Successfully moving technologies from the lab into beneficial applications and outcomes requires behind-the-scenes evaluation, coordination, and communication among multiple stakeholders inside and outside Berkeley Lab.

1. DISCLOSING NEW TECHNOLOGIES
   - To maintain all intellectual property (IP) rights, researchers disclose technology and software before making it public.
   - Researchers use IPO's secure, online Innovation Portal to disclose new technology and software.

2. ASSESSING AND PROTECTING IP
   - New technology without significant commercial markets can still be transferred to society through publications, presentations, and open source software.
   - Technology Commercialization Associates (TCAs) aligns IP protection investment and efforts with Berkeley Lab’s science area’s goals and research strengths.

3. IDENTIFYING MARKETS
   - By developing IP portfolios, TCAs can demonstrate multiple technologies across many research areas to companies with broad interests.
   - TCAs match their IP portfolios to relevant industry partners by using software tools such as Quid and engaging in targeted networking events.

4. NURTURING PARTNERSHIPS
   - IP Management Plans (IPMPs) and Interinstitutional Agreements (IIAs) are required before multi-party inventions and collaborations move forward.
   - IPO supports lab-to-market training and expert speaker events for Berkeley Lab researchers interested in pursuing startups.
   - Available technologies are promoted on IPO’s website, DOE’s Lab Partnering Service, and at national conferences.

5. NEGOTIATING AGREEMENTS
   - Licenses, User Agreements, CRADAs, and SPPs are the mechanisms that connect industry and other research partners with Berkeley Lab’s unique inventions, software, expertise, and state-of-the-art facilities, to advance innovation.

6. ADVANCING TECHNOLOGY
   - Innovation reaches society and the marketplace through publications, open source software distribution, and technology maturation research in addition to licensed inventions and startups.
   - Royalties generated by licensed Berkeley Lab inventions and software are invested into new Berkeley Lab discoveries.

FROM LAB TO MARKET
THE INNOVATION CYCLE

- Research, Invention/Software Disclosure, Publication, Presentation
- Commercial, Assessment, Patent/Copyright Decision
- Market Research, Portfolio Alignment
- Researcher Startup Support, Industry Outreach, IPMPs, IIAs
- NDAs, MTAs, Licenses, CRADAs, SPPs, User Agreements
- Commercialization, Public Access, Royalties
Lawrence Berkeley National Laboratory researchers who believe they have invented something unique disclose their inventions to the Lab’s Intellectual Property Office (IPO). Computer software intended to be distributed outside the lab is also disclosed to IPO.

**FY18 Invention Disclosures by Research Area**

- **Biosciences**: 19
- **Computing Sciences**: 4
- **Earth and Environmental Sciences**: 3
- **Energy Sciences**: 28
- **Energy Technologies**: 16
- **Physical Sciences**: 6

**TOTAL**: 76

**FY18 Software Disclosures by Research Area**

- **Biosciences**: 9
- **Computing Sciences**: 33
- **Earth and Environmental Sciences**: 3
- **Energy Sciences**: 4
- **Energy Technologies**: 16
- **Physical Sciences**: 12

**TOTAL**: 77

On March 1, 2018, the Innovation and Partnerships Office split into the Intellectual Property Office (IPO) and the Strategic Partnerships Office (SPO).

SPO handles collaborative research contracts and grants along with inter-lab work orders for both federal and non-federal research partners. Data for Strategic Partnership Projects (SPPs) and Cooperative Research and Development Agreements (CRADAs) will be reported by SPO going forward.
Industry partners from small businesses and startups to multinational companies license LBNL technology and software to commercialize for the marketplace.

**FY18 License Agreements**

*Some agreements include multiple technology or software licenses*

**LICENSE TYPE:**

- Bailment: 4
- Invention License: 5
- Option: 4
- Software: 162

Licensed technologies generate royalties for Berkeley Lab. For inventions disclosed after September 30, 1997, 35% of the net income from royalties—after reimbursing patenting costs or copyright registration fees—goes to the inventors, 15% goes to the research division where the invention originated, and 50% supports future lab research.

**Royalties: 4 Year Trend**

<table>
<thead>
<tr>
<th>Year</th>
<th>Royalties</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY15</td>
<td>$2,995,865</td>
</tr>
<tr>
<td>FY16</td>
<td>$3,116,884</td>
</tr>
<tr>
<td>FY17</td>
<td>$2,599,614</td>
</tr>
<tr>
<td>FY18</td>
<td>$2,545,680</td>
</tr>
</tbody>
</table>

Non-Disclosure Agreements are requested by lab researchers and/or potential industry partners to protect information they may discuss. Material Transfer Agreements are required when Lawrence Berkeley National Laboratory and its partners share research materials for evaluation.

**FY18 Non-Disclosure Agreements by Research Area**

- Biosciences: 65
- Computing Sciences: 15
- Earth and Environmental Sciences: 18
- Energy Sciences: 15
- Energy Technologies: 92
- Operations: 24
- Physical Sciences: 7

**FY18 Material Transfer Agreements by Research Area**

- Biosciences: 133
- Computing Sciences: 1
- Earth and Environmental Sciences: 6
- Energy Sciences: 33
- Energy Technologies: 17
- Operations: 19
- Physical Sciences: 1
Filing patent applications on novel, useful, and non-obvious inventions makes them more attractive to potential industry partners and ensures LBNL and its researchers receive credit and a fair return once inventions are commercialized.

FY18 Patent Applications Filed by Research Area

- Biosciences: 75
- Computing Sciences: 3
- Earth and Environmental Sciences: 12
- Energy Sciences: 49
- Energy Technologies: 21
- Physical Sciences: 3

TOTAL: 163

FY18 Patents Issued by Research Area

- Biosciences: 23
- Computing Sciences: 3
- Earth and Environmental Sciences: 5
- Energy Sciences: 34
- Energy Technologies: 7
- Physical Sciences: 5

TOTAL: 77

IPO’s patent attorneys and technology commercialization associates work together to identify potential markets and partners for new inventions and software and to determine next steps for patent or copyright protection.

IP Management Plans

An Intellectual Property Management Plan (IPMP) is established to manage IP expected to be created under a single research award involving multiple parties—universities, private companies, and/or other DOE national labs. Without the IPMP in place, the research project is not funded and work cannot begin.

In FY18, IPO negotiated two (2) IPMPs, each with four parties, to enable research funding into Lawrence Berkeley National Laboratory.

Interinstitutional Agreements

An Interinstitutional Agreement (IIA) is negotiated between partners who jointly own IP to manage patent filing and prosecution as well as future licensing of the IP.

In FY18, IPO developed seven (7) IIAs with universities and research institutions, ensuring that scientific discoveries ultimately reach the marketplace, to benefit society.