

INVESTMENT POLICY TO PREVENT GLOBAL WARMING

**The health of the Earth is essential to not just
business, but also species survival.**

Dear business leader,

The purpose of this communication is to encourage the Boards of companies worldwide to create a simple to understand policy to encourage sustainability projects to be brought to their attention. Our Group of Companies (AES) has made environmental projects a priority for many years, but recent events have convinced us that we need a direct conduit from our own operators and suppliers.

We also need better communication with our own staff, especially those with the vision and the expertise to see how climate-friendly change can also be business-friendly.

We can only act on what we know. And hopefully, once we know, we can work together to engineer a better world.

We estimate that widespread adoption of more climate-friendly policies in industry globally, could have the equivalent impact of taking 529.5 million cars off the roads while also providing a useful return on investment. (See Technical Annex_RR3)

If you want to help, a good first step would be to encourage your company board to adopt a policy with a similar spirit to 'An Investment Policy to Prevent Global Warming (IPPGW)'.

This will help ensure that that appropriate sustainability projects are brought to their attention.

If enough businesses act, together we can slow down or help to prevent Global Warming.

The policy can be considered as being freely available. There is no requirement to acknowledge any individual in AES, or the Corporation. Companies can decide their own Return on Investment criteria and tailor the feedback mechanism as appropriate. The important thing is to ensure that Boards of companies are better informed so they can save water and energy, limit the damage to our environment and also get a Return on Investment.

Should you believe that this approach has merit, there is no copyright on any part of this communication. Please feel free to pass on any or all of it to any interested person or business.

Yours sincerely,
Chris Rea, CBE, BSc, CEng, FIMechE, DL
'Engineering a better world'

Document Ref. Background_RR2

INVESTMENT POLICY TO PREVENT GLOBAL WARMING

**The health of the Earth is essential to not just
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Whether or not you 100% accept the premise that global warming is occurring, there is widespread evidence that the media, the scientific community and our workforce, particularly our younger workforce, believe that older people are destroying the habitat of the world.

I am absolutely certain that no Executive or Non-Executive Leader of a business of any scale would knowingly engage in any activity which was harming our planet, but for which there was a reasonable prospect of preventing the harm and also getting a Return on Investment.

The difficulty is that the larger any organisation becomes, the less certain it is that the people who direct and lead the business, really understand all of the detail of areas where they can help the environment without hurting the bottom line. For that, you need to ask the people who are actually doing the job.

It may be absolutely clear to your engineers and maintenance staff that there are opportunities for sustainability improvements that give a return of 1 year or less, but

unfortunately, those with time to think about it and do the maths seldom have sufficient access to those with the power to make the decisions.

Maintenance and operations people are often constrained by a budget and quite rightly so, but sometimes spending a little more on environmental measures in one area can reap benefits elsewhere.

This means there can be a disconnect between the need to make a capital investment, which would give a very healthy return, and be good for our planet – all because the money would be coming out of the ‘wrong budget’.

The AES Engineering Ltd. Group operates from fully or majority owned subsidiaries in 44 countries. Our activities are almost always geared towards working on plants with maintenance, sometimes Production and Reliability Engineers, occasionally with Plant Managers and even more occasionally with Boards of Directors.

Most people would understand that if you have a hot process where you are trying to evaporate water out of the process, that it would be pretty silly to inject a lot of cold water into the process at the point at which you are trying to extract it.

It is a fact, however, that all over the world there are applications in Pulp and Paper, Corn Wet Milling, the Sugar industry, the Drinks industry and many more where that is exactly what is happening.

The case for a great Return on Investment, water and energy savings and a reduction or elimination of negative impact (more heat equals more CO₂) on the planet is very clear.

It is just not clear to the people actually operating the process.

In Minerals and Mining full flow flush, which for example is required for packed pumps on Tailings duties, can inject up to 80 million US Gallons a year into a Tailings dam.

That is probably a bad idea in general, but is definitely worse in an area of water scarcity and even today projects are specifying or accepting packed pumps that require full flow flush for many applications in Minerals and Mining.

There is evidence that the pump suppliers would support the use of seals and water management systems, but there is even more evidence that project teams are often not asked to consider the total cost of ownership, never mind the impact on the environment and that they are incentivised for bringing the project in at the lowest possible cost.

Unfortunately the losers are plant operators and maintenance people and the impact on our planet.

In Petrochemical there is widespread use of Plan 21, which is the cold injection of large volumes of product into a hot process which then has to be heated up again to the process temperature.

There is a pretty obvious waste of energy in addition to emissions as a result, but it not on the top of the agenda of the Leaders, Executives and Non-Executive Directors of the Global Corporation.

They may not even know that these processes are both unnecessary and damaging to the environment.

These are just a couple of examples of industries where we have the know-how to do things differently and help both the environment and the bottom line. We estimate that widespread adoption of more climate-friendly policies in industry globally, could have the equivalent impact of taking 529.5 million cars off the roads while also providing a useful return on investment. (See Technical Annex_RR3)

It is pretty obvious that if you can save water and energy, get a Return on Investment through improvement in productivity, and simultaneously become a more attractive employer particularly for the next generation, this should be a top priority for any business with a social conscience.

The Board of AES Engineering Ltd. has therefore unanimously agreed to put a policy in place which reflects what we have already been doing.

A copy of the policy is available. (See link: <https://www.aesseal.com/en/resources/industry-guides/policy-prevent-global-warming>).

INVESTMENT POLICY TO PREVENT GLOBAL WARMING

**The health of the Earth is essential to not just
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The Health, Safety and Welfare of all the stakeholders in our Group is the primary concern of the Board of AES Engineering Ltd.

The Group has consistently put sustainability projects first for capital investment and has now decided to debate and publish an investment policy to prevent global warming through technological change and investment decisions.

- Any sustainability project will be given priority over other capital investment with a similar Return on Investment.
- Any sustainability project with a reasonable chance of getting a Return on Investment of 4 years or less, should be brought to the attention of the AES Engineering Ltd. Board
- A written decision on any such project is mandatory within 3 months of project submission.
- All global business heads have local spending authority. Any sustainability project with a higher value should be immediately referred to the Board of AES Engineering Ltd.
- As a Board we undertake to use our personal and corporate presence to influence policy makers to legislate the requirement for such a policy for all businesses with more than 250 co-workers.
- Current or potential supplier input is welcomed, including their use of the global hotline where necessary.

The Board of AES Engineering Ltd. encourages the use of the global "hotline" on 0800-374199 or by email on aes sealhotline@expolink.co.uk to assist with the discreet implementation of this policy where necessary.

C. J. Rea
Managing Director



The policy is copyright free and any or all of it can be adopted at will by any organisation.

As a Board we intend to use reasonable endeavours to try and ensure that such a policy is adopted by all Boards of Directors of businesses with more than 250 employees. We acknowledge that in some cases a 10-year Return on Investment might be acceptable for some businesses and in others they may only be able to accept a Return on Investment of 1 year or less.

The intention of the policy is to ensure that there is a direct line of communication between the Leaders of a business, those who operate it and the suppliers to an organisation.

It also provides a mechanisation that enables those who really understand the issues with a discreet opportunity to ensure that company boards are given the information they need to do the right thing by both saving money and helping the environment.

As organisations we will lose our social right to operate if we do not do more for the planet.

The AES Engineering Ltd. Investment policy to “prevent Global Warming” is a business-friendly policy intended to encourage all stakeholders in any organisation to bring sustainability projects that match the stated aim of that organisation’s policy, to the attention of the right people.

Ref:

1. IPCC special report, 2018
2. NASA – Global Climate Change
3. Six degrees – our life on a hotter planet” – Mark Lynas

Document Ref. Technical Annex_RR3

INVESTMENT POLICY TO PREVENT GLOBAL WARMING

Business-friendly policies to help the earth

Even if Members of the Boards of large corporations did not personally believe that global warming was going to occur to the extent that it is being projected, they would usually very sensibly decide to give environmental projects priority for investment, especially if they got an acceptable return on that investment.

The primary objective is to ensure there is a direct line of communication between the Board of Directors, their co-workers and suppliers, which will maximise appropriate investment in environmental projects.

The initiative is intended to persuade the Boards of Directors of companies with more than 250 employees to adopt a policy which will contain some or all of the following:-

1. A statement that environmental projects, with the same return on investment as non-environmental projects, will be given priority.

2. The Board will specify the return on investment criterion and the scale of environmental project should be brought to their attention and will undertake to make a decision inside a specified period.
3. The Board will welcome co-workers or suppliers to directly inform it about projects with an environmental benefit.
4. Ideally a helpline will be provided for co-workers and suppliers to discreetly bring environmental projects that meet the policy criterion to the attention of the Board, but which have been blocked for whatever reason at lower levels of the organisation.

A sample of such a policy exists in Appendix A. It can be accessed on <https://www.aesseal.com/en/resources/industry-guides/policy-prevent-global-warming> and can be amended to meet the need of any organisation. It can be considered as freeware and can be printed onto any company headed paper.

By way of example only, at the time of writing, it might be possible to save the equivalent of the CO₂ emissions (CO₂eq) of approximately 529.5 million cars and in many cases get a return on investment of less than 2 years. The savings can be achieved using existing energy saving technology some of which has been known for and been in use in a very small number of applications, but for more than 30 years. The evaluation of potential car CO₂eq eliminations started in November 2019 and is ongoing. We therefore expect the 529.5 million car equivalent figure to grow. Calculations and the assumptions behind them are available for examination and agreement or denial on a case specific basis, which we would welcome, but it is not the point. The point is that the Board of Directors of companies ought to have an environmental policy which encouraged participation from their own operators and suppliers and to which they gave priority.

A summary is below:

Industry	No of Equivalent Cars by CO₂ Mass
Refineries	18,065,552
Chemical Plants	26,365,599
Pulp and Paper Plants	5,506,582
Mechanical Packing*	135,338,807
Refineries - Steam Turbines	6,727,709
Phosphate Production	593,763
Sugar Refining	32,341,128
Biodiesel	535,276
Ethanol Distillation	3,749,550
Corn Milling Industries	2,273,986
Beer Production	6,316,627
Distilleries	2,627,717
Geothermal Power Plants - Turbines	519,868
Biomass Power Plants	20,213,205
Coal Fired Power Plants Slurries / Non Slurry	23,012,734
Coal Fired Power Plants - Turbines	9,522,295

PEEK Production Plants	1,250,692
Nylon Production Plants	2,738,362
PVC Production Plants	2,918,281
Edible Oils Production Plants	4,863,802
Soft Drink Bottling Plants	13,008,504
Potash Mine	1,120,064
Diamond Mine (Dewatering)	68,220
Gold Mine (Dewatering)	703,420
Iron Mine (Dewatering)	1,109,705
Uranium Mine (Dewatering)	334,276
Silver Mine (Dewatering)	198,342
Copper Mine (Dewatering)	1,963,208
Coal Mine (Dewatering)	6,569,923
Tin Mine (Dewatering)	883,064
Lead Mine (Dewatering)	6,908,810
"Other" Mines (Dewatering)	7,155,664
Offshore Platforms "O&G Separation"	3,297,279
Offshore Platforms Gas Processing	1,013,819
Offshore Water Treatment	1,013,819
Paint Production	2,510,859
Total	353,340,508

Total (Approx)

353 million cars CO2 eq

*Mechanical Packing is used in all industries. In some regions or countries it is almost never used, yet in another region or country in the same industry it is in widespread use.

*81.5 million in Voltage Optimisation

*25 million in Pump Energy Savings

*70 million in Electric Vehicles