Proposed Number of reactors reactors in operation Germany Canada Sweden See below for definitions* China Has announced Government continues to back construction of Russia spension of approvals **Reactors under** reactors but has ordered 32 for new projects in construction a safety review and world's largest reactor **110** warned that private sector construction programme. Canada 2 Demand for energy is investors could be reluctant to finance new growing fast, and a China slowdown in new nuclear plants 5 India is likely to mean more France 1 use of coal and gas Japan 2 5 S Korea France I France With strong public S Korea us 1 Ukraine Russia support for nuclear power, President Nicolas Others 8 Sarkozy had placed India expertise in the sector at Disaster has underlined shortage of centre of export revival **Planned reactors** Mexico domestic energy sources. Before programme. Even there, Japan quake, nuclear power provided 30 however, events in Japan Canada 3 per cent of electricity supplies, and have sparked debate there had been plans to raise that to Russia 50 per cent by 2030 Administration and 20 India China leading Republicans still UK support new nuclear With existing power supplies leaving construction. However, France 1 hundreds of thousands without economics of many Brazil Pakistan electricity, New Delhi has long been proposed projects India enthusiastic about new nuclear appeared vulnerable even plants. However, it has ordered a before quake, and safety S Africa review of safety amid mounting Japan fears have dominated concern about risks media in recent days Russia Argentina UK Others 9 Others in Europe include US Czech Rep Switzerland Finland Slovakia Belgium Hungary 71 4 Others * Operating Connected to the grid **Under construction** First concrete poured or major refurbishment under way Slovenia Bulgaria Romania Armenia Netherlands Planned Approvals, funding or major commitment in place; most expected to be in operation in 2 **Proposed** Specific programme or site proposals; most expected to be in operation within 15 years **Existing nuclear power stations Reactor manufacturers** Global power mix By capacity (MW) Sales (\$bn) Electricity generation, 2008 (%) 202 4,233 10,242 31,987 6,537 15,339 2,820 2,841 Oil **2.9** Other Areva Westinghouse General Electric Mitsubishi Heavy Industries (energy division) Nuclear (power division) 2009 2010 Coal 40.7 37.5 n.a. Number by year of commission Gas US/Japan US France Japan Hydroelectric **Reactors** The generation gap **Third generation** In this example, a pressurised water reactor such as Westinghouse AP1000 **Second generation** In this example, a boiling water reactor as at Fukushima Daiichi Most reactors that came into service in the 1960s-90s are Cooling water Steam generators second generation. A few Low-pressure High-pressure Low-pressure Main advantages generation three reactors are in High-pressure turbines turbines • Water pumped through reactor core to create Cooling water held in service in Japan. More are Steam steam to power turbines. This potentially allows self-contained loop, under construction there, and contamination to spread in an accident preventing contamination Electricity others in China, France and Active safety features can fail in accident of other parts of system to grid Passive safety features **Finland** Fuel assembly continue to work despite Electricity loss of power Cooling Dry well contamination water Condenser collection. Wet well for Containment contamination shell (steel) quenching Sources: IEA; IAEA; WNA

The atomic atlas