



HERBERT  
SMITH  
FREEHILLS

# MARKET RISKS IN A NUCLEAR NEW BUILD PROGRAMME

NUCLEAR INDUSTRY CONGRESS, AFRICA 2014

25 FEBRUARY 2014

**Sarah Pollock**, Senior Associate, +44 20 7466 2786 [sarah.pollock@hsf.com](mailto:sarah.pollock@hsf.com)





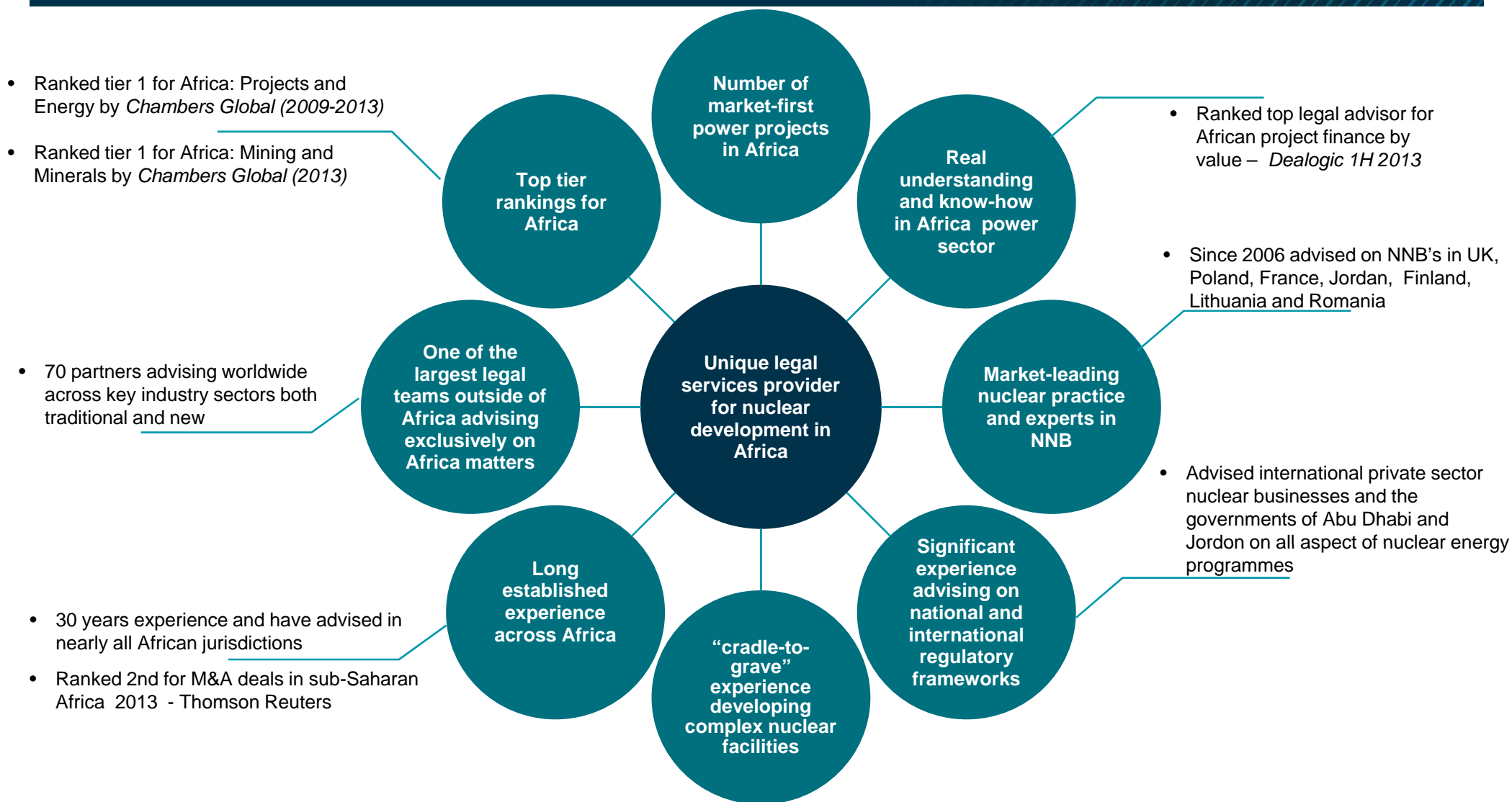
HERBERT  
SMITH  
FREEHILLS

# HERBERT SMITH FREEHILLS

## OUR PRACTICE



# HERBERT SMITH FREEHILLS – NUCLEAR IN AFRICA



# NUCLEAR EXPERIENCE

**NNB** (a subsidiary of EDF) on all aspects of its nuclear new build programme in the UK, including consenting, state aid issues, major construction and equipment supply contracts

**The Jordan Atomic Energy Commission (JAEC)** in relation to the development of the Jordanian nuclear power plant project by Rosatom

**Visagino Atomine Elektrine** on its plans to finance, construct, operate and decommission a new nuclear plant in Lithuania in joint venture with Estonian and Latvian utilities and a strategic investor (Hitachi, Ltd.)

**a major Japanese contractor** on its tender for the construction of the fourth nuclear unit at Olkiluoto, Finland

**EDF** on its proposed joint venture with PGE in Poland to develop a fleet of nuclear power stations

**Societatea Nationala Nuclearelectrica S.A.** in relation to its programme to finance, construct and operate units 3 and 4 at the Cernavoda plant in Romania

**EDF** on the joint venture arrangements (with GDF Suez, Total, and other energy companies), for the development and operation of France's second European Pressurised Reactor (EPR) nuclear power station at Penly in Normandy

**the Regulation and Supervision Bureau of Abu Dhabi** on the terms of the generation licence to be issued in connection with the ENEC nuclear programme and other related regulatory issues

# POWER EXPERIENCE IN AFRICA

## **Rio Tinto -**

Simandou integrated project in Guinea for the exploration, mining and processing of iron ore and the construction of the related infrastructure – including power facilities

## **CfC Stanbic Bank and Standard Bank -**

project financing of the 38 GE 1.6MW greenfield Kinangop Wind Farm Project in Kenya. This is the first project financing wind project to close in Eastern Africa

## **2CPCS Transcom and the Nigerian Bureau of Public Enterprises -**

privatisation, through share sales or granting of concession, of 17 of the electricity industry assets and companies which are successors to the Power Holding Company of Nigeria

## **Mitsubishi Heavy**

**Industries -** merger of the thermal power plant units of MHI and Hitachi, including significant assets in South Africa

## **Government of Sierra Leone –**

on the development of the country's first independent power project

## **CfC Stanbic Bank -**

as lead lender in relation to the project financing of the REFAD-Rwanda hydropower project in Kenya

**the lenders -** project financing of the \$200 million KISCOL Sugar Complex in Kenya, comprising a nucleus sugarcane plantation, sugar mill and a cogeneration power plant

## **Compagnie Thermique du Sud Limitée and the Central Electricity Board of Mauritius -**

on all aspects of the development and financing of a coal-fired independent power project in Mauritius

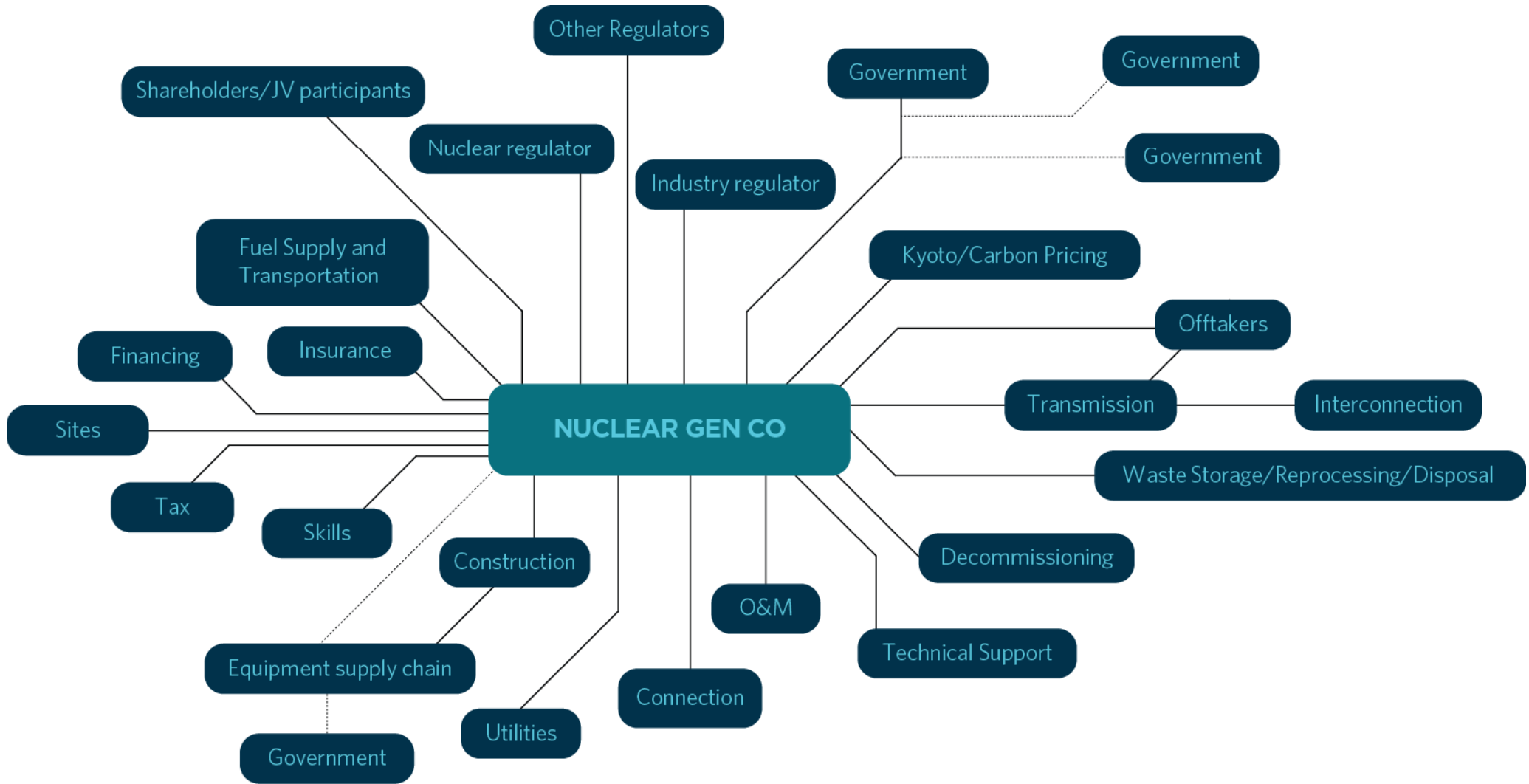


HERBERT  
SMITH  
FREEHILLS

# STRUCTURE OF A NUCLEAR NEW BUILD PROJECT



# THE REGULATORY AND CONTRACTUAL FRAMEWORK



# FINANCING A NUCLEAR PROJECT







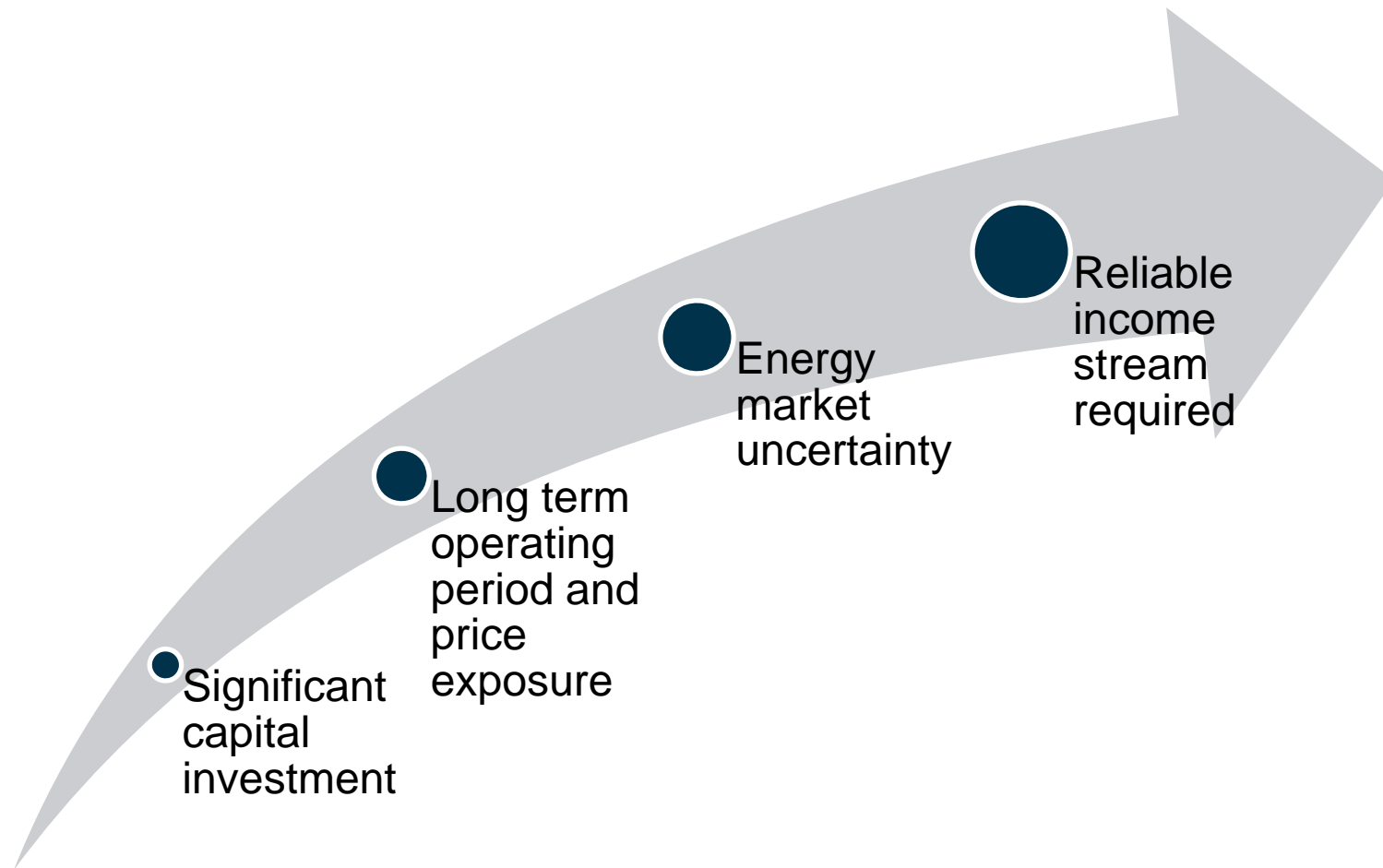
HERBERT  
SMITH  
FREEHILLS

# LONG TERM INCOME CERTAINTY



# INCOME STREAM

---





HERBERT  
SMITH  
FREEHILLS

# REGULATORY FRAMEWORK AND POLITICAL RISK



# NUCLEAR REGULATORY FRAMEWORK

---

## New

- No track record of nuclear development in many jurisdictions
- Regulatory infrastructure being developed

## Challenge

- Regulatory infrastructure and requirements critical to credibility and viability
- International and domestic acceptability
- Project price and delivery dependent on clear regulation

## Support

- IAEA missions
- International regulators' third party review
- Regional co-operation?

# POLITICAL RISK

---

- Nuclear is still very politically sensitive
- Investors and lenders require comfort in relation to political change
- Safety remains paramount
- Protection:
  - PPAs
  - Intergovernmental Agreements
  - Insurance?



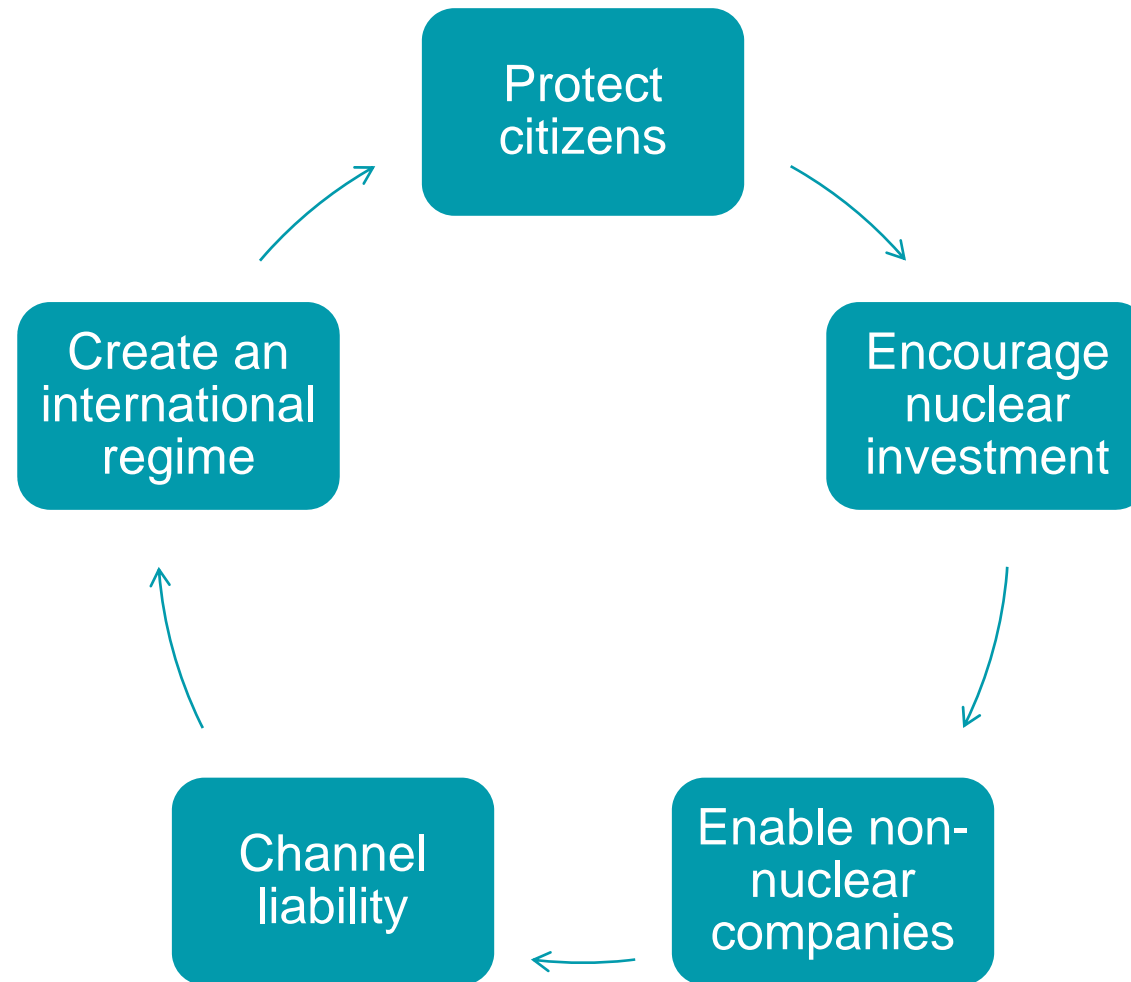
HERBERT  
SMITH  
FREEHILLS

# THIRD PARTY NUCLEAR LIABILITY REGIMES

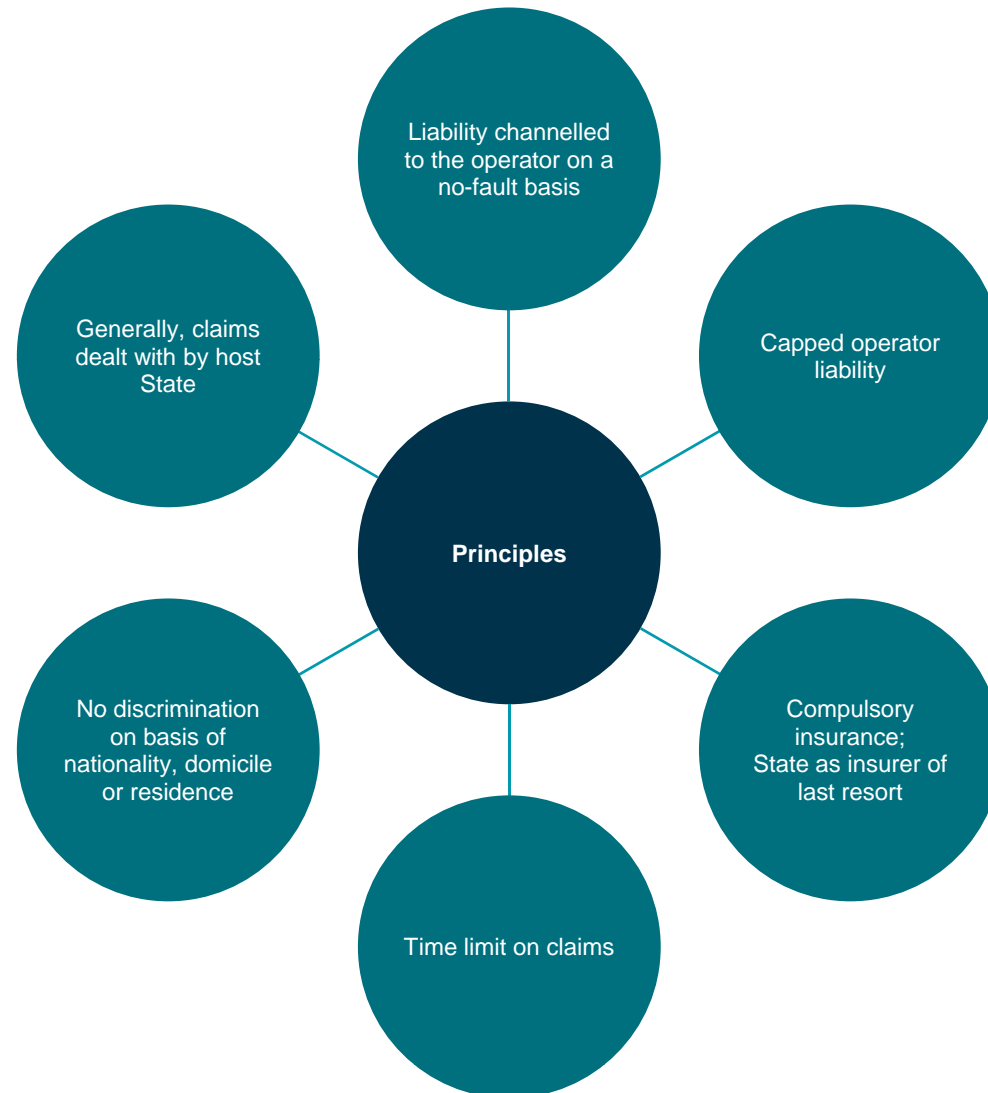


# NEED FOR THIRD PARTY NUCLEAR LIABILITY REGIME

---



# PRINCIPLES OF NUCLEAR LIABILITY REGIMES





# NUCLEAR LIABILITY – THE INTERNATIONAL TREATIES

---

## Vienna

- Vienna Convention (1963)
- Vienna Protocol (1997)

## Paris and Brussels

- Paris Convention (1982)
- Brussels Supplementary Convention (1982)

## Other

- Joint Protocol (1988)
- Convention on Supplementary Compensation for Nuclear Damage (1997) (not yet in force)

# AFRICAN SIGNATORIES TO NUCLEAR LIABILITY TREATIES

Vienna Convention

Vienna Convention

Joint Protocol relating to the Application of the Vienna Convention and Paris Convention

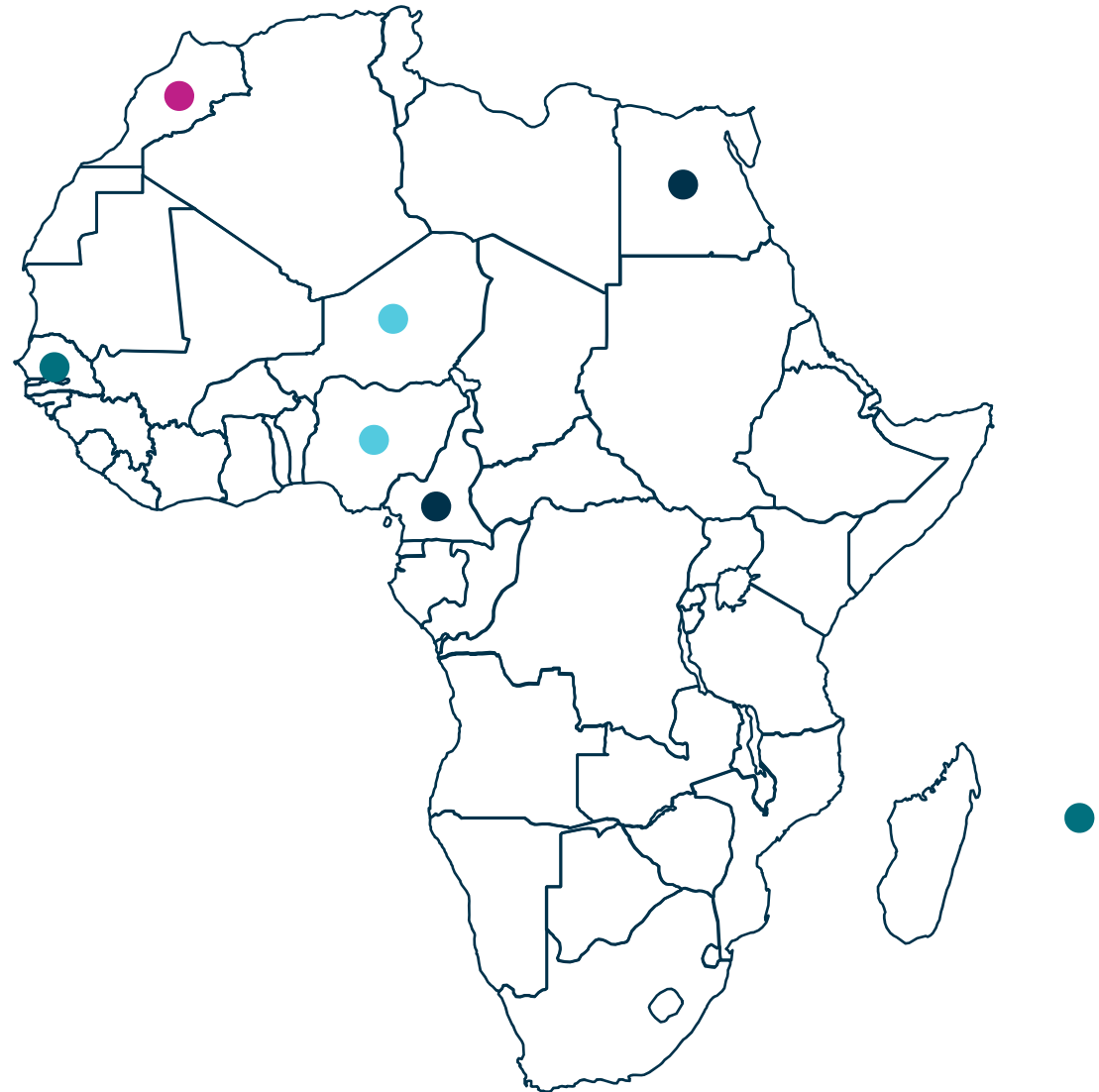
Vienna Convention

Convention on Supplementary Compensation for Nuclear Damage

Vienna Convention

Joint Protocol relating to the Application of the Vienna Convention and Paris Convention

Convention on Supplementary Compensation for Nuclear Damage





HERBERT  
SMITH  
FREEHILLS

# BACK END LIABILITIES



# BACK END LIABILITIES

---

- Host state strategy:
  - Polluter pays – ie funded by operator through element of tariff
  - Tax payer pays – ie liabilities met by host State
- Impact on project economics and shareholders' liability
- Final solution – ultimately host state takes long term risk



HERBERT  
SMITH  
FREEHILLS

# CONCLUSIONS



# CONCLUSIONS

---

- Nuclear development is a public-private enterprise
- Clear risk allocation between State and operator is required
- Regulatory framework – including nuclear liability and back end cost arrangements – key to ensuring investors and market can manage the risks in nuclear
- Debt finance for nuclear is possible – but pure project financing unlikely



HERBERT  
SMITH  
FREEHILLS



## SARAH POLLOCK

**Sarah Pollock**, Senior associate, +44 20 7466 2786, [sarah.pollock@hsf.com](mailto:sarah.pollock@hsf.com)

Sarah focuses on advising private and public sector clients on large and complex projects, particularly in the power sector. Sarah was on secondment to EDF in 2007/2008 where she assisted with all aspects of their new nuclear project. Since 2009, Sarah has advised a client in relation to a number of new nuclear projects, including in the UK, Lithuania, Abu Dhabi and Jordan. More recently, Sarah was seconded to our Doha, Qatar office advising on nuclear, petrochemical and LNG projects in the region.



- Herbert Smith Freehills office
- Associated office
- Group

Legal services are provided in Indonesia, in Jakarta, through Herbert Smith Freehills LLP's ("HSF") association with Hiovara Benjamin & Tandjung ("HBT"). HSF and HBT are two independent firms which have a formal association in Indonesia.



**ABU DHABI**

Herbert Smith Freehills LLP  
T +971 2 813 5000  
F +971 2 813 5100

**BANGKOK**

Herbert Smith Freehills (Thailand) Ltd  
T +66 2657 3888  
F +66 2636 0657

**BEIJING**

Herbert Smith Freehills LLP Beijing  
Representative Office (UK)  
T +86 10 6535 5000  
F +86 10 6535 5055

**BELFAST**

Herbert Smith Freehills LLP  
T +44 28 9025 8200  
F +44 28 9025 8201

**BERLIN**

Herbert Smith Freehills Germany LLP  
T +49 30 2215 10400  
F +49 30 2215 10499

**BRISBANE**

Herbert Smith Freehills  
T +61 7 3258 6666  
F +61 7 3258 6444

**BRUSSELS**

Herbert Smith Freehills LLP  
T +32 2 511 7450  
F +32 2 511 7772

**DOHA**

Herbert Smith Freehills Middle East LLP  
T +974 4429 4000  
F +974 4429 4001

**DUBAI**

Herbert Smith Freehills LLP  
T +971 4 428 6300  
F +971 4 365 3171

**FRANKFURT**

Herbert Smith Freehills Germany LLP  
T +49 69 2222 82400  
F +49 69 2222 82499

**HONG KONG**

Herbert Smith Freehills  
T +852 2845 6639  
F +852 2845 9099

**JAKARTA**

Hiswara Bunjamin and Tandjung  
Herbert Smith Freehills LLP associated firm  
T +62 21 574 4010  
F +62 21 574 4670

**LONDON**

Herbert Smith Freehills LLP  
T +44 20 7374 8000  
F +44 20 7374 0888

**MADRID**

Herbert Smith Freehills Spain LLP  
T +34 91 423 4000  
F +34 91 423 4001

**MELBOURNE**

Herbert Smith Freehills  
T +61 3 9288 1234  
F +61 3 9288 1567

**MOSCOW**

Herbert Smith Freehills CIS LLP  
T +7 495 363 6500  
F +7 495 363 6501

**NEW YORK**

Herbert Smith Freehills New York LLP  
T +1 917 542 7600  
F +1 917 542 7601

**PARIS**

Herbert Smith Freehills Paris LLP  
T +33 1 53 57 70 70  
F +33 1 53 57 70 80

**PERTH**

Herbert Smith Freehills  
T +61 8 9211 7777  
F +61 8 9211 7878

**SEOUL**

Herbert Smith Freehills LLP  
Foreign Legal Consultant Office  
T +82 2 6321 5600  
F +82 2 6321 5601

**SHANGHAI**

Herbert Smith Freehills LLP Shanghai  
Representative Office (UK)  
T +86 21 2322 2000  
F +86 21 2322 2322

**SINGAPORE**

Herbert Smith Freehills LLP  
T +65 6868 8000  
F +65 6868 8001

**SYDNEY**

Herbert Smith Freehills  
T +61 2 9225 5000  
F +61 2 9322 4000

**TOKYO**

Herbert Smith Freehills  
T +81 3 5412 5412  
F +81 3 5412 5413