

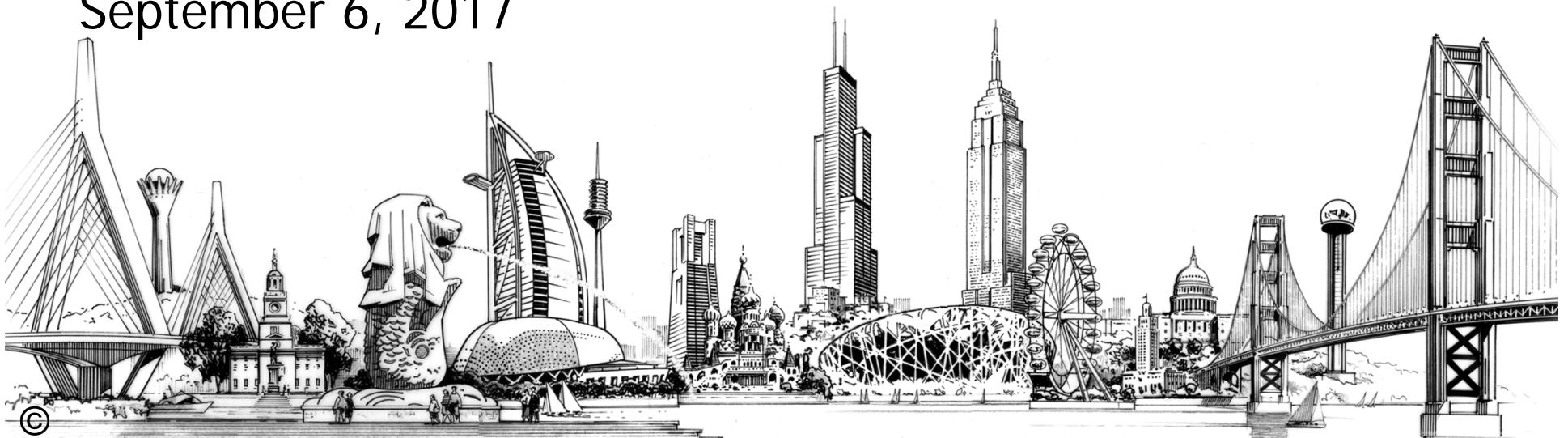
**Morgan Lewis**

# **OVERVIEW OF DOE AND DOC NUCLEAR EXPORT CONTROLS**

## **NUCLEAR SUPPLIERS WORKSHOP**

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# Agenda

- I. Why do you care?**
- II. Overview/Purpose of U.S. Nuclear Export Controls**
- III. Key Concepts/Terminology**
- IV. Department of Energy (DOE) – 10 CFR Part 810**
- V. Department of Commerce (DOC) – Export Administration Regulations (EAR)**

# Why do you care?

- **The nuclear industry is an international marketplace**
- **Non-public, commercial nuclear technology is controlled for export**
  - **DOE Examples - Civilian Commercial Nuclear Power Plant technology, other nuclear fuel cycle technologies**
  - **DOC Examples - Diesel generator, hydrogen detector, radiation detector, nuclear waste handling, and switch yard technology**
- **Deemed exports**
- **The Government can impose civil and criminal penalties for non-compliance with export control laws**

# Other Areas Relating to Nuclear Export Controls

- Export of nuclear materials and some nuclear equipment covered by Nuclear Regulatory Commission (NRC) regulations
- U.S. import laws
- U.S. Military/arms exports
- Import/Export laws of other countries
- Other U.S. domestic categories of protected information such as “Applied Technology” and Classified Information
- U.S. trade laws not specific to nuclear facilities and technology

**\*\*\*\*Not covered in this presentation**

# Export Jurisdiction

- DOE's National Nuclear Security Administration (NNSA)
  - "assistance to foreign atomic energy activities" (10 CFR Part 810)
- DOC's Bureau of Industry & Security (BIS)
  - Export Administration Regulations (EAR) (15 CFR Subchapter C)
- NRC's Office of International Programs
  - export regulations (10 CFR Part 110) (\*\*not part of this training)
- Department of State
  - International Traffic in Arms Regulation (ITAR) 22 CFR Parts 120 et seq. (\*\*not part of this training).

# Purpose of Nuclear Export Controls

- Control exports of certain commodities, software, and technology for various reasons:
  - Nuclear Non-Proliferation
  - National Security/Anti-Terrorism
  - Foreign Policy/Regional Stability

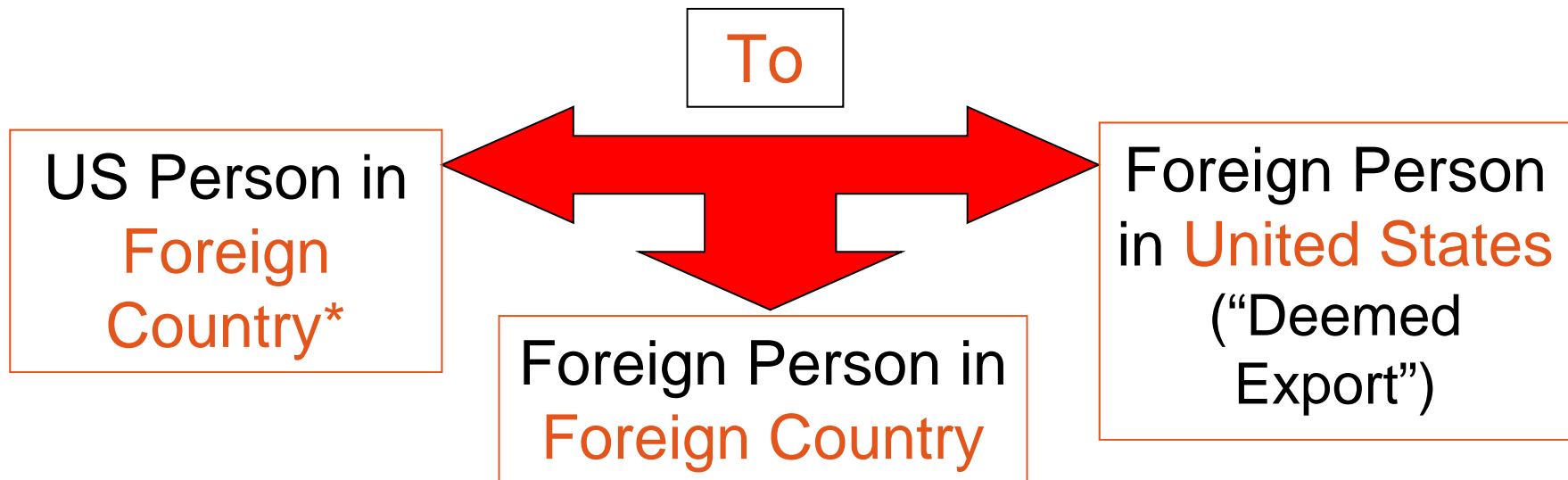
# Purpose of Nuclear Export Controls

- Controls:
  - Licenses/authorizations sometimes required
  - Prohibitions on exports to certain end users/uses
  - Reporting requirements
- Exporting is a “privilege”
  - Can be taken away (civil and criminal penalties)
  - Strict liability for noncompliance



# Different Kinds of “Exports”

Commodities  
Software/Technology in the U.S.





# Example

You are shipping a pump from your factory in Tennessee to the United Kingdom for use in a nuclear fuel fabrication facility.

Should you consider nuclear export control requirements?

# What is a Traditional Export?

- Physical item shipped from the U.S. to a foreign country



- Technology sent to a foreign country (for example, email)



# Example

You are looking for help to get through a major project. A nuclear engineering PhD student from MIT asks to be a summer intern for no pay. Her resume is great and you want to hire her. She has an F-1 student visa and is from Canada.

Should you consider nuclear export control requirements?

# What Is a Deemed Export?

- Technology shared with a foreign national inside the U.S., or technology access given to a foreign national inside the U.S.
- A Deemed Export can occur by:
  - hand delivery
  - visual observation
  - conversations
  - providing training or services
  - IT system access



# Who is a “Foreign National”?

- ✓ Not a U.S. Citizen or U.S. National
- ✓ Not a U.S. Lawful Permanent Resident (does not hold a “Green Card”)
- ✓ Not someone who is a protected individual under the Immigration and Naturalization Act (8 U.S.C. 1324b(a)(3)) (generally, asylum or refugee status)

## For example:

- Foreign subsidiary of a U.S. company
- Foreign citizen working for a U.S. company
- Foreign citizen executives of a foreign company visiting the U.S.



# Examples

**You want to partner with a foreign company to manufacture components for U.S. nuclear fuel cycle facilities. To do so, you will need to share specifications for your customers' facilities with the foreign company. Should you consider nuclear export control requirements if the foreign company is sending the manufactured component to you in the U.S.?**

**Your U.S. company provides outside technical consultants to the U.S. nuclear power industry. As part of your work, you routinely receive proprietary drawings and schematics from your customers. You store these on your IT systems, which are backed up to the "cloud." Should you consider nuclear export control requirements?**

# Definition of Technology - 10 CFR 810.3

- *Technology* means assistance or technical data required for the development, production or use of any plant, facility, or especially designed or prepared equipment for [certain nuclear fuel cycle] activities [described in a later slide].
- *Technical data* means data in such forms as blueprints, plans, diagrams, models, formulae, engineering designs, specifications, manuals, and instructions written or recorded on other media or devices such as disks, tapes, read-only memories, and computational methodologies, algorithms, and computer codes that can directly or indirectly affect the production of special nuclear material.

\*\*Similar definitions in EAR (15 CFR 772.1), but not limited to nuclear facilities.

– Bottom line:

Any time non-public technical information is shared, or access or assistance is provided, nuclear export controls could be implicated

# Examples of What Is Not Covered Technology:

- Transfers between U.S. persons
  - Transfer to a citizen of both the U.S. and a foreign country (dual national)
- Publicly available (but beware of enhancements)
- Arises during, or results from “Fundamental research” (i.e., Non-Restricted)
- Generally-available marketing information on the purpose and/or function of an item
- Staffing levels/Human Resources information
- Company financial information
- Vendor pricing information



# Example

**Your company has an “open-office” policy with an open floor plan, limited offices, and no dedicated work spaces to encourage collaboration. You hire many of your engineers on H1-B visas, and leverage the expertise of foreign contractors for some of the work. From time to time, employees of the foreign contractors visit the office.**

**A small portion of your work relates to civilian commercial nuclear power plants, but your work also relates to work at gas-fired power plants.**

**Should you consider nuclear export control requirements?**



# **U.S. Department of Energy**

## **10 CFR Part 810**

# DOE's Export Jurisdiction - Overview

- Statutory basis – very, very broad:
  - Section 57b(2) Atomic Energy Act of 1954 (42 U.S.C. 2077(b)(2))

“It shall be unlawful for any person to directly or indirectly engage or participate in the development or production of any special nuclear material outside of the United States except . . . (2) upon authorization by the Secretary of Energy after a determination that such activity will not be inimical to the interest of the United States.”
  - “Special Nuclear Material” (SNM) examples: Enriched uranium, Plutonium
  - DOE's implementing regulations – 10 CFR Part 810: “Assistance to Foreign Atomic Energy Activities.”
    - Updated most-recently in March 2015

# Part 810 Scope

- Transfer of technology related to any activity listed in Section 810.2(b)
  - Chemical conversion and purification (U, Pu, Np)
  - Nuclear fuel fabrication
  - Isotope separation (U or Pu or can be applied to U or Pu)
  - Nuclear reactor development, production or use of the components within or attached directly to the reactor vessel, the equipment that controls the level of power in the core, and the equipment or components that normally contain or come in direct contact with or control the primary coolant of the reactor core
  - Accelerator-driven subcritical assembly systems
  - Some heavy water production and hydrogen isotope separation
  - Some reprocessing activities
  - The transfer of technology for the development, production, or use of equipment or material especially designed or prepared for any of the above listed activities.

# Part 810 Scope

- Common Question: Why does Part 810 apply to nuclear power plant, which use/consume SNM?
- Very broad interpretation of assistance to a foreign atomic program in the production of SNM
  - Nuclear power plants “produce” some plutonium ( $U^{238}$  to  $Pu^{239}$ ) in the fission process
  - Plutonium is SNM
  - Power plants can be optimized to produce SNM

# General and Specific Authorizations

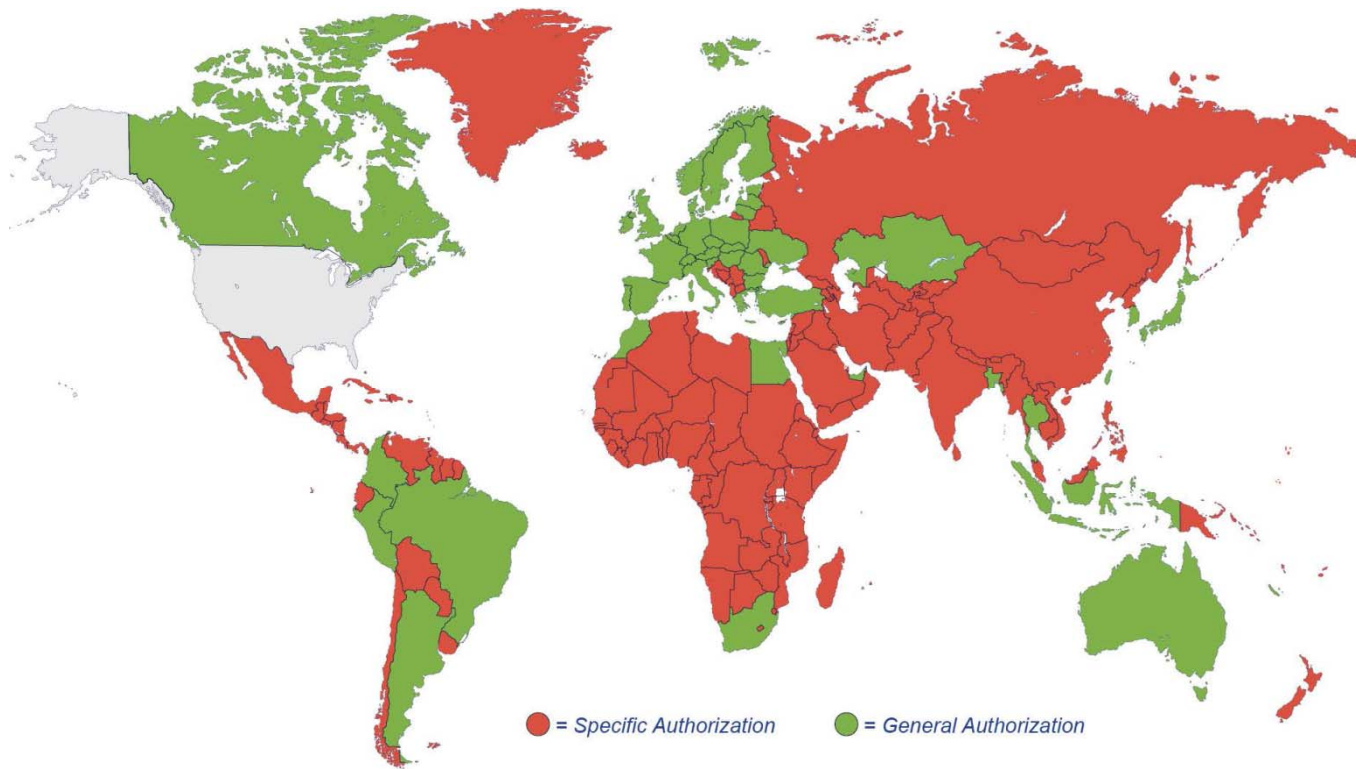
Section 57b: “except...upon authorization by the Secretary of Energy” – non-delegable

- Two types of Authorizations
  - General Authorization (Pre-approved by the Secretary of Energy)
    - Issued by regulation
    - After-the-fact reporting
  - Specific Authorization
    - Akin to a license
    - Reporting specified in the authorization
    - Has conditions and an expiration date
- Some hybrid exceptions



# General and Specific Authorizations

- Bifurcation of the World for commercial nuclear power plant technology
  - Pre-approved – “Generally authorized”
  - All others require a Specific Authorization



# Generally Authorized Countries (Appendix A to 10 CFR Part 810) (as of Aug. 2017)

Argentina  
Australia  
Austria  
Belgium  
Brazil  
Bulgaria  
Canada  
**Chile\***  
Colombia  
Croatia  
Cyprus  
Czech Republic  
Denmark  
Egypt  
Estonia  
Finland  
France  
Germany  
Greece  
Hungary  
Indonesia  
International Atomic Energy  
Agency  
Ireland  
Italy

Japan  
Kazakhstan  
Korea, Republic of  
Latvia  
Lithuania  
Luxembourg  
Malta  
**Mexico\*\***  
Morocco  
Netherlands  
Norway  
Poland  
Portugal  
Romania  
Slovakia  
Slovenia  
South Africa  
Spain  
Sweden  
Switzerland  
Taiwan  
Turkey  
**Ukraine\*\*\***  
United Arab Emirates  
United Kingdom  
Vietnam

\*For all activities related to INFCIRC/834 only.

\*\*For all activities related to INFCIRC/203 Parts 1 and 2 and INFCIRC/825 only.

\*\*\*Refer to § 810.14 for specific information and requirements.



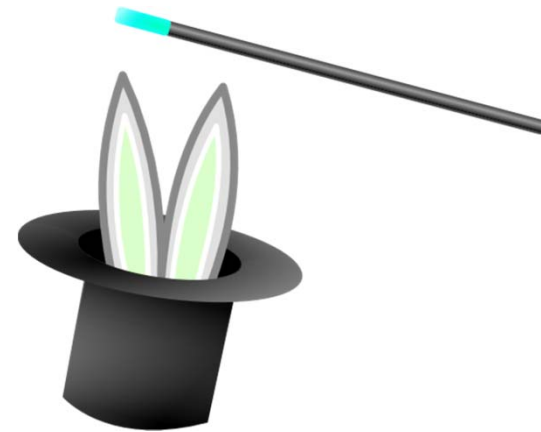
# General and Specific Authorizations

- Some technologies are Specifically Authorized for all countries (*e.g.*, “sensitive nuclear technology”)
  - Uranium isotope separation
  - Fuel fabrication containing plutonium
  - Heavy water production
  - Hydrogen isotope separation
  - Production accelerator-driven subcritical assembly systems
  - Production or “breeder” reactors
  - Reprocessing of nuclear fuels or targets containing SNM (other than Moly-99)



# General and Specific Authorizations

- “Magic” – Unescorted Access Exception – Convert Specifically Authorized to Generally Authorized
  - Working at an NRC-licensed facility
  - Employed by or contracted to work for a U.S. employer
  - NRC unescorted access
  - Confidentiality Agreement
  - Separate reporting



# AEA 57(b)/Part 810 Enforcement

- Criminal Penalties
  - Willful violation, conspiracy, etc.
  - Preemptive penalties – injunction & restraining orders
  - Fines & jail time
    - Up to \$10,000 per violation and/or 10 years in jail
    - Up to \$20,000 and/or life imprisonment – if intent to injure the U.S.
- Civil Penalties
  - No intent to violate the law needed – strict liability
  - Fines and debarment



# U.S. Department of Commerce Export Administration Regulations (EAR)

# Authority & Terminology

## ➤ Statutory authority:

- Export Administration Act of 1979, as amended, 50 U.S.C. app. 2401-2420
- International Emergency Economic Powers Act with respect to the EAR (50 U.S.C. 1701-1706)

## ➤ Regulatory authority

- Export Administration Regulations (EAR) – 15 CFR, chapter VII, subchapter C

## ➤ Much of the terminology is very similar to DOE

- Applies to U.S. persons who export Items to foreign nationals wherever they are located
- Definitions are in Section 772.1

# EAR Scope

- Generally, items not under the export jurisdiction of the NRC and DOE
  - Example relevant to Civilian Commercial Nuclear Power Plants: “Balance of Plant”
  - “Commerce Control List”
    - 15 CFR Part 774, Supplement No. 1
    - Inclusive List of Export Control Classification Numbers (ECCNs) – unlike DOE
- \*\* U.S. manufacturers should know the ECCN for their products

# DOC Penalties for Violations

- Criminal
  - Fines
  - Seizure and forfeiture
- Administrative
  - Civil monetary penalty
  - Denial of export privileges
  - Exclusion from practice

# Example - ECCN 2A290

**ECCN 2A290 - Generators and other equipment “specially designed”, prepared, or intended for use with nuclear plants.**

Items:

- a. Generators, turbine-generator sets, steam turbines, heat exchangers, and heat exchanger type condensers designed or intended for use in a nuclear reactor;
- b. Process control systems intended for use with the equipment controlled by 2A290.a.

Related Controls: (1) See ECCN 2D290 for software for items controlled under this entry. (2) See ECCNs 2E001 (“development”), 2E002 (“production”), and 2E290 (“use”) for technology for items controlled under this entry. (3) Also see ECCN 2A291. (4) Certain nuclear equipment “specially designed” or prepared for use in nuclear plants is subject to the export licensing authority of the Nuclear Regulatory Commission (see 10 CFR part 110).



# ECCN 2A290

**ECCN 2A290 - Generators and other equipment “specially designed”, prepared, or intended for use with nuclear plants.**

*Reason for Control: NP, AT*

Control(s)	Country Chart (See Supp. No. 1 to part 738)
NP applies to entire entry	NP Column 2
AT applies to entire entry	AT Column 1

# DOC Export Controls

Countries	Chemical and biological weapons			Nuclear nonproliferation		National security		Missile tech	Regional stability		Firearms convention	Crime control			Anti-terrorism	
	CB 1	CB 2	CB 3	NP 1	NP 2	NS 1	NS 2	MT 1	RS 1	RS 2	FC 1	CC 1	CC 2	CC 3	AT 1	AT 2
Honduras	X	X		X		X	X	X	X	X	X			X		
Hong Kong	X	X		X		X	X	X	X	X		X		X		
Hungary <sup>3</sup>	X					X		X	X							
Iceland <sup>3</sup>	X					X		X	X							
India <sup>7</sup>	X	X		X		X	X	X	X							
Indonesia	X	X		X		X	X	X	X	X		X		X		
Iran <sup>1</sup>	See part 746 of the EAR to determine whether a license is required in order to export or reexport to this destination.															
Iraq <sup>1</sup>	X	X	X	X	X	X	X	X	X	X		X	X			
Ireland <sup>34</sup>	X					X		X	X			X		X		
Israel	X	X	X	X	X	X	X	X	X	X		X		X		
Italy <sup>3</sup>	X					X		X	X							

# Other requirements

- This training does not cover all the other restrictions and procedures identified in the EAR. These include, for example:
  - End user checks
  - Red flags
  - Anti-boycott provisions
  - Clearing U.S. Customs
  - Electronic Export Information (EEI) filing requirements (Exporters or agents authorized to file EEI to the Automated Export System (AES))
  - Reexports
  - Foreign-made items incorporating controlled U.S.-origin items and the *de minimis* rules

# Questions?





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Europe  
Latin America  
Middle East  
North America

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Astana	Dallas	London	Paris	Silicon Valley
Beijing*	Dubai	Los Angeles	Philadelphia	Singapore
Boston	Frankfurt	Miami	Pittsburgh	Tokyo
Brussels	Hartford	Moscow	Princeton	Washington, DC
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