Proposed Generator Data Analysis

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1 Data description

The data are intended to constitute a complete inventory of electric generating units located at facilities with a minimum on-site nameplate capacity of one megawatt (MW). The data collected include:

- The location (state, county, balancing authority, latitude and longitude) of a power plant
- The ownership of generating units (including designations of joint ownership)
- The capacity and energy source used by each generating unit at the plant
- The status of the plant as of December 31 of the reporting year (e.g., operational, standby, or retired)
- For steam electric plants, individual boiler characteristics, cooling-water systems, and emission control systems in non-nuclear plants (see a description in sub section Power Plant Environmental Controls and Estimated Emissions)

In addition to collecting data on existing generating units, EIA also collects data on **proposed plants and plants under construction.** To be included, the plant must be scheduled for commercial operation within 10 years for coal and nuclear plants and within 5 years for all other types of plants.

The analysis below uses data on the proposed plants. Each observation consists of a single generating unit. I use the first year that each generating unit appears in my data, and so "scheduled completion year" refers to the initial scheduled completion date. Later on, I will look at how frequently projects are delayed or cancelled, by linking the proposed generator data with the operating generator data.

2 Credit eligibility by year

Table 1: Solar ITC Elgibility

Loan grant eligible	Begin construction between 2009-2011	In my data, determine by first year appearing and "status"
ITC Round 1 (2008-2016)	Placed in service by 12/31/2016	In my data, scheduled completion year $\leq$ 2016
ITC Round 2 (2017-2023)	Credit rate determined by begin construction, but eligibility requires placed in service by 12/31/2023	In my data, requires looking at initial proposed year and scheduled completion year

However, I will meet with a librarian to fill a table like this:

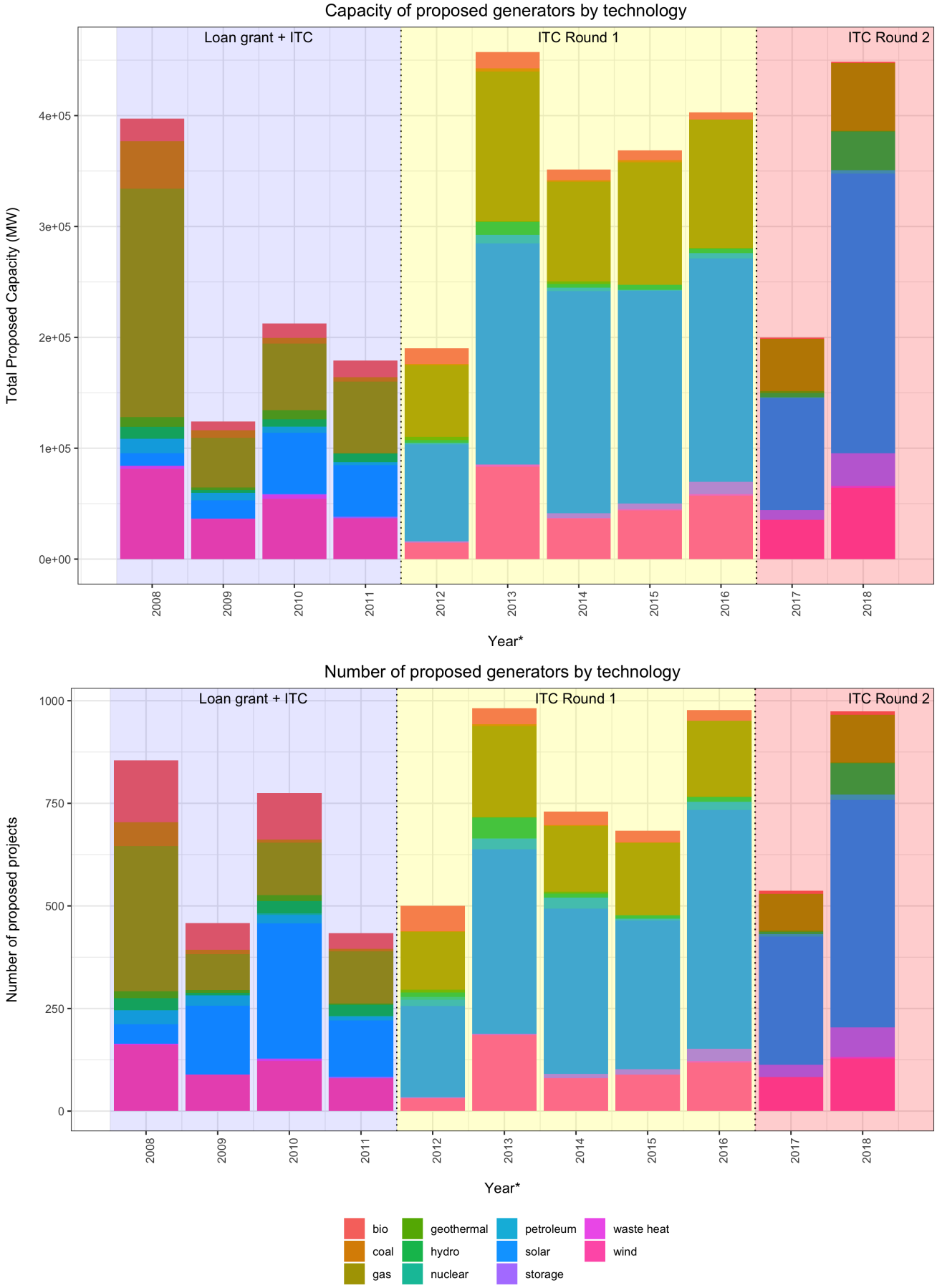
Table 2: Federal Tax Credit Eligibility

Legislation	Date	Credit	Eligible resources	Begin construction	Placed in service
Emergency Economic Stabilization Act of 2008	10/3/08	30% ITC	Solar		1-Jan-17
		30% ITC	Fuel cell, microturbine		31-Dec-16
		10% ITC	Geothermal heat pump		
		10% ITC	"Efficient" combined heat and power systems with 15-50 MW capacity		

3 Summary of Analysis

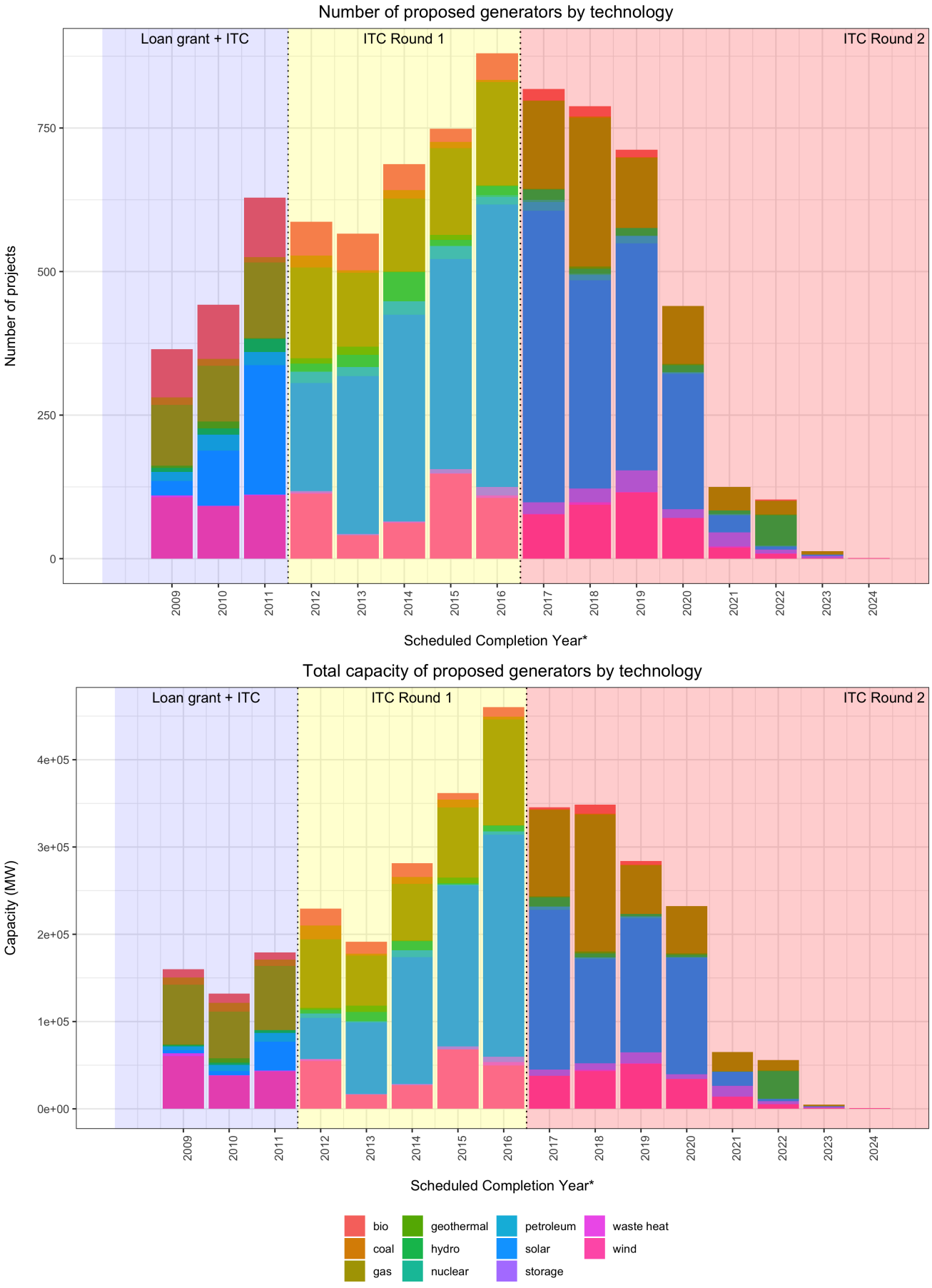
- I examine the relationship between total capacity and number of projects by proposal and scheduled scheduled completion dates.
- Proposal date refers to the first year a unit appears in the data; it proxies for "begin construction".
- Scheduled construction date proxies for intent to comply with placed-in-service deadlines.
- I look for different patterns across regulated and deregulated states.

Figure 1: Size and Number of Projects by "begin construction" year, all technologies



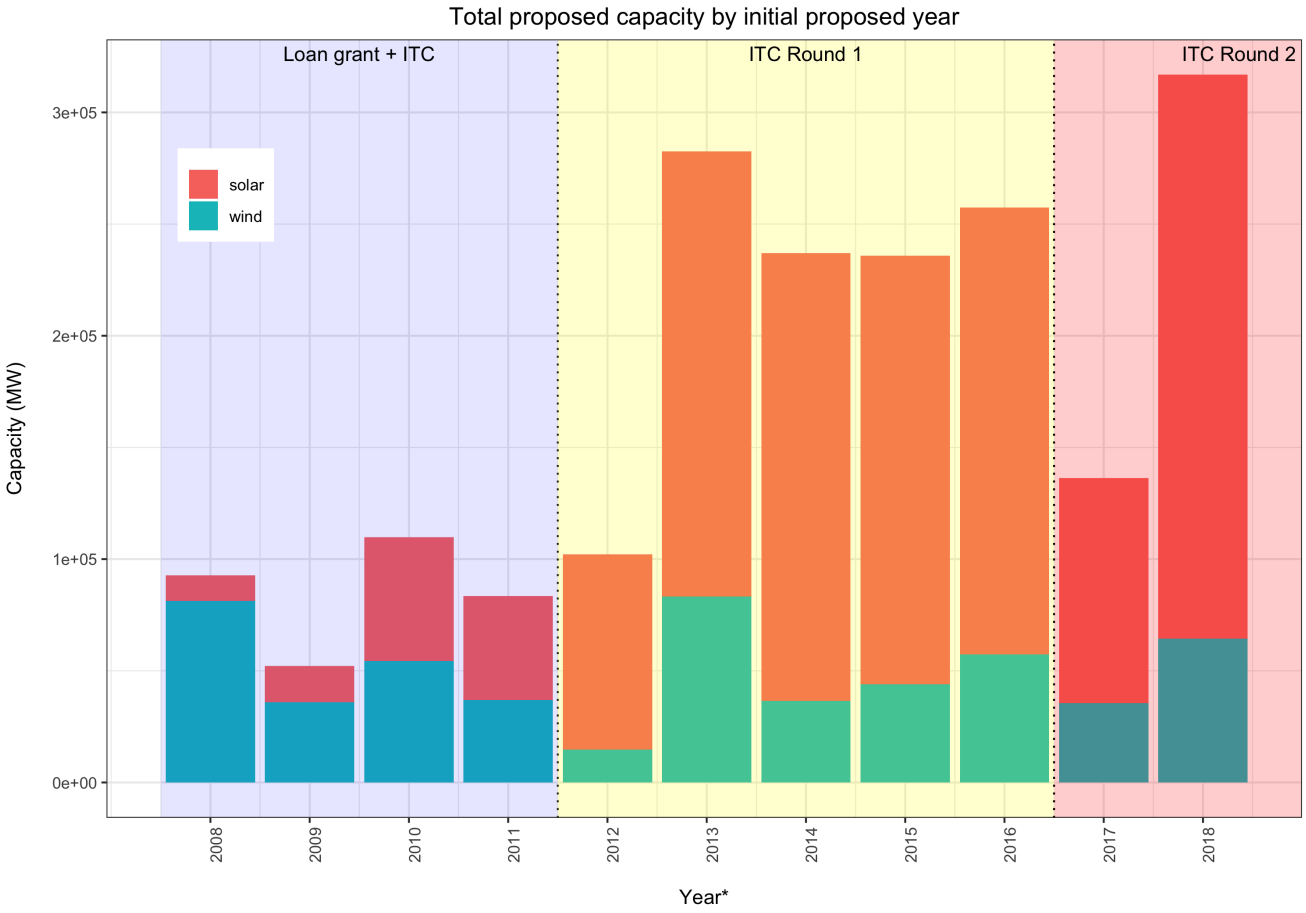
*Year indicates first year that generator appears in EIA data

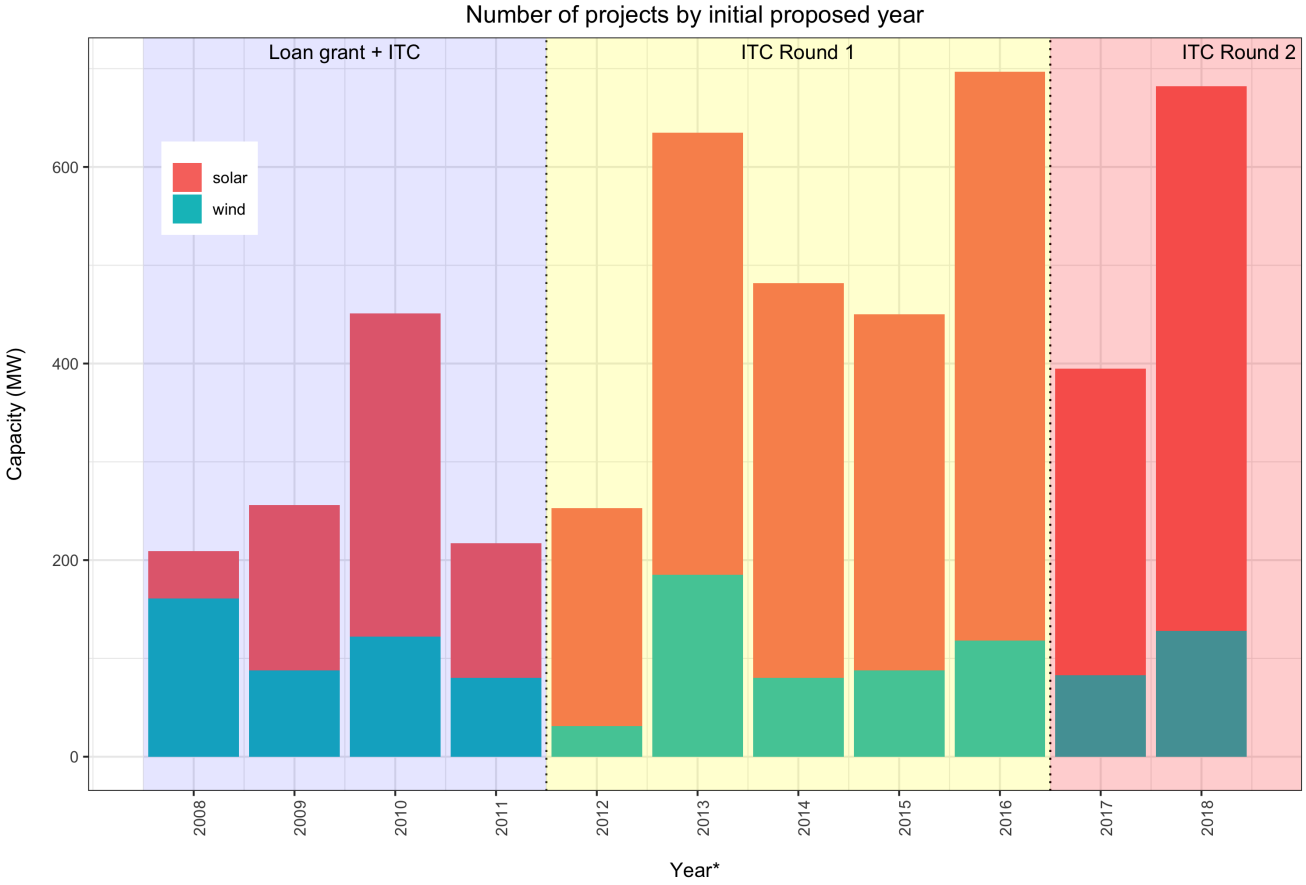
Figure 2: Size and Number of Projects by initial scheduled completion date



*Indicates initial scheduled completion date

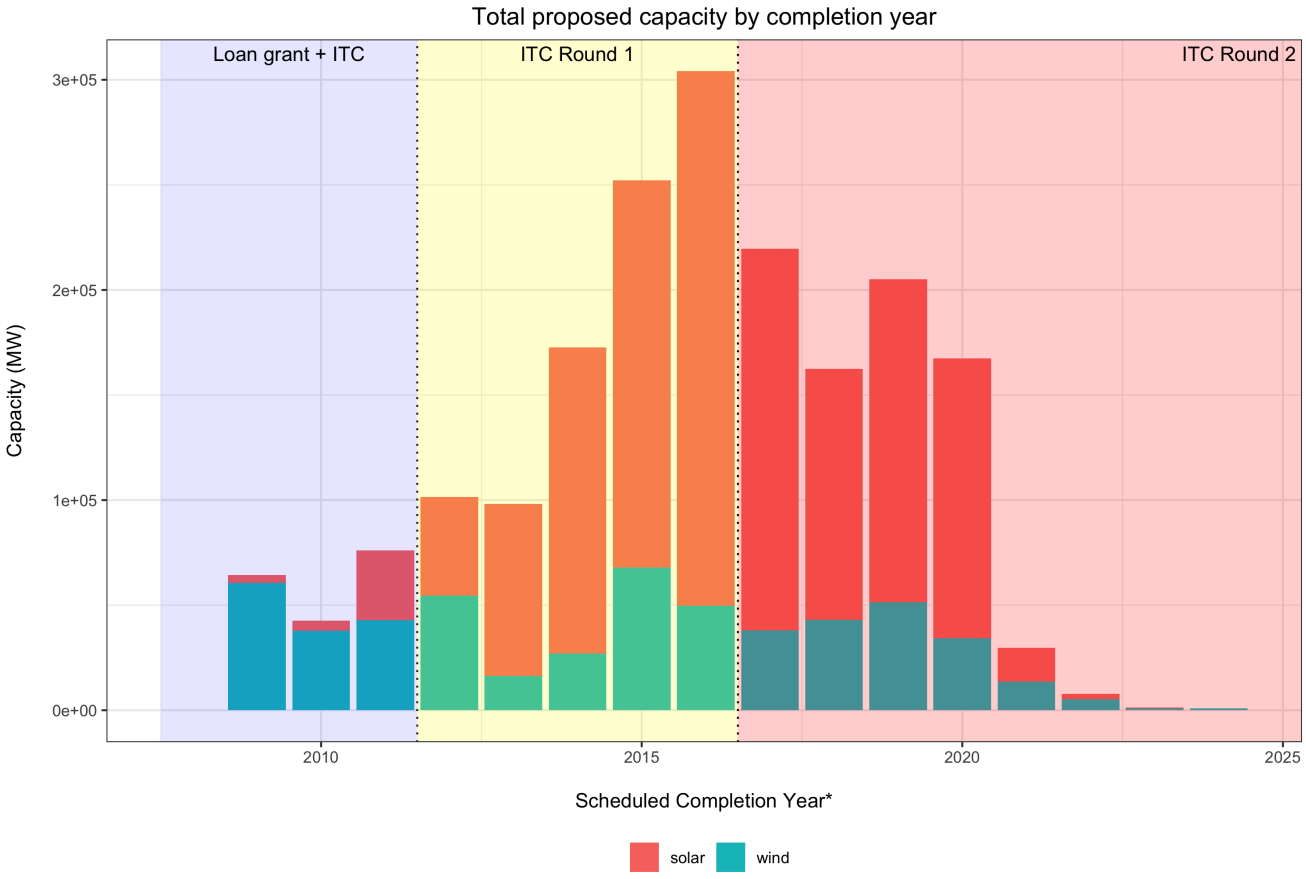
Figure 3: Wind and solar projects by proposal date



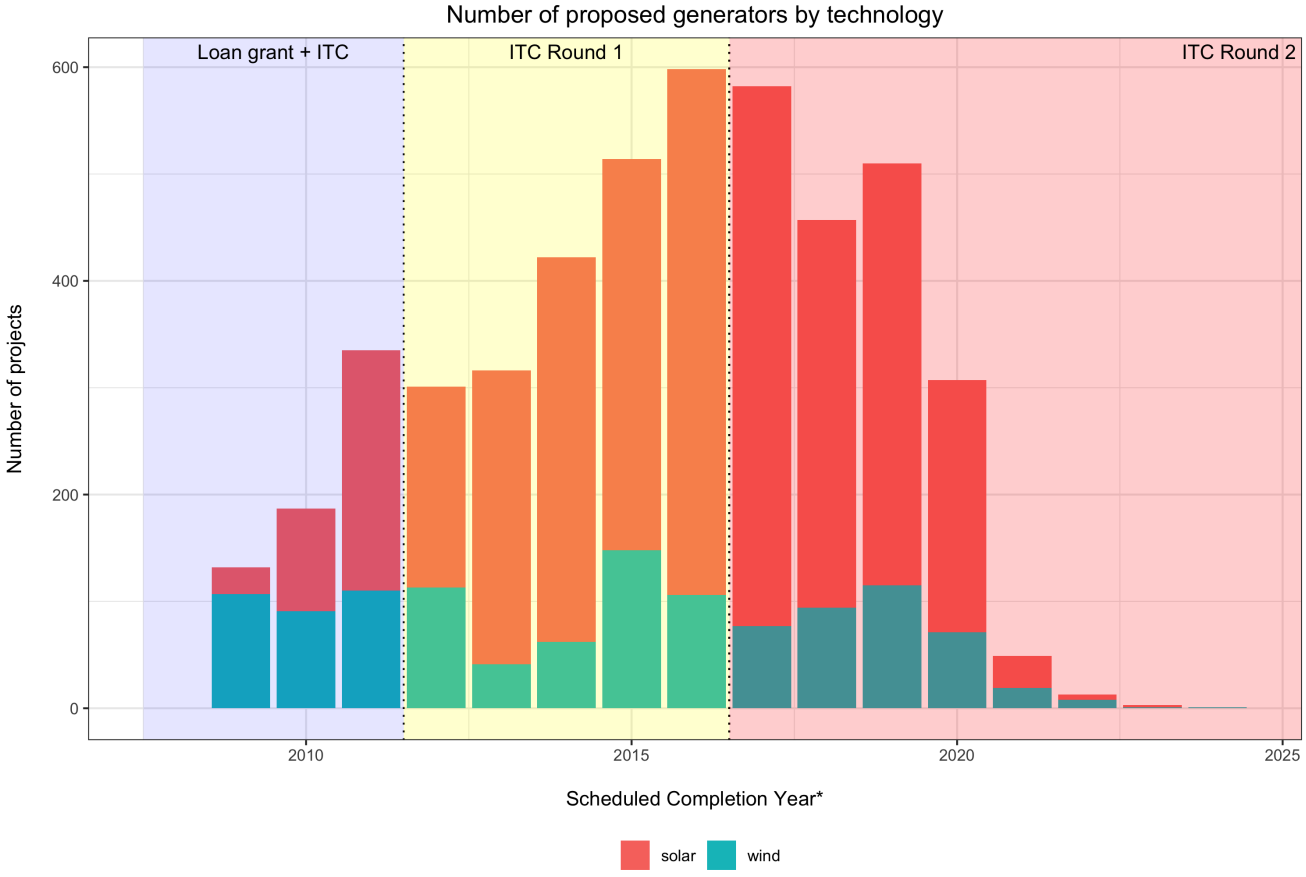


*Indicates proposed year

Figure 4: Wind and solar projects by scheduled completion date



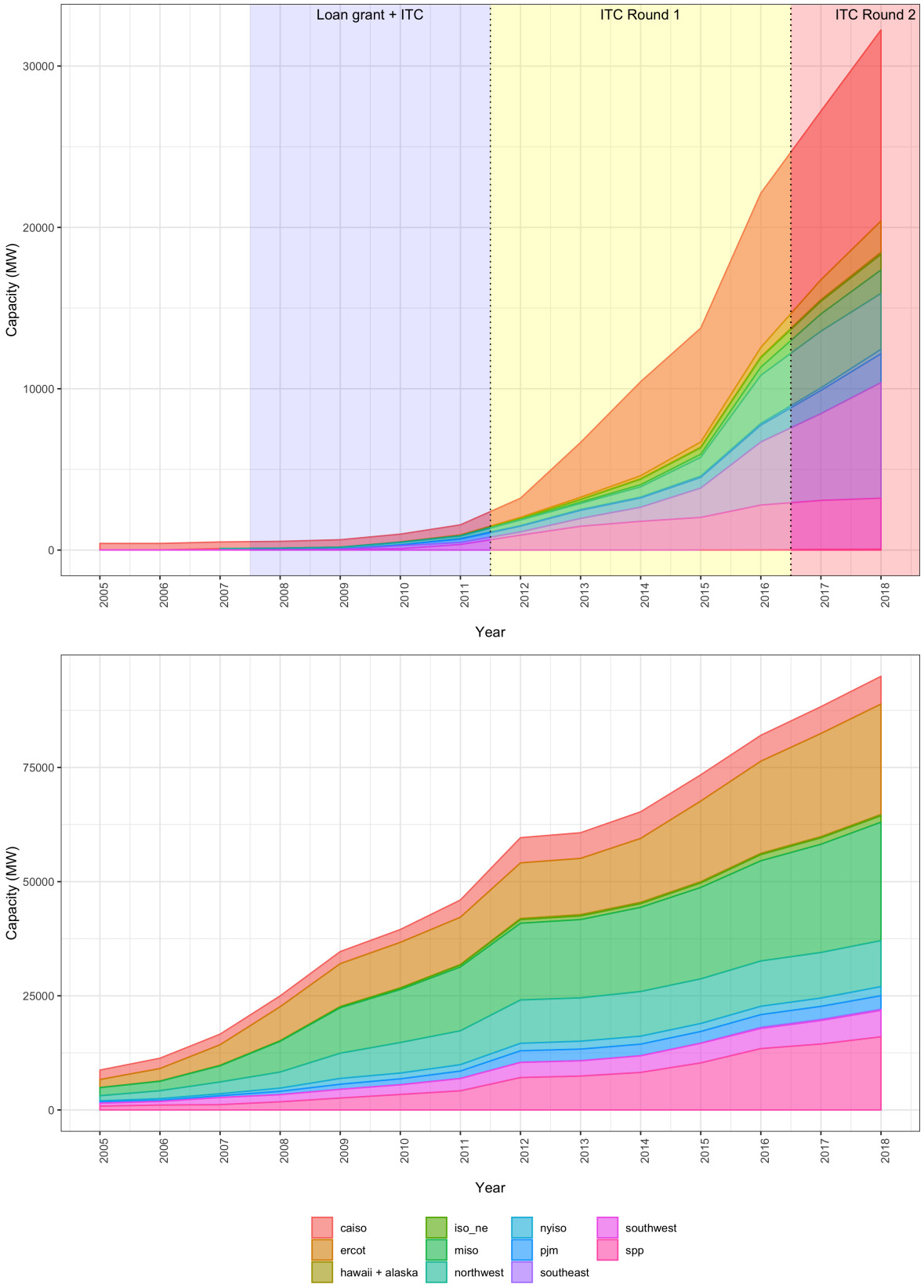
*Indicates initial scheduled completion date



*Indicates initial scheduled completion date

4 Wind and Solar

Figure 5: Capacity over time



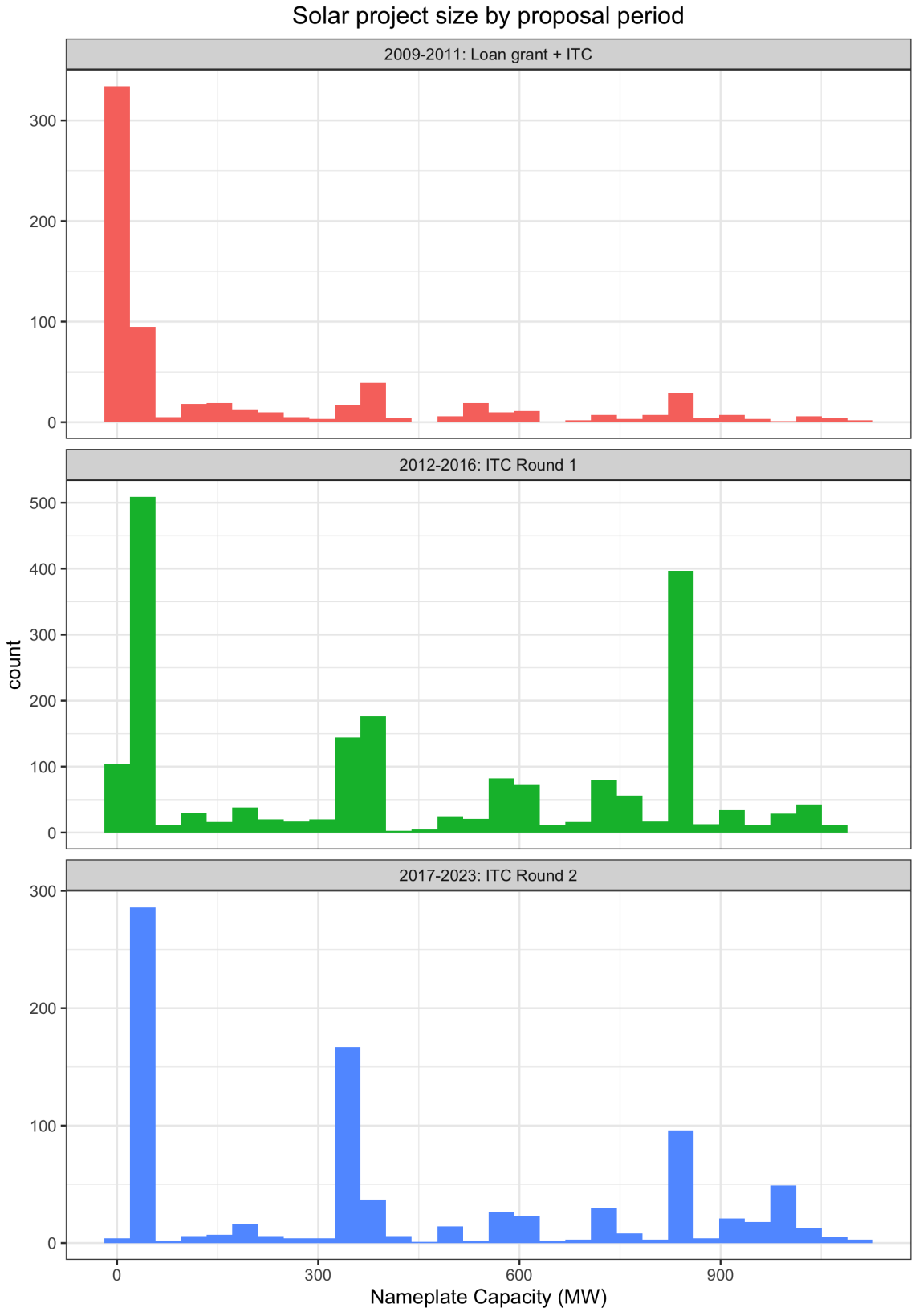

Solar project size by proposal period
2009-2011: Loan grant + ITC
2012-2016: ITC Round 1
2017-2023: ITC Round 2
count
Nameplate Capacity (MW)
0
100
200
300
400
500
600
900

Figure 6: Scheduled completion year by proposal period

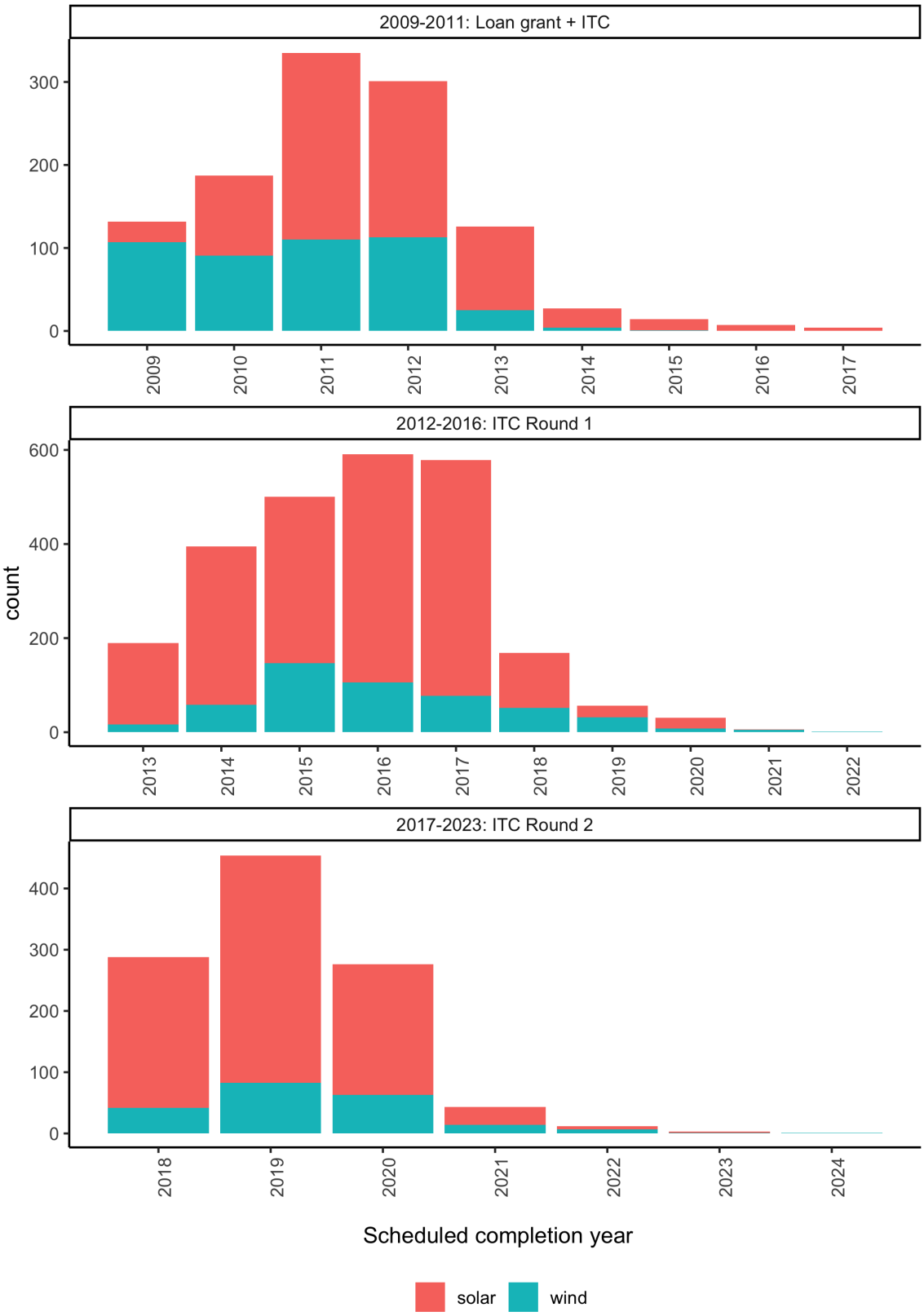


Table 3: Location of proposed solar projects, 2008-2018

region	Capacity (MW)	# Projects	Avg. Size (MW)	% Capacity
Southeast	559836	918	609.84	0.41
CAISO	271653	1069	254.12	0.20
MISO	105541	476	221.72	0.08
Northwest	101204	208	486.56	0.07
PJM	79088	204	387.69	0.06
ISO-NE	74815	208	359.69	0.05
Southwest	70118	195	359.58	0.05
ERCOT	34071	94	362.46	0.03
NYISO	46931	138	340.08	0.03
Hawaii	14967	42	356.36	0.01
District of Columbia	854	2	427.00	0.00
SPP	2627	9	291.89	0.00
Total	1361705	3563	0.00	0.99

Table 4: Location of proposed wind projects, 2008-2018

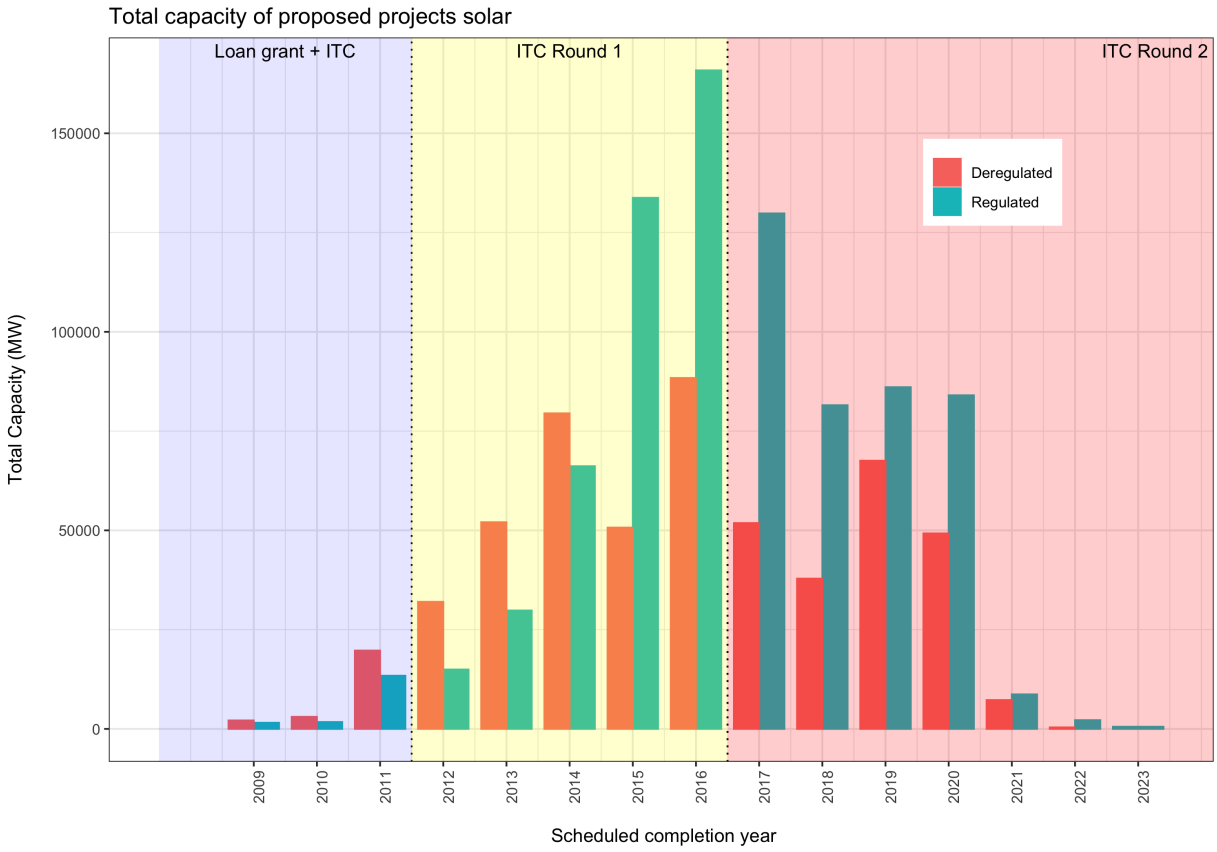
region	Capacity (MW)	# Projects	Avg. Size (MW)	% Capacity
MISO	133636	289	462.41	0.25
Northwest	89201	182	490.12	0.16
ERCOT	84168	193	436.10	0.15
SPP	72664	139	522.76	0.13
PJM	49854	103	484.02	0.09
ISO-NE	33450	68	491.91	0.06
NYISO	25072	45	557.16	0.05
Southwest	27901	55	507.29	0.05
CAISO	24049	81	296.90	0.04
Hawaii	2948	5	589.60	0.01
Alaska	487	2	243.50	0.00
Southeast	790	2	395.00	0.00
Total	544220	1164	0.00	0.99

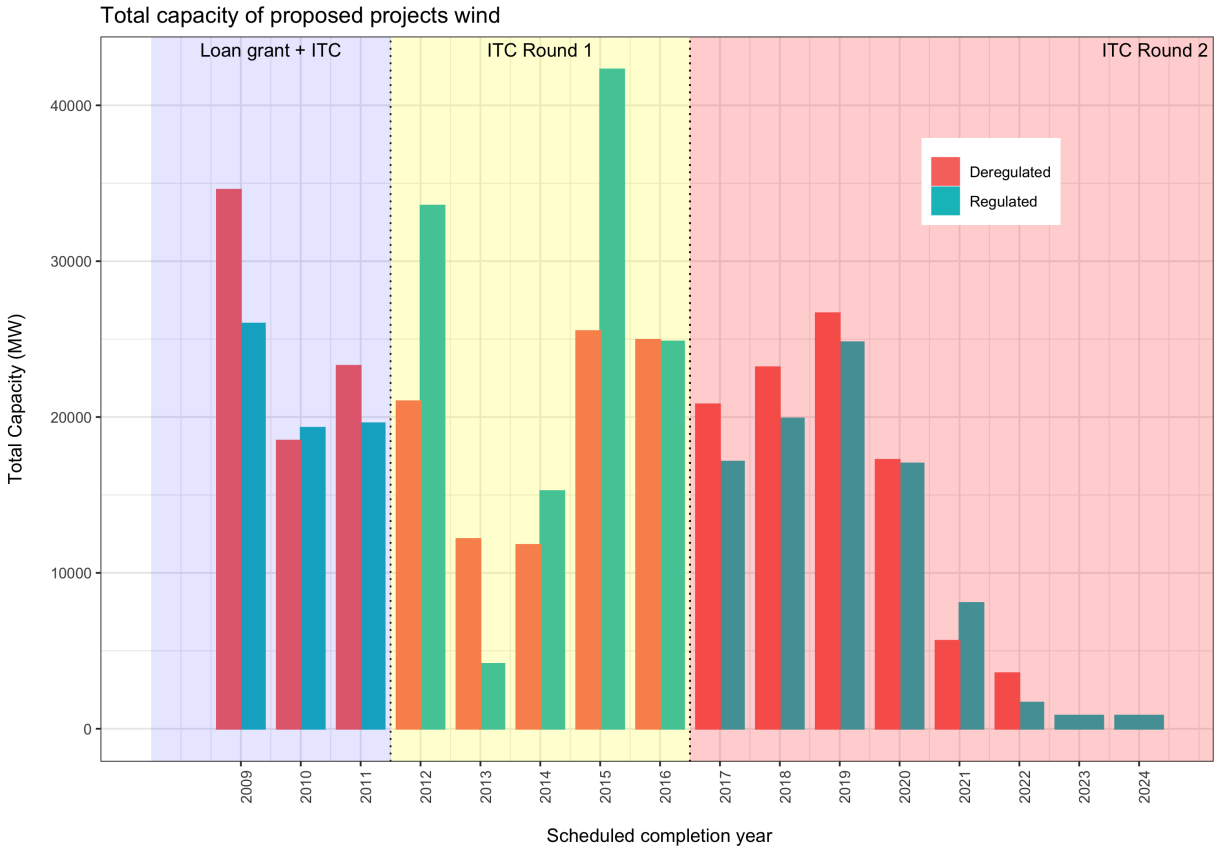
Table 5: Location of proposed solar projects, 2008-2018

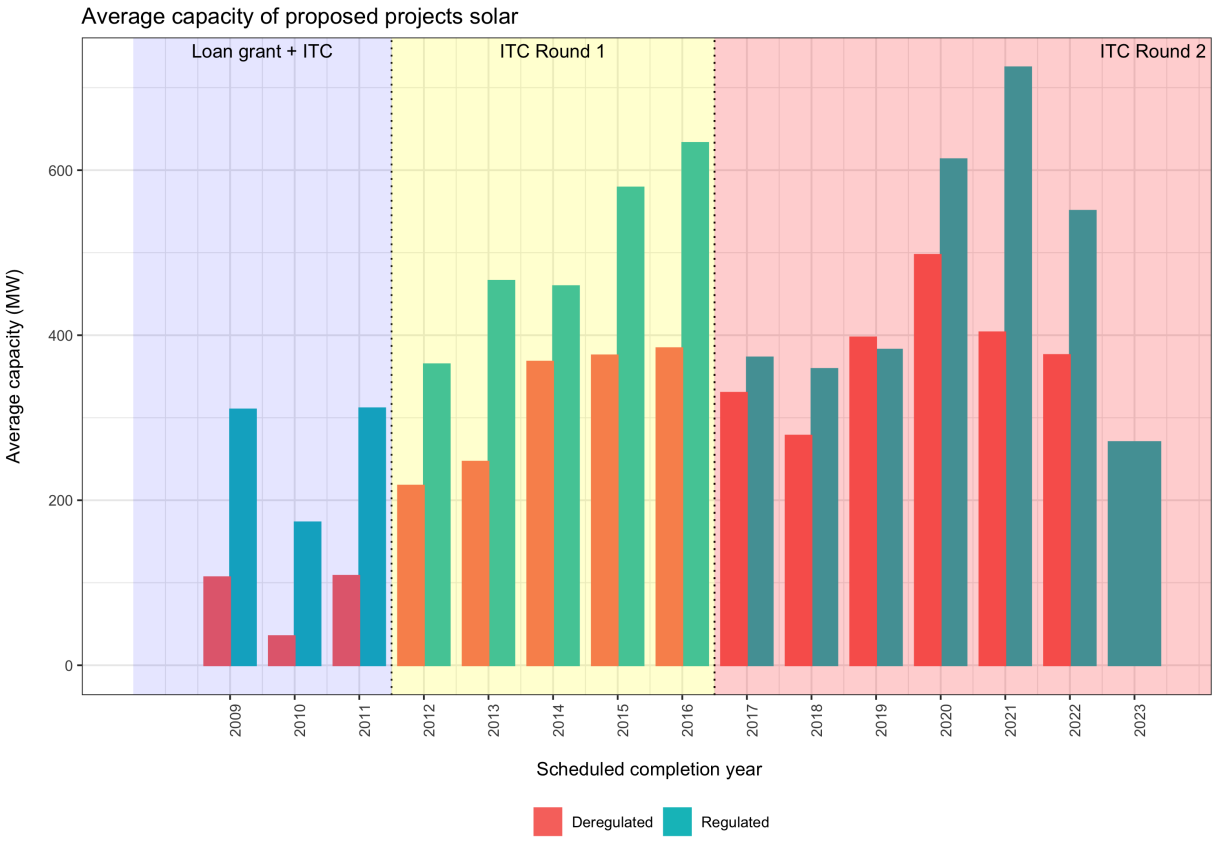
regulated	Capacity (MW)	# Projects	Avg. Size (MW)	% Capacity
Regulated	820078	1755	467.28	0.60
Deregulated	541627	1808	299.57	0.40
Total	1361705	3563	0.00	1.00

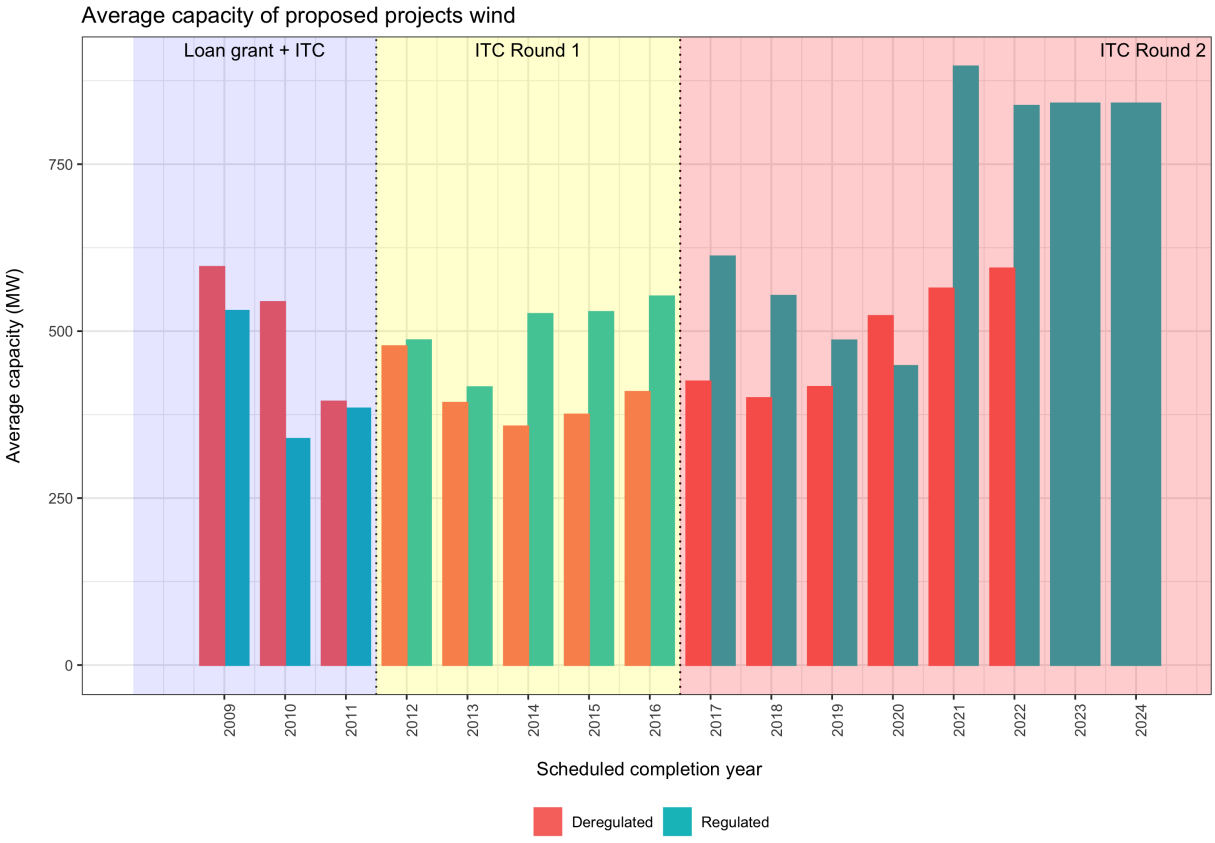
Table 6: Location of proposed wind projects, 2008-2018

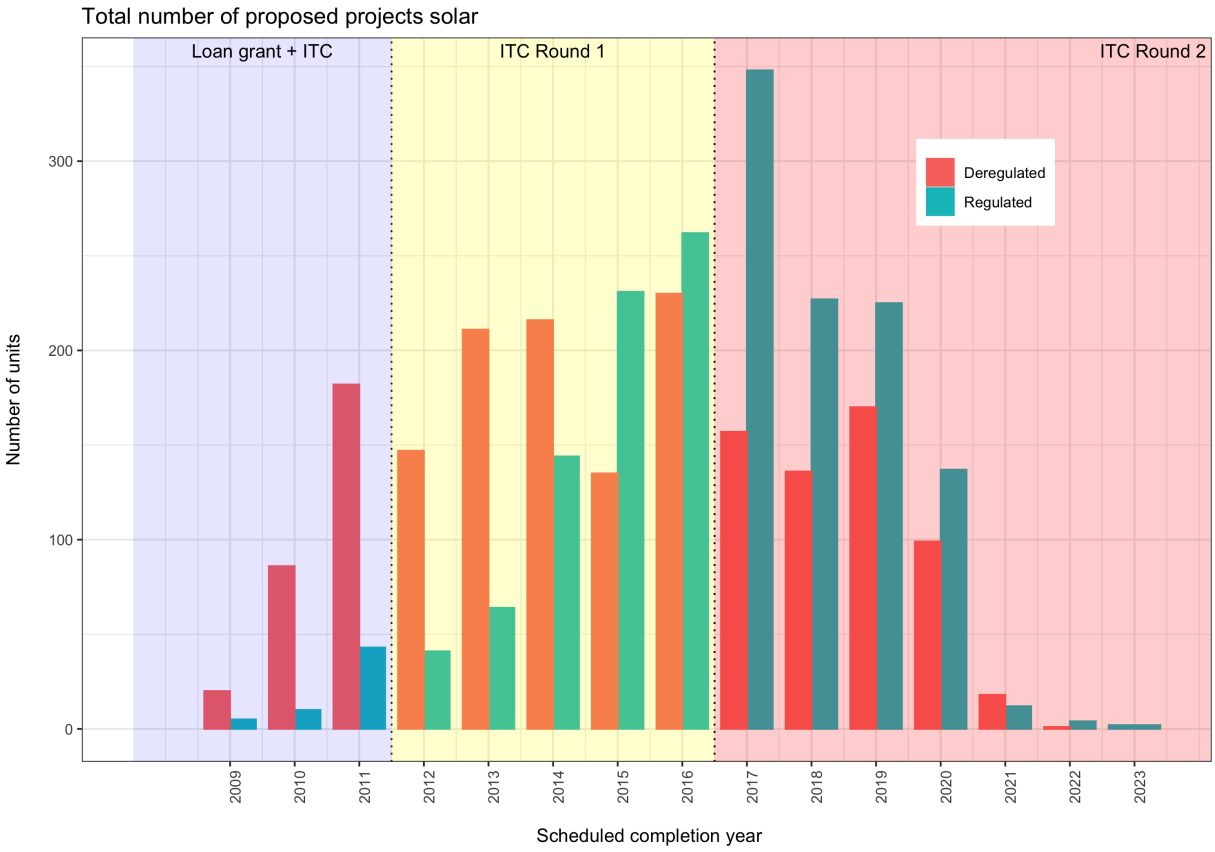
regulated	Capacity (MW)	# Projects	Avg. Size (MW)	% Capacity
Regulated	275301	556	495.15	0.51
Deregulated	268919	608	442.30	0.49
Total	544220	1164	0.00	1.00

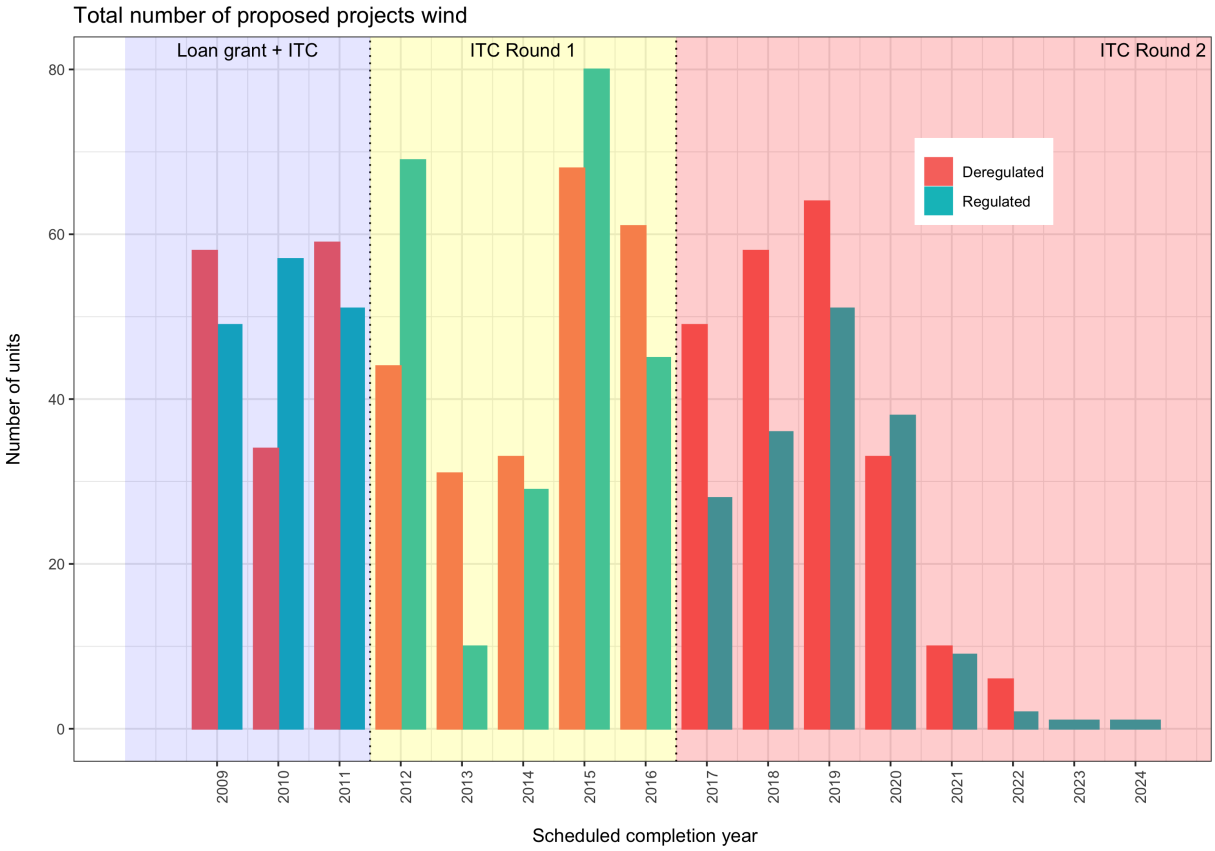

Total capacity of proposed projects solar
Loan grant + ITC
ITC Round 1
ITC Round 2
Deregulated
Regulated
Total Capacity (MW)
150000
100000
50000
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Scheduled completion year


Total capacity of proposed projects wind
Loan grant + ITC
ITC Round 1
ITC Round 2
Deregulated
Regulated
Total Capacity (MW)
40000
30000
20000
10000
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Scheduled completion year


Average capacity of proposed projects solar
Loan grant + ITC
ITC Round 1
ITC Round 2
Average capacity (MW)
0
200
400
600
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Scheduled completion year
Deregulated
Regulated


Average capacity of proposed projects wind
Loan grant + ITC
ITC Round 1
ITC Round 2
Average capacity (MW)
0
250
500
750
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Scheduled completion year
Deregulated
Regulated


Total number of proposed projects solar
Loan grant + ITC
ITC Round 1
ITC Round 2
Deregulated
Regulated
Number of units
0
100
200
300
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Scheduled completion year


Total number of proposed projects wind
Loan grant + ITC
ITC Round 1
ITC Round 2
Deregulated
Regulated
Number of units
0
20
40
60
80
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Scheduled completion year