ENERGY STAR Lighting Products Database

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Agenda

- **ENERGY STAR Overview**
- Collecting Information
- Stakeholder Access to Data
- Resources


ENERGY STAR. The simple choice for energy efficiency.
ENERGY STAR
Today,
this little blue label
does all the hard work
of certifying outstanding
energy efficiency in:
70
Product
Categories


Every single day,
consumers choose
ENERGY STAR
products more than
800,000 times


16,000
businesses and public sector organizations partner with ENERGY STAR


Awareness
now exceeds
85%
and preference
is growing


to protect the environment
and fight climate change.
ENERGY STAR Lighting has over
• 500 lighting partners
• 16,000 unique model listings
• 400 million units sold in the U.S. in 2013
energy
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Reducing
the complexity
of energy
efficiency to a
simple choice.

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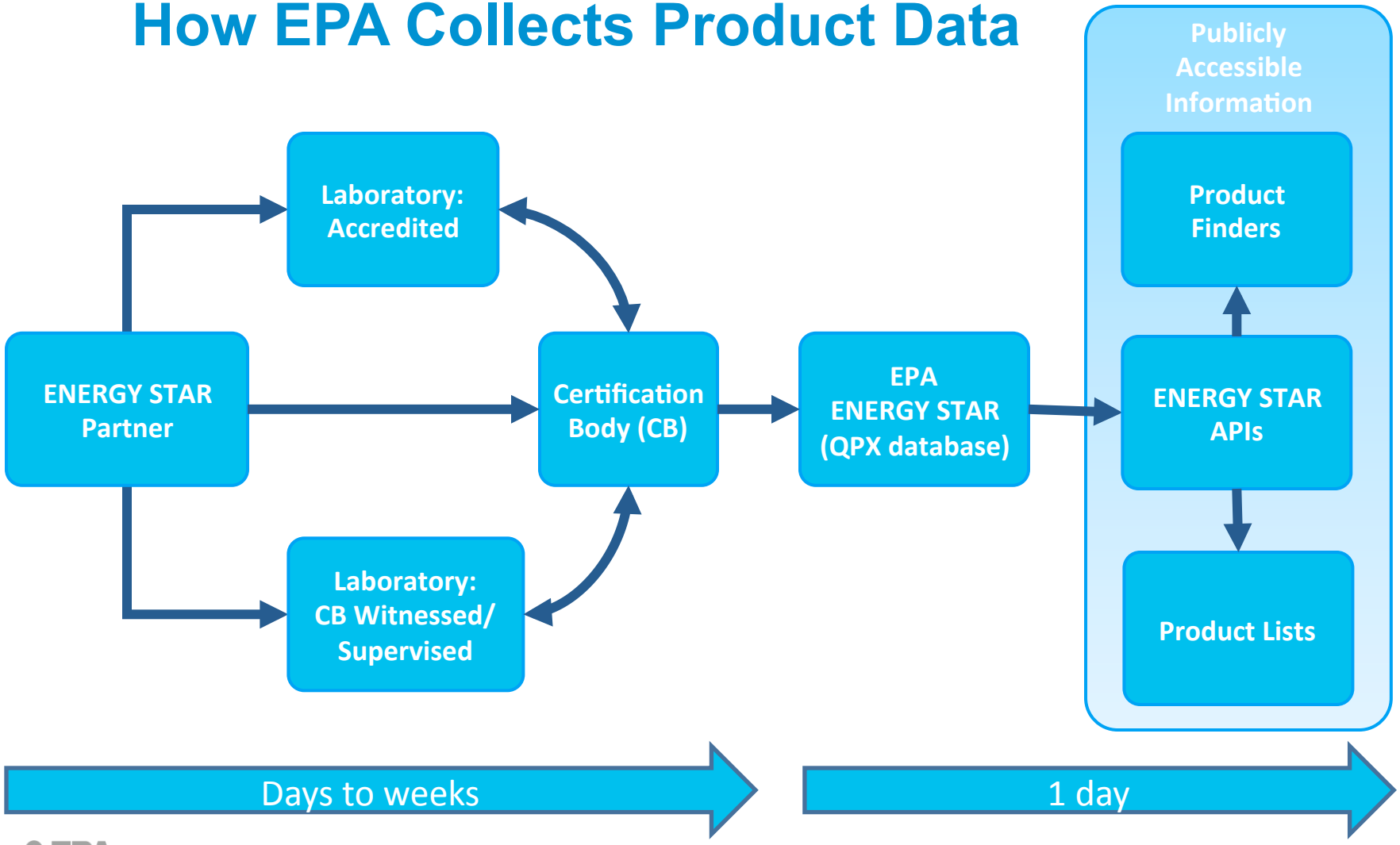
How EPA Collects Product Data



Collecting Supplier Information

- One-time registration (partnership agreement)
- Partners assigned an EPA-generated organization ID
- Third-party certification bodies (CBs) use ID to submit models to EPA
- Periodic notifications on proposed requirements changes
- Non-compliant partners' models removed from product lists

Collecting Model Information

- QPX (Qualified Products Exchange) is a CB-to-EPA data transfer system based on XML industry standards
- All CB-certified models must be submitted to EPA via QPX
- Models assigned EPA-generated identifier (product ID)
- Standardized data collection rules across multiple product categories and multiple CBs
  - General fields across 40+ data collection forms (e.g. model name)
  - Product-specific fields

- QPX is primarily a data transfer system *not* a validation system
  - EPA relies on CBs to provide accurate data
  - All restrictions should be justified by specification and/or test method
- Submitted models are automatically added to EPA's database

Sample Lighting Requirements

Name	Description	Required/ Optional	Multiple Select	Data Type	Restrictions	Enumerations
ENERGY STAR Manufacturing Partner	The ENERGY STAR Manufacturing Partner is the organization that has signed an ENERGY STAR Partnership Agreement and labels the model. This organization is typically the brand owner.	R	N	Text	Min Length: 1 Max Length: 80	
Technology Used	Indicate if the model utilizes CFL or LED to generate the light.	R	N	Enumeration Data		▪ CFL ▪ LED
Reported Input Power (W)	Provide the rated/reported lamp input power of the model, which will appear on the list of ENERGY STAR certified products. This value is required to be the same as measured or more conservative (more consumptive) as permitted for the purposes of safety ratings. Note that reported light output divided by reported wattage must meet the specification requirements for efficacy.	R	N	Decimal	No. of Decimal: 1 Min Value: 0.0	
Base Type	Indicate one of the allowable base types.	R	N	Enumeration Data		▪ E26 ▪ E26d ▪ E17 ▪ E11 ▪ E12 ▪ GU10

Collecting Lighting Information

- The ENERGY STAR Program collects information on multiple product types, by subtype:
  - Lamps
    - Directional
    - Omnidirectional / Decorative
  - Luminaires / Fixtures
    - Directional
    - Non-Directional
- Determining Data Needs a Challenge:
  - Purpose
  - Audience
  - Future Use

Collecting Lighting Information

- The ENERGY STAR data is used for multiple purposes:
  - Compliance with Specification
  - Providing external information to:
    - Consumers
    - Efficiency Organizations
  - Future Specification Development
- A wide array of data is collected:
  - Photometric Performance
  - Electrical Performance
  - Product Characteristics and Features
  - Test Conditions

Data Collection Best Practices

- Who is providing data?
  - Standardizing fields best when same entities submitting across multiple forms
- Technical field justifications
  - Be able to reference test methods or document for a field's requirement to ensure consistency of provided data
- Provide forms/requirements to stakeholders for review
  - Provides stakeholders opportunity to flag issues prior to final criteria
  - Finalized criteria difficult to update for existing models

Lighting Data Collection Best Practices

- Lighting can be challenging; different product types can have different or additional metrics
  - Examples:
    - A reflector lamp will have a beam angle and center beam candlepower, where a general purpose lamp will not.
    - A fluorescent will have mercury, but an LED will not.
- Definitions of fields are VERY important:
  - Units and data format
  - Measured and reported values
  - Which fields are required and optional
- Additional Considerations:
  - Consider future needs and uses
  - Test method considerations
    - Version

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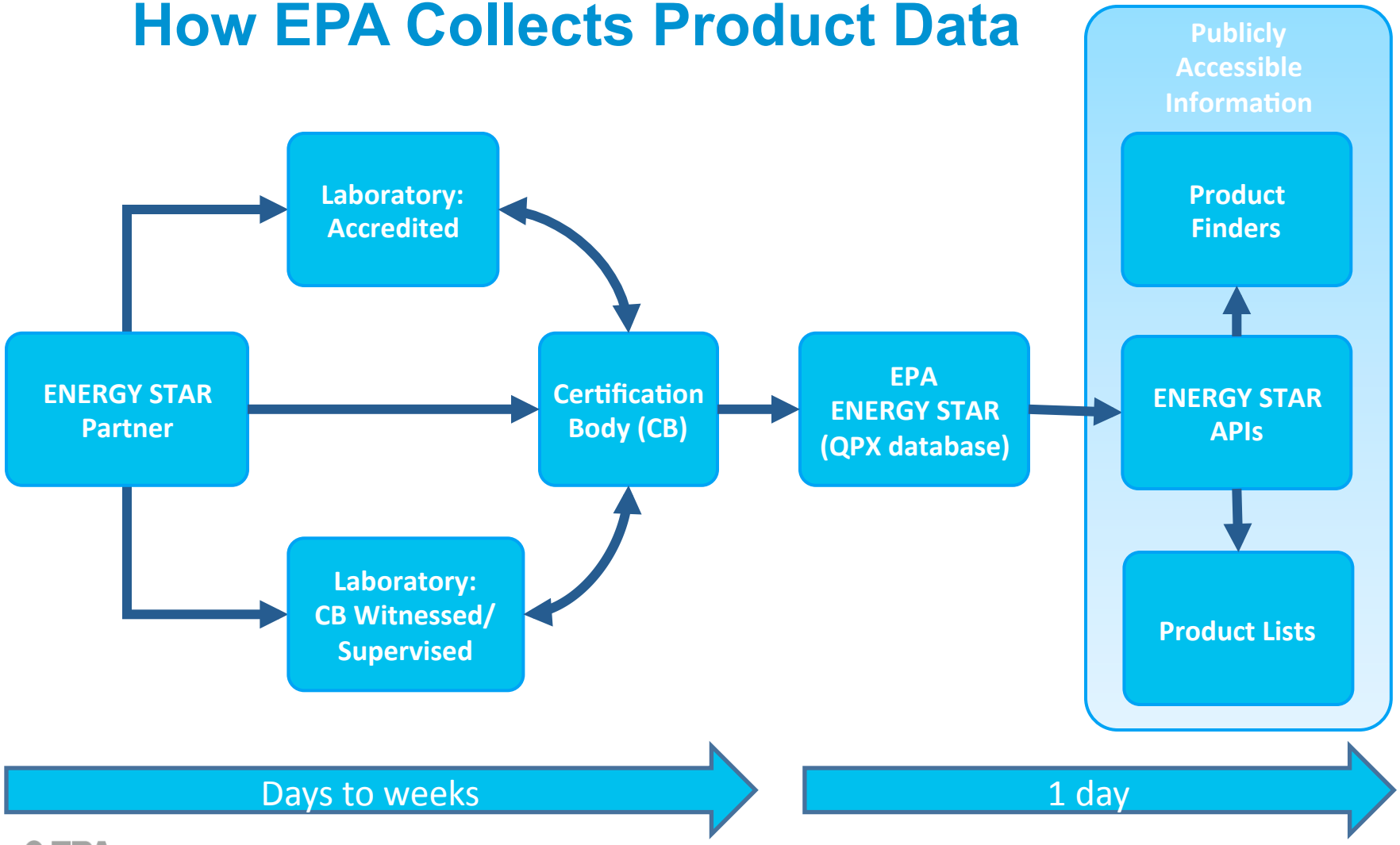
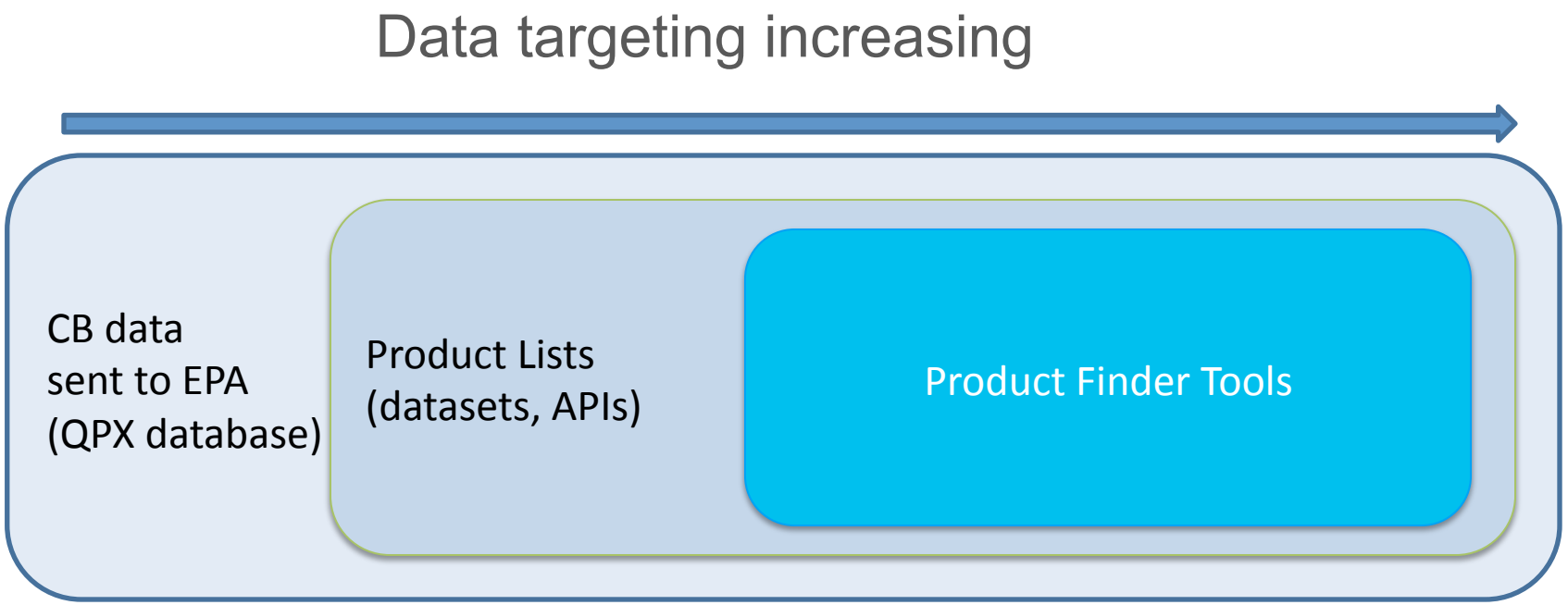


How Data is Clustered



How Data is Clustered

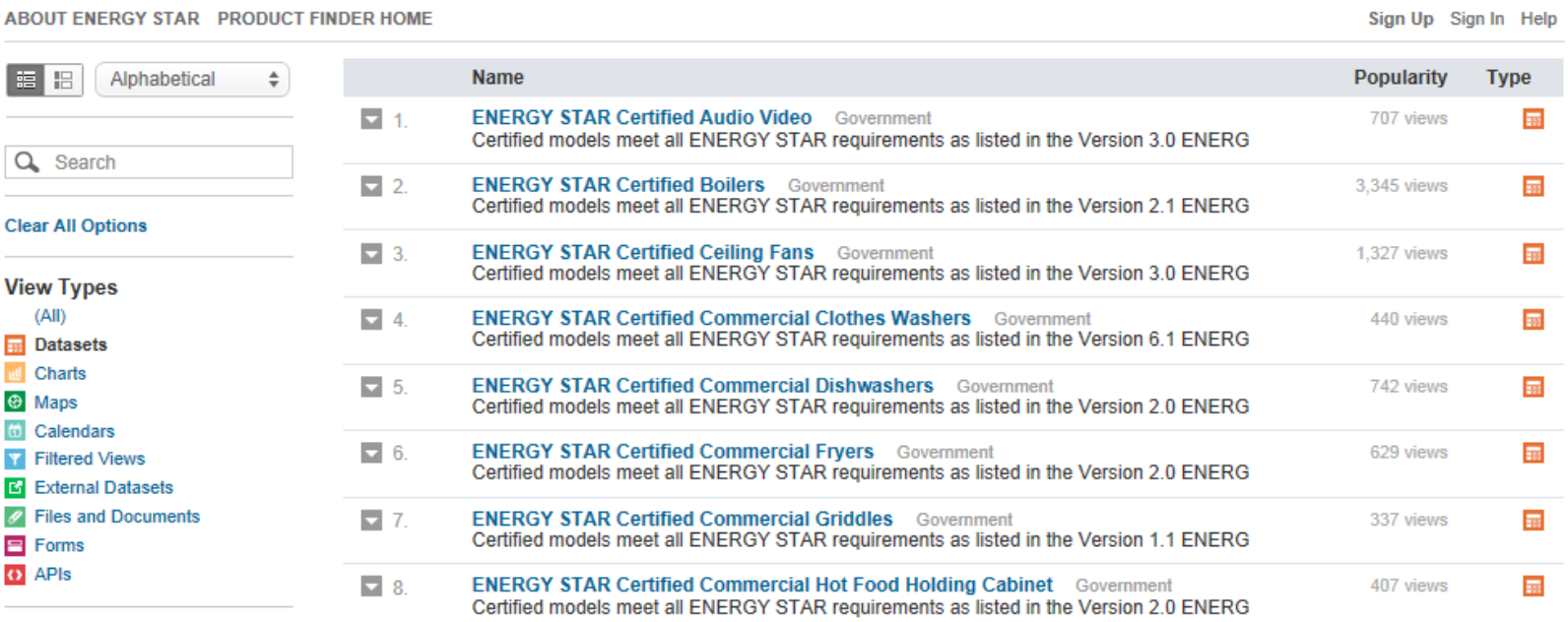
- QPX Database
  - Intended users: EPA
  - Example data: partner contact information, future product development data for EPA partners may not want publicly displayed
- Product Lists (subset of full QPX database)
  - Intended users: utility programs, retailers, academic research
  - Example data: light bulb type
- Product Finder Tools
  - Intended users: Consumers
  - Example data: model name, claimed wattage equivalency

Lighting Data Clusters

- Product Lists (subset of full QPX database)
  - Intended users: utility programs, retailers, academic research
  - Considerations: more details and data, more advanced users
  - Example data: light bulb type
- Product Finder Tools
  - Intended users: Consumers
  - Considerations: ease of use, basic information, allow drilling down
  - Example data: model name, claimed wattage equivalency

ENERGY STAR Products Database

- One portal where stakeholders access datasets on certified products* data.energystar.gov
- Updated daily



*Excludes Windows, Non-AHRI CAC/ASHP

Advanced View Features

- Create account to save and share work
- Filter lists (sample filters)
- Create visuals
- Embed
- Export data

Product Category	Unique filters	Cross-cutting filters
Clothes washers	• Load configuration • Connected functionality • ENERGY STAR Most Efficient	• Brand name • Model name, model number, additional model information • ENERGY STAR unique model identifier • Date qualified • Date available on market • Markets • Energy use • Efficiency ratios • Capacity • Product type • Meets ENERGY STAR Most Efficient Criteria
Dishwashers	• US federal standard • Water use • ENERGY STAR Most Efficient	
Refrigerators	• Connected functionality • ENERGY STAR Most Efficient	
Room air conditioners	• Reverse cycle	
Light bulbs	• Technology • Base type • Light Output • CCT • CRI • Special features • Power factor • Life Rating • Warranty • Dimming capability	
Commercial refrigerators and freezers	• Configuration • Door options • Refrigerant type	

APIs for 42 Datasets

- Application Programming Interface (API)
- Utilities incentive programs primary users
- Publishes Certified Products Data in machine readable format
- Accessible to any application with a connection to the web
- EPA uses the APIs to power the consumer product finder
- Open and free for anyone to use data.energystar.gov/developers

Major Change Process

Communications for each time period
ENERGY STAR Products API Google Groups announcement
@ESProductAPI

2 Months Prior

- **What to Expect:** Announce changes will be made to a product list

1 Month Prior

- **What to Expect:** New draft "Upcoming" product list and specific changes released

1 Week Prior

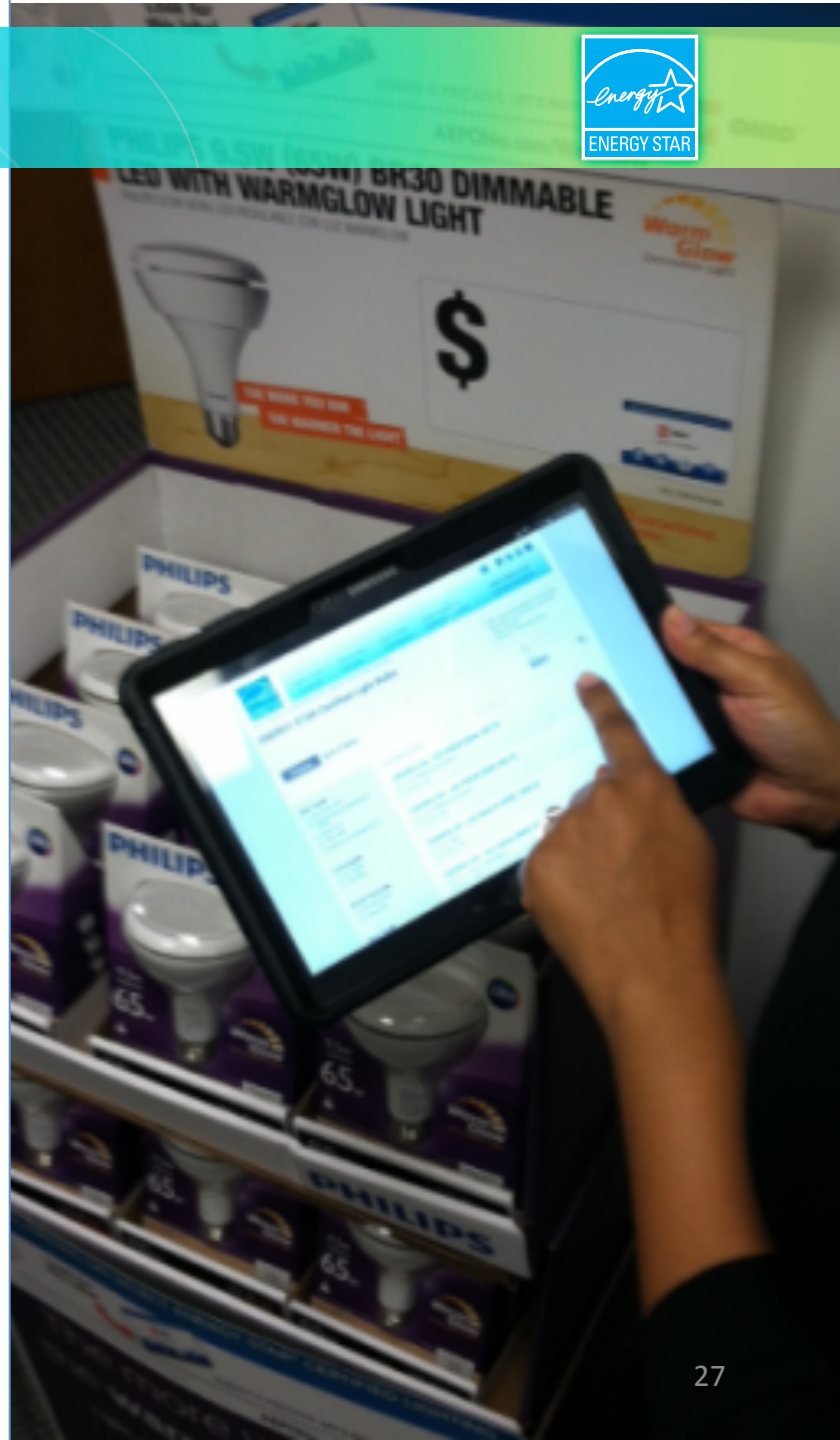
- **What to Expect:** Final "Upcoming" changes to product list

Day of

- **What to Expect:** Replacement product list only

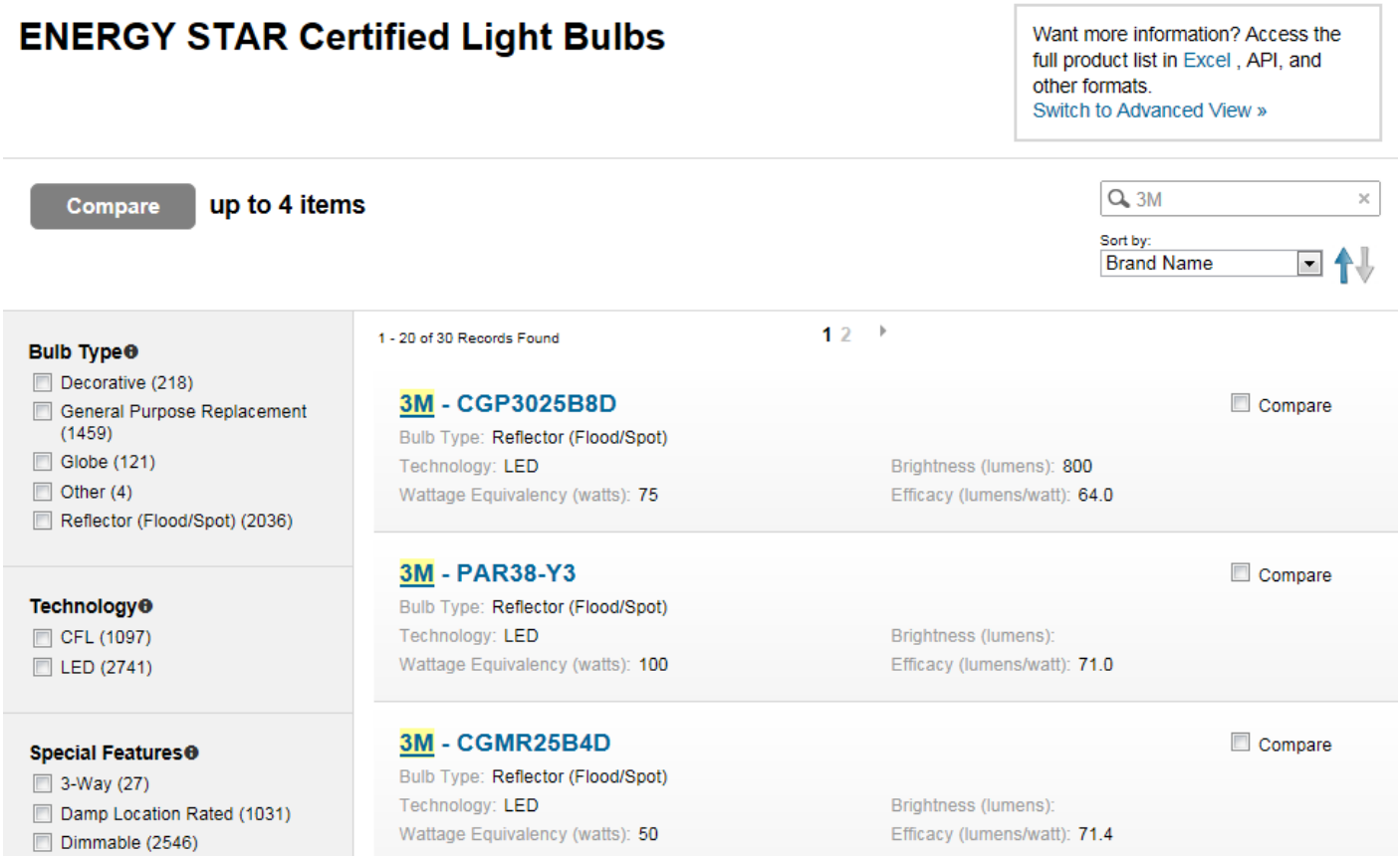
ENERGY STAR data informs consumer purchases, energy efficiency promotions and specification updates

- Consumers and energy efficiency sponsors can easily find product information – mobile version also available
- Advanced view provides more options for analyzing data to support energy efficiency promotions and specification development activities
- APIs for each dataset allow energy efficiency sponsors direct, automated access to data



Consumer Product Finders

Provide consumers, retailers, utilities and other stakeholders with easy access to product data



Stakeholder Access to Data Best Practices

- Determine data needs and method of providing data
  - Consumers want to verify a model or compare key criteria
  - Utilities want spreadsheets readable by their systems and more data on models
- Notification process for changes to datasets
  - Let data users know what's changing and when to ease transitions
- One user experience across each stakeholder group
  - Easy stakeholder transition from one product to the next
  - Data owner (EPA) flexibility to update, add new tools at low cost

Lighting Database Best Practices

- The strength is in having **consistently reported data** in one location, making comparison and registration status clear
- Lighting database challenges to address have to do with the range of products
  - Ideally the database that can accommodate conditional fields
    - Example: If the bulb is fluorescent, then mercury content is required.
  - Product families
    - Functionally similar or identical products with appearance variations
  - Multiple Model Identifiers for the same product
    - SKUs, UPC codes, detailed model numbers, part numbers, retailer numbers
    - Variety of codes make correlation to databases difficult
    - Rapidly changing market (LED) requires ability to update or retire model information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Resources

- energystar.gov/lighting
- energystar.gov/productfinder
  - Product finder tools
  - Guide on creating filters and visuals
  - Macro for segmenting additional models
- data.energystar.gov
  - Product lists and API field names
  - EPA-created filters, charts, and graphs
- data.energystar.gov/developers
  - ENERGY STAR Products API essentials
  - Getting started with APIs
- ENERGY STAR Products API Google Group
- @ESProductsAPI

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Questions

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