operational costs to be covered by rooftop photovoltaics". By ensuring new regulations and incentive programs drive both efficiency and electrification, Victoria can reap a double dividend: smaller peak loads and thus smaller infrastructure investments. In summary, planning for targeted grid upgrades and smart energy management now will save money and headaches in the near future, and will smooth the path to a fully electrified building sector.

6. Align with Industry & Net-Zero Goals

Australian States and Territories

Victoria's electrification efforts can be bolstered by examining policies in other Australian jurisdictions and learning from their experiences. Notably, the Australian Capital Territory (ACT) has been a national leader in this space. In 2022, the ACT Government announced a plan to phase out fossil gas entirely by 2045, in line with its net-zero target. To support this, the ACT became the first jurisdiction in Australia to ban new gas connections in new developments. Legislation passed in late 2023 prohibits gas network connections for all new homes and businesses in the ACT from November 2023 onward. Minister Shane Rattenbury stated that *"the first step in phasing out gas completely is to prevent any new gas"*. This bold move is considered one of the fastest and cheapest ways to reduce emissions and provide cost-of-living relief, as it stops new customers from being tied to expensive gas infrastructure. The ACT's experience shows the value of legislating electrification mandates, and it underscores the importance of aligning policies with long-term climate targets. Writing the gas ban into law has put the ACT *"well ahead of the rest of Australia on electrification"*, and Victoria is now following with its own gas substitution roadmap.

New South Wales (NSW) has also signalled support for building electrification, though through different means. While NSW has not yet enacted a state-wide gas connection ban, some local governments are pushing forward (for example, the City of Sydney and other councils have explored planning controls to require all-electric new buildings). The NSW Government launched pilot programs in 2023–24 to help existing homes electrify, recognising that electrification with readily available technologies is the "fastest, cheapest way" to decarbonise and save households money. Modelling by Rewiring Australia (Dr. Saul Griffith's team) for these pilots suggests that replacing all gas appliances and petrol cars with efficient electric alternatives (and powering them with rooftop solar) could save the average household $3,000–$5,000 per year in energy costs. This highlights the economic co-benefits of electrification, beyond emissions reduction. We encourage Victoria to consider similar retrofit pilot programs and economic analysis to build public support – demonstrating that all-electric homes are not just cleaner but cheaper to run. As energy prices shift (with electricity increasingly sourced from affordable renewables and gas prices projected to remain high, the financial case for electrification will only strengthen.

International Jurisdictions

Globally, many cities and countries are enacting policies to electrify buildings and phase out gas, often in response to climate targets and energy security concerns. For instance, New York City implemented a landmark *"Gas Free NYC"* law that took effect on January 1, 2024, requiring all new buildings under seven stories to be constructed without any fossil fuel systems for heating or hot water. This law will ensure tens of thousands of new all-electric homes each year in NYC, improving air quality and cutting building emissions in America's largest city. New York State has gone further to become the first U.S. state to ban natural gas (and other fossil fuel) heating in most new building construction statewide, starting in 2026 for smaller buildings (and 2029 for larger ones). In Europe, jurisdictions like the Netherlands and the UK are also moving to end gas heating in coming years – the UK has

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announced that new boilers burning fossil fuels will be phased out, and the EU is strengthening building performance standards that implicitly drive electrification through heat pumps. These examples illustrate a common trend: mandatory electrification of new construction is becoming standard practice in leading regions, often accompanied by plans to retire gas infrastructure over time.

A crucial lesson from international experience is the impact of legacy infrastructure on the transition. Many countries have found that outdated electrical grids can pose challenges as electrification accelerates, requiring accelerated investment by utilities or governments to upgrade capacity. For example, parts of Europe have had to invest in reinforcing local distribution networks due to rapid uptake of electric heat pumps and EVs. Importantly, Victoria's RIS itself recognises that as customers disconnect from the gas network, the fixed costs of that network are spread over fewer users – leading to upward pressure on gas tariffs for remaining customers. This phenomenon has been observed elsewhere and underscores why a planned, coordinated phase-out of gas is needed. Otherwise, a late majority of gas users (often low-income or in harder-to-retrofit homes) could be saddled with prohibitive gas bills or an unreliable supply as the network contracts. The burden on state governments can increase if grid upgrades (electric or gas transition) are left unaddressed until crisis points. Proactive planning – as Victoria is attempting with this RIS and the Gas Substitution Roadmap – is far preferable.

Coordinated Grid Upgrades

Another takeaway is the value of coordinating building policy with energy infrastructure planning. In jurisdictions that have successfully electrified buildings (such as some all-electric new communities in California or the ACT's Ginninderry suburb), close collaboration occurred between building regulators, energy providers, and planners to ensure the electricity grid and pricing structure could accommodate new loads smoothly. Victoria should similarly ensure that its distribution network service providers (DNSPs) are engaged in the RIS implementation, forecasting the needed upgrades and innovating with tariffs or demand management to mitigate peak impacts. We note that the federal Rewiring the Nation initiatives and AEMO's Integrated System Plan are funnelling billions into transmission for renewables; a parallel focus on distribution network modernisation will be needed at the state level to support building electrification and electric vehicle charging. Without modern, flexible grids, the full benefits of electrified buildings – like feeding surplus solar to the grid or using buildings as grid assets – cannot be realised.

Victoria stands to gain valuable insight from the ACT's early mover policies and from international cities that have embraced building electrification. These comparisons affirm that bold action is feasible and that planning for grid impacts is essential. Victoria's approach should combine the ambition seen in leading jurisdictions (e.g. firm dates for no new gas and gas phase-out) with the prudence of upgrading infrastructure and protecting vulnerable groups during the transition. By learning from others, Victoria can avoid pitfalls (such as underestimating grid needs or allowing inequitable outcomes) and position itself as a leader in sustainable, healthy all-electric buildings.

Alignment with Industry Research and Position Papers

The Institute's position is underpinned by extensive industry research and aligns with the views of peak bodies across the built environment sector. We highlight several key reports and statements that reinforce the case for urgent and comprehensive building electrification:

- **ASBEC – *Unlocking the Pathway to Net Zero Buildings* (2022):** The Australian Sustainable Built Environment Council (ASBEC), a coalition of peak industry bodies (including the The Institute), has confirmed through detailed analysis that *"100% electrification is the lowest cost, fastest emissions reduction pathway for Australia's built environment."* This report found that a pure electrification scenario could save $49 billion nationwide by 2050 compared to a business-as-usual mix of gas and

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offsets, while avoiding 199 million tonnes of CO_2-e. The research underlines that full electrification powered by renewables is more economically efficient than hybrid or gas-retention scenarios. The Institute fully agrees with ASBEC's conclusion and echoes its recommendation that governments at all levels make building electrification a centrepiece of their net-zero strategies. We note that ASBEC's analysis also points out that *"lowest cost does not mean no cost"* – there will be upfront costs in retrofitting buildings, which need to be acknowledged and addressed through supportive policy (e.g. incentives, financing, workforce training). This perspective reinforces our stance on minimising exemptions: opting out due to upfront costs is short-sighted when the long-term cost of inaction is far greater.

- **Energy Efficiency Council – *Clean Energy, Clean Demand* (2023):** This authoritative report provides a roadmap for integrating energy efficiency, electrification, and energy management to enable a zero-emissions energy system. It emphasises that managing demand is *"critical for a fast, reliable and affordable energy transition"*. Several key findings support our recommendations: (1) Electrify efficiently – as Australia shifts from gas to electric in buildings and transport, doing so efficiently (with high-performance appliances and building envelopes) and managing the timing of loads will reduce the amount of new generation and network capacity required. This validates our call for demand-side measures and shows that electrification and grid upgrades must be planned hand-in-hand. (2) Reduce peak demand to lower costs – by shaving peak loads, we can avoid expensive network build-out and make the whole system more affordable. (3) Urgency of demand focus – the report notes that while much effort has gone into cleaning up energy supply, far less has targeted the *demand side*, and unlocking this potential requires urgent action and innovation. The Institute's recommendations – from smart appliances to VPPs – align with this and aim to unlock demand-side flexibility in buildings. We cite this report as a key evidence base that an active demand management approach (through technology and policy) will smooth the electrification journey and yield economic benefits.

- **GBCA & Green Building Industry – Grid-Interactive and Efficient Buildings:** The Green Building Council of Australia has highlighted the emerging concept of grid-interactive efficient buildings as "crucial" for a zero-carbon future. CEO Davina Rooney noted such buildings can *"cut energy costs, alleviate strain on overburdened networks, and facilitate the transition to renewables"*. This is effectively a call to make buildings part of the climate solution beyond just being net-zero in operation – they should actively support the grid. We incorporate this thinking by advocating for demand-response integration and smart controls in Section 1 of this submission. Additionally, the GBCA (with ASBEC and others) has been advocating for an updated National Construction Code to mandate electrification in all new buildings by 2025. This push indicates a broad industry consensus that the time for voluntary or slow change has passed – mandatory requirements are needed to achieve consistency and scale. The Institute supports aligning the Victorian building regulations with these net-zero-aligned standards (for instance, through the NCC or state variations that disallow fossil fuel services in new builds). Such alignment ensures architects and builders across Australia are moving in the same direction, simplifying the message and increasing impact.

- **National Climate Action and Sustainability Committee (NCASC) – Position on Emerging Energy Technologies:** Within the Australian Institute of Architects, the NCASC (formerly the Climate Action Sustainability Taskforce) is developing position statements on new and emerging technologies to drive the profession's contribution to net-zero outcomes. The committee's work is focused on upskilling architects and advocating for frameworks that enable climate-positive design. A consistent theme is the integration of renewable energy and storage technologies in buildings, and the move away from fossil-fuel-based systems. Although the NCASC's formal statement on energy technologies is forthcoming, the

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growing consensus is that embracing electrification (solar PV, battery storage, heat pumps, electric cooking) and innovative design approaches is essential for "good design" in the net-zero era. The Institute's advocacy, as reflected in this submission, is informed by these internal positions. We are committed to helping implement frameworks that make our built environment a leader in climate action – including advocating for policies like this RIS that accelerate the transition in a coordinated, ambitious way. In doing so, we align with the broader industry and research community that clearly supports building electrification as a cornerstone of Australia's climate response.

- **Energy and Climate Policy Bodies:** We also acknowledge analysis by bodies like the National Construction Code (NCC) Technical Committees and the Australian Building Codes Board (ABCB), which have been examining the feasibility of all-electric building standards. Early steps, such as the inclusion of electric-vehicle readiness and consideration of operational carbon in building standards, indicate that regulatory momentum is building. We support these moves and suggest that Victoria's policies should dovetail with national frameworks (for example, coordinating the timing of gas appliance phase-outs with any forthcoming federal standards or incentives). Additionally, the Victorian Government's own *Gas Substitution Roadmap* (2022) sets a strategic vision to shift away from gas while maintaining energy affordability. The Roadmap and RIS together should address not just the "supply" side (e.g. ensuring renewable electricity) but also this demand-side transformation of buildings. By embedding the industry's research findings – such as ASBEC's fabric-first efficiency approach and the EEC's demand management principles – into the policy design, the Government can maximise the effectiveness of the transition.

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