

E-NEWSLETTER

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The Nuclear Agreement with Iran looks set to Survive – for Now

Since early May it has been an open question whether the July 2015 nuclear agreement with Iran, known as the Joint Comprehensive Plan of Action, would survive. On 8 May President Trump announced that he was pulling the United States out of the agreement and would penalise any US or non-US firms or banks that did business with Iran.

At first it seemed unlikely that the JCPOA would long survive US withdrawal. Iran's initial reaction was to demand that the other parties to the agreement – France, Germany, the UK, the EU, Russia and China – compensate Iran for the loss of benefits that President Trump's US policy shift implied. Even with the best of wills these parties were unlikely to be able to meet that condition. They were eager to preserve the JCPOA, because they recognised its non-proliferation merits. But the legal, economic and financial tools at their disposal would not suffice to counter the inhibiting impact of US secondary sanctions on any firm or bank that was vulnerable to them.

More recently the balance of probability has shifted. Iran seems to have understood that the JCPOA serves its political and security interests, and is therefore worth preserving even if the other remaining parties are far from being able to deliver a full measure of economic benefits. In New York on 26 September President Rouhani told the press that his "nation and people" would "remain in" the JCPOA.

Iranian compliance with the JCPOA, verified (as it has been till now) by the International Atomic Energy Agency, denies the United States and its Middle East allies a justification for attacking Iran – and denies President Trump victory if his aim in May was to provoke Iran into withdrawal. Compliance pleases Russia and China, to whom Iran has been drawing closer in recent years, and wins their support in the UN Security Council. Compli-

ance enables Iran to present itself to the UN community as a law-abiding member of that community and a victim of US lawlessness.

President Rouhani and his foreign minister played that last card skilfully during the Ministerial Week of the 2018 UN General Assembly. The measured moderation of their rhetoric contrasted with the harsh hyperbole of President Trump's. A meeting with the other remaining parties to the JCPOA led to a joint statement, and this demonstrated the chasm that now separates the United States from Europe on this issue.

The Iranian press greeted this diplomatic success enthusiastically, and with praise for President Rouhani. That can help to quell domestic criticism of the agreement, a potential threat to its survival.

Nonetheless, questions implicit in President Trump's tirades continue to preoccupy European leaders. Should they try to persuade Iran to prolong restrictions on uranium enrichment beyond 2030 (and, if so, at what point in the life of the JCPOA)? Should they attempt to widen the scope of the agreement to cover the development and deployment of nuclear-capable ballistic missiles? Additionally, Iran is still looking to Europe to contrive ways of rescuing some trade and investment from the effect of US sanctions.

So in relation to the agreement's longer term prospects anything more than cautious optimism would be inappropriate.

Peter Jenkins CMG is Chair of British Pugwash and a former UK Ambassador to the International Atomic Energy Agency.

Nuclear Power - Future Prospects

The annual Digest of UK Energy Statistics (DUKES 2018) was published in July. The electricity generation figures show that coal-fired plant continues to be replaced by renewables which now contribute around 18% of total electricity supplied. Nuclear power is similar at about 19% but, whereas wind power is set

to increase in the coming years, half the currently installed nuclear capacity is due to be phased out by end 2024. The new reactor on the Somerset coast, Hinkley Point 'C' (HPC) is reported to be running 15 months late but, even if it were completed on schedule (end 2025), its capacity (3.2 GW) would not be enough to offset the 4.5 GW output of the soon-to-be decommissioned plant. No doubt EdF will try to further extend the lifetime of the existing plant but that will not be simple given the ongoing safety concerns over aging plant.

In the longer run, it seems likely that, as hybrid and electric vehicles are more widely used, the demand for electricity will increase and, if nuclear generation is to continue to be a major player, good progress will be needed in developing the five other sites that have been nominated for new nuclear stations – Wylva, Oldbury, Moorside, Sizewell and Bradwell. One of the reasons for the slow start on HPC was the extended negotiations over the level of state support. Eventually, developers and government agreed on a guaranteed price for the electricity produced by HPC that is double the present going rate. A large part of the reason for this is the high cost of private finance: had the project been government-funded, the financing costs would have been much lower. In any event, this level of subsidy was a gift to those opposing nuclear power. In answering their critics, ministers appear to be clinging to the argument that, as first of a kind ('FOAK' in the jargon) turns to nth of a kind (NOAK), ways will be found of building these plants more efficiently and cheaply. The problem is that, of the five sites, only two share the same design so that the benefits of repetition may be illusory. If or, more likely, when the builders of the other four power plants call for similar subsidies one wonders how the government will respond.

None of this would matter much were it not for the need to reduce greenhouse gas emissions so as to moderate the global warming crisis that surely approaches: we urgently need carbon-free generators of electricity. Renewable sources – primarily wind, tide and photovoltaic – are a large part of the answer but the idea that they could supply all the UK's needs is difficult to accept: there are too many technical challenges on too many fronts. It would require, for example, a large over-capacity to make up for lulls in the wind and, even then, a huge reserve of power would be needed to cover those spells in winter when there is no wind and low light. Nuclear, on the other hand, is proven technology – we know it is feasible – but will the government be prepared to pick up the tab?

Dr Ian Crossland is Treasurer of British Pugwash Group and is an international consultant on nuclear safety issues.

Researchers speak out against EU military research programme

The EU has set up a major military research programme for the first time. The Preparatory Action on Defence Research initiative, part of the European Defence Fund, allocates a total sum of 90 million euros to military research projects up to 2020.

In response, a coalition of science and peace organisations, called 'Researchers for Peace', has created a joint, online statement opposing the move. To date, over 700 scientists and academics, mostly from 19 EU countries, have signed the statement. It includes the lines:

"Investing EU funds in military research will not only divert resources from more peaceful areas, but is also likely to fuel arms races, undermining security in Europe or elsewhere. The EU, recipient of the Nobel Peace Prize in 2012, should instead fund more innovative and courageous research which helps to tackle the root causes of conflict or contributes to the peaceful resolution of conflict."

This comes shortly after a similar initiative in the US, where thousands of Google employees signed a letter protesting the company's involvement in a Pentagon programme that uses artificial intelligence to interpret video imagery. The employees, including a number of senior engineers, are concerned the technology could be used for drone warfare.

It seems that the fine Pugwash tradition of organising among concerned scientists is still strong on both sides of the Atlantic.

Andrew Gibson is the Coordinator of Student/Young Pugwash UK.

Guest piece from Article 36:

Giving machines the authority to kill: UN talks on 'autonomous weapons systems' making slow progress

In August, another round of international discussions took place in Geneva on 'lethal autonomous weapons systems' (or 'killer robots' if we want a more direct term). These discussions revolve around

the form of human control that should be ensured as developments in sensors, algorithms and communications make it possible to embed more decision making in weapon systems.

Already there are weapons that, through pre-programmed 'target profiles', use sensors and algorithms to direct force at objects that match their programming. A central concern is that as technologies develop it will become possible to employ such functions over a wider area and a longer period of time, to the extent that a human employing the system has little understanding of what the actual outcomes will be. This is coupled with a moral revulsion, felt by many, at the idea of a machine 'choosing' who to kill, and wider concerns at the destabilising effect of technologies that make remote killing still more normal.

States meeting under the UN Convention on Conventional Weapons are broadly split between those calling for a legal response to technologies in this area, others arguing that such a response is premature, and a handful expressing scepticism that anything should be done on this issue at all. A small group of dissenting voices aside, almost all states are agreed that there are serious concerns to be addressed, and that protecting a meaningful form of human control is the primary concern.

Although formal progress has been slow, the discussion has been effectively brought to focus on the critical issues. After periods in which diplomats were distracted by science-fiction visions of the future and philosophical debates about the meaning of the term 'autonomy' the subject is now well set for productive discussion. As the UK noted in a working paper for the August meeting, states "should look to establish which functions are 'critical' and must be subject to human control, and which could be delegated to machines operating under other safeguards."

Pugwash, Article 36 and other organisations in the Campaign to Stop Killer Robots want to see the UK take leadership, internationally, towards a legal instrument that will require meaningful human control in the use of force. Whilst France and Germany have been actively consulting on the text of a 'political declaration' that they think could provide

a policy response on this issue, the UK is preferring to wait and see what others come up with.

Yet elsewhere the UK has sought to position itself as an international leader towards 'ethical artificial intelligence (AI)' – establishing governmental offices to further that aim, based on a recognition that new technologies will ask profound questions about the society we want to live in and the way we live, as people, in an ongoing relationship with technology.

The need to establish limits on the authority that we give machines over questions of human harm is pressing. It is a significant issue for our social future. The UK should be pushing the international community towards a solution, not passively waiting on others to fix the problem for them.

Richard Moyes is Managing Director of Article 36, an NGO working to prevent the unintended, unnecessary or unacceptable harm caused by certain weapons.

Future events

23 October, 6pm

Dr Rebecca Johnson (ICAN) and Prof. John Finney (Pugwash) will speak at University of Warwick on: 'How to win a Nobel Peace Prize'.

For info, contact syp@britishpugwash.org

29 October

Dr Richard Guthrie (Pugwash) will speak at SOAS on 'Salisbury: Beyond the Headlines'

For info, contact office@britishpugwash.org

21 November

Sir Rodric Braithwaite (British Ambassador to Moscow, 88-92) will speak on lessons to be learned from the Cold War nuclear confrontation.

For info, contact office@britishpugwash.org

6 - 13 January

57th ISODARCO Course on 'The past and future of arms control, nuclear non-proliferation and disarmament' in Andalo (Trento), Italy

For info, visit <http://www.isodarco.com/>

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